

Susan Kinnear · Kate Charters  
Peter Vitartas *Editors*

# Regional Advantage and Innovation

Achieving Australia's National Outcomes



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*Editors*

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# Foreword

The history of Australia can be read as a history of a dialogue between its ‘centre’ and its ‘periphery’: a dialogue symbolised by the continuing imbalance between population density and productivity, as, despite 80 % of our population still living less than 50 km from the coast, it is the wealth from a productive rural and regional Australia that underpins our national quality of life and well-being.

This collected edition, drawing as it does from both academic and practice fields, is a timely contribution to the current important conversation about the place in the national future of Australian ‘regions’. As the authors highlight, the term itself has multiple meanings, but in our national context, it usually implies ‘anywhere other than the capital cities’. These are historically, culturally and politically important landscapes and in this, the second decade of the twenty-first century, as we begin to ‘disappear’ the tyranny of distance through new technologies, regions have again emerged as being understood to be critical to the nation’s future prosperity.

Drawing on a breadth of national and international literature, and through case studies, the authors put the proposition that it is through innovation, which they argue, is ‘everyone’s business’, that determining and nurturing regional advantage lies. They also put the strong case that the current opportunity of increased political regional advantage should be leveraged now to ensure that the balance of investment between regions is maintained, that rigorous tools for enabling evidence-based policy be developed and that ‘collaboration, coordination, cooperation and leadership be fostered and championed’ for future sustainability.

The crucial link between people, their communities and the regions in which they live, forms an important theme to the book. The arrival of newcomers, bringing with them energy, enthusiasm and a desire for social investment, gives regions their ‘engine’ for change. Some of the case studies highlight how important the connections between long-term residents and newcomers are to enabling creativity and innovation, but also to longer-term cultural and social capital building.

For regions to be able to realise their full potential, partnerships across sectors are vital and this is where the Rural Industries Research and Development Corporation plays its part in supporting government and industry partnerships in innovation, specifically through cross-sector initiatives, such as resource and labour

competition, transport, infrastructure and regional community transformation. For example Chap. 14 details the results from one such commission on the introduction of broadband to regional Tasmania.

This book raises many important issues for future discussion, as well as offering interesting and relevant case studies as examples of practice. I am certain it will prove a valuable and useful addition to policy makers, practitioners, academics and community members, and I commend it to everyone who is interested and involved in the future of rural and regional Australia.



Professor Daniela Stehlik,  
Chair, Rural Industries Research and Development Corporation

# Acknowledgements

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We thank Roy Morgan Research Australia (Howard Seccombe, Anne Ballagny), who generously gave their time and organisational resources to conduct the survey of regional small business, as described in Chap. 19.

Finally, we would like to acknowledge the organizing committee of SEGRA (Sustainable Economic Growth for Regional Australia) and its conference participants, who have contributed to and developed the debate of regions and communities over the past 15 years.





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# Abbreviations

ABS	Australian Bureau of Statistics
ACRE	Australian Centre for Renewable Energy
ACT	Australian Capital Territory
AIC	Australian Institute for Commercialisation
ALGA	Australian Local Government Association
ASI	Australian Solar Institute
BO	Business Operator(s)
CaLD	Culturally and Linguistically Diverse
CCS	Carbon Capture and Storage
CEF	Community Engagement Framework
CEO	Chief Executive Officer
CIE	Clean Energy Initiative
COAG	Council of Australian Governments
CoC	Council on Competitiveness
CoEs	Centre(s) of Excellence
CQ	Central Queensland
CRC	Cooperative Research Centres
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCCEE	Department of Climate Change and Energy Efficiency
DIISR	Department of Innovation, Industry, Science and Research
DORA	Department of Regional Australia
EIA	Environmental Impact Assessment
EU	European Union
EURADA	The European Association of Regional Development Agencies
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GSDC	Great Southern Development Commission
HOMER	Hybrid Optimization Model for Electric Renewables
IGR	Intergenerational Report
IP	Intellectual Property

IRA	Innovation for Regional Advantage
ISAA	Independent Scholars Association of Australia
ISR D	Innovation (Innovative) Sustainable Regional Development
IT	Information Technology
IWCM	Integrated Water Cycle Management
KPI	Key Performance Indicator
LDMG	Local Disaster Management Group
LGA's	Local Government Authority(ies)
LNG	Liquefied Natural Gas
m	meter(s)
MRET	Mandatory Renewable Energy Target
MW	Megawatt
NEPMs	National Environment Protection Measures
NBN	National Broadband Network
NIS	National Innovation System
NGOs	Non-government Organisations
NR	New Regionalism
NSW	New South Wales
OECD	Organisation for Economic Cooperation and Development
OESR	Office of Economic and Statistical Research
OBN	Outback Business Network
PV	Photovoltaic (solar cells)
QLD	Queensland
R&D	Research and Development
RDA	Regional Development Australia
RDC	Research and Development Corporations
RDPM	Regional Development Platform Method(s)
RE	Renewable Energy
REDOs	Regional Economic Development Organisations
REFF	Renewable Energy Future Fund
RIRDC	Rural Industry Research and Development Corporation
RIS	Regional Innovation System(s)
SEGRA	Sustainable Economic Growth for Regional Australia
SEQ	South East Queensland
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities
SD	Sustainable Development
SME	Small- to Medium-sized Enterprise
YACA	Yamatji Aboriginal Contractors Association

# Scope, Structure and Chapter Synopses

This book is aimed at a global audience, including students as well as ‘pracademics’ – those professionals working at the interface between academia and regional development practice. For ease of readership and access, the text is arranged into four parts. Firstly, in Chap. 1, an introductory piece is provided from the editorial team, exploring the core issues of regional advantage, innovation, and policy delivery for and by regions.

The second part (Chaps. 2, 3, 4, 5, 6 and 7) presents five pieces of commentary and analysis on the ‘landscape’ and policy context in which the regional development and innovation agendas operate in Australia.

In Chap. 2, Kilian Perrem introduces the innovation landscape in Australia, with a view to exploring how innovation policy and intervention can boost regional development. The exposition includes notes on the contribution of regions to the national innovation system, the barriers to innovation from a regional perspective, the evidence for past government investment in both innovation and regional development and the key elements that ought to be considered by policy makers in developing new initiatives for regional innovation.

In Chap. 3, Jamie Quinn and Sonia Kirby describe the policy challenge of delivering a ‘Sustainable Australia’. This contribution explores the breadth of challenges facing the sustainable development of the Australian continent and illustrates the critical need for regions to be the platform from which an integrated top-down bottom-up approach can be delivered. In tackling this, the authors propose a ‘Local Sustainable Development System’ to provide the evidence-base for innovative community and regional planning solutions.

Tony McCall explores competitive, comparative and constructed advantage in Chap. 4. He investigates the progress of international regional development policy over recent decades, journeying through new regionalism, regional innovation systems and constructed advantage. In doing so, Tony arrives at an emerging perspective – the use of regional development platform methods to promote and enhance collaboration for innovation.

The themes of innovation, regional advantage and sustainability are blended together in Chap. 5. Here, Susan Kinnear and Ian Ogden consider the synergies



between innovation, sustainability and regional development, and how better policy integration across these themes could offer both regional and national-level benefits. They propose a ‘regional collaborative’ mechanism that could be used to assist with policy integration, by enabling regional small business and industry to have a much deeper involvement in sustainable regional development driven by innovation.

Rowan Gilmore continues on from this theme in Chap. 6, where he writes about the context for small business innovation in regional Australia. Based on his perspective of being a past CEO of the Australian Institute of Commercialisation, Rowan explores the ‘hunger’ for innovation, illustrating that regional Australia is well placed to deliver on innovation outcomes, given their need for better productivity and competitiveness.

Finally, in Chap. 7, Geoff Edwards argues that the mainstream economic framework in which regional policy is crafted – economic rationalism – is not conducive to regional economic prosperity. He differentiates economic growth from sustainable prosperity and illustrates that innovation will be essential in delivering re-localisation. The chapter challenges scholars and practitioners to develop a new model through which regional development can be pursued at the national level.

These commentary-based contributions are then accompanied by a suite of case studies, presented together in part three. These praxis notes are varied, addressing socio-cultural initiatives, technological advances, business and economics, land and environment issues and alternative regional governance models. The material typically reflects on innovative regional initiatives occurring throughout Australia, but several international case study examples are also used to demonstrate the application of regional advantage and innovation in a wider context.

This series of case studies provides recent and tangible examples of the way(s) in which regional areas are applying innovation to realise their full potential. They also demonstrate that, although there is already a significant amount of innovation occurring in regional Australia, this might be accelerated by further support, thus allowing regions to truly exploit the regional advantage:

Chapter 8 is an exploration of the vital importance of human interactions in driving regional innovation for sustainable development. Here, Ian Ogden explores the tensions faced by resource-rich regions undergoing rapid industry development; and presents a case study of the Central Queensland Innovation Accord, which brought together the key regional leadership under a common commitment to regional innovation.

In Chap. 9, Martin Hawson describes the innovative approach taken by the city of Mildura to best realise its regional (rural) advantage. This involves an evidence-based social planning framework led by local government, with the objective of enabling Mildura to serve Australia as the nation’s most liveable and people-friendly community.

‘Evocities’ are the focus of Chap. 10, where Shane Manley describes the collaborative effort undertaken by seven local governments to draw population away from congested capital cities and into their regional communities. The unique

and innovative Evocities campaign seeks to redefine how Australians view and choose regional Australia: not as backward areas bereft of economic progress, but instead innovative, vibrant areas with employment opportunities and an enjoyable lifestyle complete with social and cultural infrastructure.

In Chap. 11, Simon Lyas and his colleagues share their experiences in the Shire of Katanning, a region that has purposefully developed a cultural and linguistically diverse (CaLD) community. Here, Katanning has lured skilled migrants to the region through novel practices in community development and skilled migrant intervention programs. This innovation has been critical in not only securing the long-term productivity of the region's largest employer, but also in leading to the recognition of Katanning as being a key destination to tackle ongoing national population growth.

Chapter 12 serves to illustrate that the 'innovation for regional advantage' paradigm is applicable not only in the Australian context, but also in wider global applications. Here, Garri Raagmaa and his colleagues describe the unique case of turning 'Seto' cultural uniqueness – once considered a disadvantage – into a resource base. The result has been growth in innovative enterprises and strengthened regional economic development, based on creative class tourism and hospitality industries.

In Chap. 13, the regional advantage in responding to extreme weather events is explored through the eyes of (then) Mayor Brad Carter, who acted as the chair of the Local Disaster Management Group during the period of extreme flooding experienced in the Rockhampton Region during 2010/2011. This contribution highlights the ability of regional areas to collaborate well in mounting community-level responses, as well as the need for regional economies to be innovative to ensure they remain viable and productive despite the vagaries of climate change.

Brian Ramsay explores the implications of the National Broadband Network for regional Australia in Chap. 14. He distils some of the key challenges and opportunities for regional SMEs in responding to the paradigm-change that the NBN rollout will bring about and outlines the key elements of a strategic response in leveraging the NBN for regional value as well as national outcomes.

In Chap. 15, Amanullah Maung Than Oo and his colleagues explore the enormous potential for regional Australia to respond to the national challenges of energy security, the transition to a low-carbon economy and to environmental concerns, through renewable energy installations. The authors present an innovative, hybrid model that could combine wind and solar technologies for multiple benefits, both nationally and regionally.

Peter Vitartas and his colleagues explore the contribution that new business operators make to regional innovation systems in Chap. 16. The chapter highlights that enterprises established by in-migrants (a special class of skilled mobile workers) are able to assist with outcomes in the usual areas of employment and productivity. However, they are also responsible for importing new knowledge and perspectives into the region, and for taking on higher-risk ventures, thus helping to boost the innovative capacity of their destination regions.

In Chap. 17, John Grace describes the Illawarra region and its urgent need for innovation brought about by changes in its traditional industry base (steel manufacturing and coal mining). Here, the ‘economic gardening’ approach has proved invaluable in innovating to create a new competitive advantage – helping SMEs to broaden their horizons and develop an economy beyond that of a ‘company town’.

In Chap. 18, Mike Crowe and Brian Webber illustrate how “Outback Business Networks” contribute to innovative regional development in desert Australia, and how these compare with international best-practice in SME clustering. The OBN are facilitated by Desert Knowledge Australia, in order to foster collaboration and the ability to trade on a new resource – that of ‘desert knowledge’ – for better harmony, sustainability and wealth in (and from) the desert.

Chapter 19 presents the results of a innovation survey undertaken with almost 800 participants from regional Australia, during 2011. The survey explores the understanding and attitudes towards innovation in regional Australia, as well as the barriers and support systems that need to be addressed to help maximise the innovation potential of Australia’s regions.

In Chap. 20, Claire Penniceard reflects on her experiences in the agricultural sector, and argues that the drivers for innovation in agriculture are strong, particularly in the context of delivering domestic and global food security. Claire illustrates that agricultural innovation in regional Australia is now needed in terms of practice change, but also with respect to shifts in policy and planning.

Chapter 21 explores the regional advantage to be gained by moving towards the delivery of decentralised water services through innovative technologies, as well as innovative ownership and governance arrangements. The chapter emphasises the importance of supportive policy and legislative frameworks in encouraging regional innovation for water security, sustainability and climate change adaptation.

Finally, part four (Chap. 22) provides a reflective and analytical commentary, designed to trigger further thinking about future opportunities to apply and advance the innovation capacity of regional Australia. This part describes ‘innovation for regional advantage’ as a new construct for regional development, designed to allow regional areas to recapture and retain their value, whilst also contributing to national objectives in policy, research and innovation.

The thematic areas that appear within this book are of a broad and global interest, across topics such as adapting to climate change, providing liveability for growing and aging populations and navigating the challenges of food, water and energy security into the future. For the benefit of the reader, emphasis boxes are used throughout the chapters to draw out key concepts and ideas.

## About the Editors

**Dr Susan Kinnear** is currently a senior research officer at CQUniversity Australia, where she leads a programme in sustainable regional development. Prior to this, Susan gained several years' experience working on diverse and multidisciplinary projects for the CQU Institute for Sustainable Regional Development, including those on weeds, climate change and the challenges of cyclical regional growth in the Bowen Basin. She holds a Ph.D. in the experimental environmental sciences (aquatic toxicology) and has undertaken a range of duties in postgraduate course writing, research student supervision and tertiary teaching. In 2007, Susan was named the Queensland Young Achiever of the Year (Environment). Her professional interests are diverse and include regional innovation systems; the interface between regional universities, business and industry; social networks; climate change and carbon; and the dynamics of resource use and re-use (water, energy and waste) as they each connect with sustainable regional development issues.

**Kate Charters** is a director of Management Solutions (QLD) Pty Ltd, a professional development and training company with particular interest in regional and rural issues at public policy and service delivery levels. Kate has worked at senior levels in government in policy and management and conducted a number of organisational and service reviews across a range of agencies including community groups, peak bodies, and government and tertiary institutions. Kate's interests are particularly in maintaining program and service integrity in the transition from policy to implementation and creating environments which optimise organisation's abilities to be creative and motivated to set and achieve their goals. Kate chairs the National Steering Committee for Sustainable Economic Growth for Regional Australia (SEGRA) conference. SEGRA is Australia's premier regional conference and is recognised as Australia's most credible independent voice on issues affecting regional Australia.

**Dr Peter Vitartas** is the Deputy Head (Teaching and Learning) of the Business School at Southern Cross University (SCU). He lectures in the marketing discipline and has research interests in regional economic and social development, social marketing, consumer behaviour and technology for education. Peter has taught

across a wide range of marketing programmes and has been a visiting professor at the University of Lethbridge in Alberta, Canada. In 2009, he was awarded a Vice Chancellors citation for sustained innovative approaches to teaching and curriculum design and he has received a best paper award at a national conference. Peter has a strong interest in issues relating to regions and the development of research in this area. He has been involved in a number of research projects looking at social and economic development. He has also been a strong support of SEGRA and facilitated a number of Research Collaboration workshops to encourage new researchers in the area. Prior to joining the University, Peter worked in Sydney and London in a number of marketing management positions for local and international companies. He has extensive experience in market research and he has been actively involved in research consultancies for both local and national organisations. Peter is on the editorial advisory board of the Australasian Journal of Business and Social Enquiry. He is also president of the Northern Rivers Business Enterprise Centre and serves on the Queensland branch committee for the Australian Market and Social Research Society.

# About the Authors

**Dr. Salahuddin Azad** is a postdoctoral research fellow with Power Engineering Research Group at CQUniversity Australia. His major research interests are in the fields of renewable energy, smart grid, image processing, machine learning, data mining, control systems and robotics. He has more than 11 publications in renowned internal conferences and journals.

**Carl Beck** commenced his current position as the director of community services with the Shire of Katanning in December 2005 after over 20 years working with the Department of Conservation and Land Management largely in the recreation and park management fields. Carl was the Parks and Visitor Services Coordinator for the Shark Bay World Heritage area for 3 years where his position included the challenge of managing the Monkey Mia Visitor Centre and the dolphin interaction experience. In his current role, Carl manages the Shires Library, Gallery, Leisure Centre, Aquatic Centre, Youth, Seniors and Cultural Inclusion programs. Carl is also responsible for the placement and management of Work for the Dole participants and Structured Work Place Learning students, many of who come from diverse backgrounds. In a community capacity, Carl has been heavily involved in sport and recreation for many years including being on the Management Committee for the Walpole Recreation Centre and the president of many clubs. Carl's strong interest in soccer and many other sports has resulted in him having many friendships with recently arrived migrants who have assisted him in understanding their needs and facilitating the development and implementation of many programs for the CaLD community.

**Cr Debbie Blumel** was elected in March 2008 to the Sunshine Coast Regional Council. Cr Blumel holds the Major Projects Portfolio which includes the Airport Master Plan, the Sunshine Coast Arts and Exhibition Centre and 40 other major infrastructure projects. Cr Blumel is the chair of Regional Development Australia Sunshine Coast and also represents Queensland local governments on the National Sea Change Taskforce Executive. Cr Blumel is also a member of the Council of Mayors' Infrastructure Committee and the Council of Mayors' Carbon Sink Taskforce. Prior to her election, Cr Blumel worked as a health professional, advisor

to the Chief Health Officer, manager of the Population Health Planning Unit, and strategic research and development advisor. She has four university degrees and a strong background as a community campaigner and in promoting regional development.

**Brad Carter** was elected the first Mayor of Rockhampton Regional Council on March 15, 2008, as an independent candidate. Elected on a platform of managing the economic growth of the Rockhampton Region, Cr Carter believes it to be the most liveable region in Australia. Married to Gail, with three children and four grandchildren, Cr Carter has lived in the Rockhampton region for 17 years. Cr Carter's personal vision for the Rockhampton Region is that it will be a community with growth, lifestyle and an environment that is the envy of the rest of Australia. With an extensive knowledge and experience in economic, business and regional development in regional Queensland, Cr Carter (prior to being elected Mayor of Rockhampton Regional Council) was a senior executive and director of the Department of Tourism, Regional Development and Industry.

**Mike Crowe** joined Desert Knowledge Australia in Alice Springs in Australia's Northern Territory in July 2000. As a networking and communications manager, he plays a key role in the development of business and knowledge networks for an organisation that is linking the people and businesses of inland Australia to national and world markets. His major current undertaking is the development of cross borders business networks project linking nine desert Australian regions and building upon the Linked Business Networks Pilot Project and the *Our Outback Tourism* report. Mike was a finalist in the 2006 Northern Territory Innovation Award. He has extensive senior management experience across a range of organisations including:

- Commercial manager for the internationally recognised Alice Springs Desert Park
- Regional manager for the Northern Territory Department of Sport and Recreation
- Regional manager and deputy director for the Northern Territory
- Open College which provided training to people in remote Northern Territory communities

Mike has been based in Alice Springs since 1991. Prior to that he worked in Alaska, as a trekking leader for Raleigh International, and in Darwin, as the executive officer of the Duke of Edinburgh's Award Youth Program and as a high-school mathematics and economics teacher. Mike has a master's degree in international management from Charles Darwin University as well as a bachelor of arts (mathematics and physics) and diploma in education from Macquarie University.

**Dr. Geoff Edwards** is qualified in ecological science and public administration. From 1991–2006, he was manager of Land and Regional Planning in Queensland's Department of Lands/Natural Resources. From January 2007 to June 2008, he was chief executive officer of South West NRM Ltd, based in Charleville, Queensland. In 2008, Geoff was awarded his Ph.D. in public policy for an analysis of the concept

of the 'public interest'. His contribution is written in his capacity as an adjunct research fellow at Griffith University's Centre for Governance and Public Policy.

**Dr. Rowan Gilmore**, FTSE, is currently managing director of EM Solutions Pty Ltd, an Australian-owned designer and manufacturer of advanced microwave hardware for telecommunications networks. Previously, he was CEO of the Australian Institute for Commercialisation until June 2011. During his 8-year tenure at the AIC, the first TechFast and TechClinic programmes that introduced demand-pull methodologies into the commercialisation of research were delivered. Prior to this role, he worked extensively in the ICT industry, and was formerly based in London and Geneva from 1998 as vice president of Network Services (Europe) for the airline IT company SITA, now France Telecom's Orange subsidiary.

**John Grace** is the Enterprise Connect Innovative Regions Facilitator for the for the Illawarra and Shoalhaven regions in NSW. For 6½ years prior to joining Enterprise Connect, John was CEO of Regional Development Australia, Illawarra and the Illawarra Area Consultative Committee. Here, John championed the development of growth strategies for small and medium enterprises in the Illawarra region, particularly through the local development and use of 'Economic Gardening'. John has acquired substantial skills in engaging regional business communities and building networks to help bring about positive change. During 2009, he designed, planned and implemented a major regional development consultation and planning project; the 'State of the Illawarra' initiative. Throughout his career, John has chosen to work in regional areas of NSW, developing knowledge about the needs of regional communities, and the techniques needed to create economic growth and sustainable jobs. Many of these years were spent managing employment and training services, as well as running his own small businesses. John has undertaken a post graduate study in sustainable economic development.

**Martin Hawson** is the general manager, Community, Mildura Rural City Council.

Martin has extensive experience in the education and health sectors and is now in local government with responsibility for Community Futures, Community Care Services and Leisure and Cultural Services within the Mildura Municipality. During his career, Martin's integrated approach to addressing disadvantage in communities has been a major focus. This has led to the development of models which aim to address the underlying causes of disadvantage rather than the symptoms. Through community planning and community engagement, the cross-sector linkages and models have emerged as practical solutions to overcoming disadvantage in communities. The realisation of these models in a practical sense to deliver outcomes and make a difference is emerging as the key challenge communities are facing. Martin holds a master's in health administration, graduate diploma in health science and a diploma in education.

**Peter Henderson** has more than 30 years experience working in the media, corporate and government communications and community relations and consultation. This interest in the community associations with the development and implementation of major social change led to further study in the area of community



consultation with environmental operations of key community infrastructure projects and programmes. Peter has provided media advice, prepared and edited publications and provided an operational structure to a raft of major projects of the EIS community consultation and environmental requirements. This included major national highway projects and road safety initiatives. Peter has extensive experience in corporate public relations and he successfully orchestrated the public relations campaign for the first major Australian solar-powered generating facility situated in the Torres Strait. He also worked with the “Life, Be In It” public motivation programme and contributed to the journal *21c*. Gaining a BA in communication studies from Murdoch University (W.A.), Peter specialised in mass media and Community Information Campaigns. This included the use of learning videos as a key component in distance education with the W.A. Education Department. Initially trained as a journalist in the UK, he has worked on newspapers around the world. Peter has both studied and provided training workshops in presentation techniques, media awareness, and conflict resolution and negotiation skills. He is also a Certificate 4 Workplace Trainer and Assessor in Occupational Literacy and Numeracy.

**Sonia Kirby** is director, Planning – Urbis, and is a specialist in strategic planning and project facilitation. Sonia has gained significant knowledge and experience in planning and design from her work in both private and public sectors, in Queensland, Victoria, and overseas. Sonia’s efforts over 12 years have included the preparation of planning policy, strategic advice and review of structure plans and master plans, community planning, and public consultation. Sonia is also on the PIA National Board, teaches at the planning school at Griffith University, and is involved in numerous professional association activities for events and training throughout Queensland. Sonia has specific expertise in leading multi-disciplinary teams to devise effective planning and policy solutions for large-scale projects across residential, industrial and commercial sectors. Sonia’s breadth of experience in both the private sector and government serves her well in negotiating creative policy and planning solutions for challenging projects. Sonia has particular interest and expertise in structure and infrastructure planning, incorporating design solutions into planning challenges, and facilitating community discussions about strategic issues such as population growth, greenfield development, and environmental sustainability.

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- Intergovernmental relations
- Environmental research (physical, biological, social, economic and cultural); public and environmental health
- Natural resource and environmental management

Peter's formal professional qualifications are in geography, social science, urban planning and environmental management. Commencing work as an environmental planning consultant in 1970, Peter has carried out a large number of land use planning and environmental impact and risk assessments in all Australian states and territories as well as overseas. Through this work, Peter has become an acknowledged leader in developing integrated and holistic approaches to the environmental management of natural systems, industrial facilities and built infrastructure with a geographic focus on the coastal zone.

**Part I**  
**Regions, Regional Advantage and**  
**Innovation**

# Chapter 1

## An Introduction

Susan Kinnear, Kate Charters, and Peter Vitartas

**Abstract** This chapter describes the key definitions and concepts that are necessary to underpin conversations and debate about innovation, regional development and regional advantage. The chapter also introduces the concept of ‘innovation for regional advantage’: a new approach for regional Australia to leverage its strengths for the national good, whilst retaining regional value in a truly ‘sustainable’ sense.

### 1.1 What is a ‘Region’?

Although words such as regions, regionalism, regional development and regionalisation are widely used, it is surprisingly difficult to arrive at a succinct definition of what it means to be ‘regional’. Much of this confusion arises because terms involving ‘regions’ are applied to many different contexts—political, administrative, settlement patterns, ownership, relational interactions, biodiversity, economic, social and almost limitless other angles.

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It is surprisingly difficult to arrive at a succinct definition of what it means to be 'regional'.

In its simplest sense, the concept of a 'region' is used to identify and organize an area. As noted by the National Geographic Society (2008), such delineation often occurs 'based on the presence or absence of selected physical and human characteristics. As a result, regions are human constructs whose boundaries and characteristics are derived from sets of specific criteria'. Furthermore, 'they can vary in scale from local to global; overlap or be mutually exclusive; exhaustively partition the entire world or capture only selected portions of it. They can nest within one another, forming a multilevel mosaic. . .their criteria can be spatially precise or amorphous' (National Geographic Society 2008, unpaginated).

The regional label is now used at many scales, from supra-national (e.g. the 'Asia-Pacific'), to national (e.g. the Finnish region of Europe), and even smaller scales (e.g. 'the Hunter Valley of Australia'). From a geographical perspective, regions can be labelled to reflect a unit of land area, settlement patterns, and/or their proximity to other population centres. For example, the Australian Standard Geographical Classification 'remoteness area' classification allocates one of five categories, according to access to services: major city, inner regional, outer regional, remote and very remote. However, from date of release of the 2011 Australian Census data, these classifications will be replaced with the more comprehensive Australian Statistical Geography Standard, which reflects census collection and other administrative boundaries; as well as incorporating tourism regions, Indigenous locations and other entities.

The margins of biological systems (e.g. the 'Lake Eyre region') or areas of significant natural assets (e.g. the Great Barrier Reef) are also commonly used to mark regional boundaries, particularly in the case of administrating natural resource management issues. However, this is often at odds with other power bases: for example, the Murray Darling River System takes in one sixth of the Australian land mass, but traverses four states and multiple local government areas. Clearly, planning for optimum use and sustainability of such broad 'regions' must consider a broad range of stakeholder and user objectives. Climatic and landform categories are also other examples of biophysical categories that may be used to define a region.

In economic paradigms, regional centres can be identified and explored through their economic base and/or functionality (e.g. a service hub or manufacturing region). Oftentimes, this reflects the key industry base, irrespective of population size.

In the social sense, many subjective definitions of 'regions' are apparent, ranging from loose cultural identity or 'communities of interests' with shared values; through to militant secessionist identities. Furthermore, acknowledging cultural groupings are particularly important in Australia, as Indigenous Australians own,



control, or have management arrangements over approximately 20 % of the continent—a figure that can be expected to increase through native title determinations (Desert Knowledge Australia 2008).

Finally, regional boundaries can be drawn for the purposes of political or other administrative entities. Inevitably, this requires a consideration of (and compromise between) competing economic, social or environmental contexts. Essentially, this ‘spatially-derived regionalism’ is applied for the purpose of planning, administering, and funding services. Furthermore, in Australia, regionalism is very different compared with countries that operate on a centralist government hierarchy. The Australian Constitution recognises ‘regions’ of the federation as ‘the six states, being the former British colonies as they stood in 1900’. Accordingly, Australia’s federation is actually based on the prescribed powers that sit with the six states (and later, two more territories), as transferred from the Commonwealth. However, further administrative complexity has been added with the introduction of local government areas: this third tier is crucial in providing for locally-administered regions. However, the three tiers of government each necessitate their own layers of legislation, regulation and resourcing. The outcome of this is multiple, overlapping administrative boundaries and arrangements to meet particular public policy agendas; and a scenario that often results in a local-state-federal interface that is clouded by conflict and competition, rather than an environment of co-operation and opportunism (Davis et al. 1993, p. 23). The ability to navigate and synergise all tiers of government, and to demonstrate a value proposition to each, is therefore a critical capability for regions looking to advance their lot in Australia.

The ability to navigate and synergise all tiers of government, and to demonstrate a value proposition to each, is therefore a critical capability for regions looking to advance their lot in Australia.

In identifying and describing ‘regional Australia’, it is thus necessary to acknowledge a diverse array of economic bases, socio-demographic groupings (including cultural considerations), environmental systems, and politico-administrative needs across the country. Consider, for example, that Australia currently hosts:

- 55 Regional Development Australia boards;
- 56 regional Natural Resource Management bodies;
- A number of national tourism groups;
- 20 Indigenous regions (Indigenous Coordination Centres) plus the Torres Strait Regional Authority and 6 Regional Operations Centres;
- 37 National Business Associations (comprising the Australian Chamber of Commerce and Industry); and
- 560 Local Government Authorities.

The continent also has:

- 14 % of the national population living outside urban areas;
- 18 urban centres having populations exceeding 100,000; and
- 86 % of the national land area defined as remote (Glover and Tennant 2003).

For Australia, a useful definition of being ‘regional’ must therefore acknowledge a set of complex, inter-related systems exists—with juxtapose of economic, social, cultural, environmental and governance functions, uses and relationships. Consequently, applying specific and rigid regional boundaries based on only one or two principles is likely to result in mapping that is artificial.

Instead, for the purposes of this book, regional Australia has been recognised as a collection of land areas around non-capital human settlements; with common features, cohesive functions and/or shared purpose. The boundaries of regions require subjective and fluid interpretation according to economic, socio-cultural, environmental or governance contexts. Importantly, a region can be each of these in either perception or actuality; and particular places may be transferred in and out of the ‘regional’ subset as their dynamics change.

A definition for regional Australia requires a subjective and fluid interpretation: a collection of areas surrounding non-capital settlements; with common features, cohesive functions and/or shared purpose ... and variable boundaries according to context.

## 1.2 The Rise of Regional Development: The Australian Context

The origins and evolution of regional development (as a practice) and regional science (as a discipline) are both complex and nuanced; this is true in both the Australian and international context. It is not within the scope of this introductory chapter to concentrate on any detailed analysis of that journey; instead, many of the chapters that follow in this book provide comments on regional development as a practice as well as a policy area. However, it is useful to note two particularly significant turning points in the journey of regions to prominence in Australia.

Firstly, in 1993, the Hilmer Report (Commonwealth of Australia 1993) heralded a crucial change in terms of the political and economic position of regional Australia. Nation competition policy and related reforms resulted in a significant political shift to ‘user pays’ and ‘self-help’ as part of a new wave of neoliberalism. The Hilmer Report made recommendations in six policy areas:

- Extension of the reach of the *Trade Practices Act* 1974 to unincorporated businesses and state and territory government businesses;
- Extension of prices surveillance to state and territory businesses to deal with circumstances where other competition policy reforms had proven inadequate;

- Application of competitive neutrality principles so government businesses do not enjoy a competitive advantage over their private sector competitors simply as a result of public sector ownership;
- Restructuring of public sector monopoly businesses;
- Review of all legislation that restricts competition; and
- Provision for third party access to nationally significant infrastructure.

This new position and its associated decision-making radically changed the previous ideologies of decentralization and state-assisted economic growth; it also impacted on the way in which service delivery to rural and regional communities was framed (as witnessed by the rise of political independents and the One Nation Party). In turn, this led to a series of public inquiries conducted by the Productivity Commission (1999) into the *Impact of Competition Policy Reforms on Rural and Regional Australia*.<sup>1</sup>

It was not until the 2010 Federal election that the ‘place’ of regions was again given prominence in Australia, with the signing of The Labour Party and the Independent Members Agreement occurring, prior to forming government.<sup>2</sup> Annex B of the agreement—the ‘Commitment to Regional Australia’—set out a pledge to improve policy-making and deliver key initiatives to improve outcomes for regional Australians now and into the future. This included consideration of vital investments in regional services and infrastructure; a commitment to ‘place-based thinking’ and ‘localism’; as well as fresh look at governance and transparency reform to ensure that regional Australia receives a fair hearing and a fair return from its national government. The agreement also carried regional commitments in infrastructure, telecommunications, local government, agriculture, water, health and education, amongst other things.

In 2010, the ‘Commitment to Regional Australia’ set out a pledge to improve policy-making and deliver key initiatives to improve outcomes for regional Australians now and into the future.

A consequence of this Commitment was the creation of then Department of Regional Australia, Regional Development and Local Government (DoRA) in September 2010. As part of these arrangements, Australia now hosts 55 Regional Development Australia (RDA) committees, which function in partnership-building between governments, regional development organisations, local businesses, community groups and key regional stakeholders. The objective of RDA committees

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<sup>1</sup> The inquiry report, its submissions, and a related information is available from <http://www.pc.gov.au/projects/inquiry/compol>

<sup>2</sup> The Australian Labour Party and the Independent Member’s agreement, [http://www.minister.regional.gov.au/files/Regional\\_Agreement.pdf](http://www.minister.regional.gov.au/files/Regional_Agreement.pdf)

is to help in provide strategic and targeted responses to the social, economic and environmental issues affecting regional Australia.<sup>3</sup>

Specifically, the current approach for DoRA is to:

- Increase productivity, economic development and diversification in regional Australia;
- Support leadership and representation in local communities;
- Improve service delivery in regional Australia;
- Improve outcomes from the Commonwealth's investment in regional Australia; and
- Improve the coordination of functions across government and different tiers of government.<sup>4</sup>

### 1.3 Regional Advantage

Whilst regions might have a **predisposition** towards a particular development pathway, they are not **predestined** to follow that route—the preferred development must be nurtured to make best use of the 'regional advantage'.

Chapter 4 of this volume, by Tony McCall, explores in detail the theory of regional advantage, including the differentiation across the comparative, competitive and constructed elements. Rather than pre-empting this work, at this point, it is worth simply introducing the concept for the benefit of readers who are unfamiliar with the regional advantage literature.

David Adams, in his address to the 2011 SEGRA national conference,<sup>5</sup> summarised 'regional advantage' as the way in which we 'understand and shape the dynamics between economic, social, human and natural capital at a spatial level'. In essence, regional advantage deals with the notion that regions are predisposed to particular types of economic and social development, shaped by a combination of their natural assets, geographical location (including connectiveness to other regions), and their population size and capacity. However, whilst regions might

<sup>3</sup> Regional Development Australia 2011, 'About Regional Development Australia' <http://www.rda.gov.au/about/index.aspx>

<sup>4</sup> Department of Regional Australia, Regional Development and Local Government, 2011, submission to the House of Representatives Standing Committee on Infrastructure and Communications' Inquiry into the role and potential of the National Broadband Network, February 2011, 15 pages, available online at <http://www.aph.gov.au/house/committee/ic/NBN/subs/Sub169.pdf>

<sup>5</sup> Professor David Adams, *Keynote address—constructing regional advantage*, Fifteenth National Conference of SEGRA, Geelong, October 28, 2011.

have a *predisposition* towards a particular development pathway, they are not *predestined* to follow that route—rather, the preferred development must be nurtured, for example, through appropriate governance.

In particular, contemporary regions that seek to develop a preferred future must be agile; able to respond to the ongoing changes of globalization. Innovation is therefore an important element of determining and nurturing regional advantage.

## 1.4 Innovation

According to the Oxford dictionary, to ‘innovate’ means to ‘make change in something established, especially by introducing new methods or ideas’.<sup>6</sup> Innovation often suffers from connotations of significant and substantial positive change; so it is important to acknowledge that ‘innovation’ is equally valid as a description of slower, incremental change. Perhaps most critically, though, an appropriate definition of innovation must include not only success, but also failures—as innovation itself is a risk-laden practice with the objective of trialling new products, processes, services, technologies or ideas.

According to the OECD (1997, p. 10), a ‘national system of innovation’ has been defined as:

...the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies (Freeman 1987).

... the elements and relationships which interact in the production, diffusion and use of new and economically useful, knowledge... and are either located within or rooted inside the borders of a nation state (Lundvall 1992).

... a set of institutions whose interactions determine the innovative performance ... of national firms (Nelson 1993).

... the national institutions, their incentive structures and their competencies that determine the rate and direction of technological learning (or the volume and composition of change generating activities in a country (Patel and Pavitt 1994).

... the set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies (Metcalf 1995).

<sup>6</sup> Oxford online dictionary; <http://oxforddictionaries.com/definition/innovate?q=innovate>

Innovation is now recognised as inextricably associated with economic growth, as well as a problem-solving tool for economic, social and environmental issues. According to the Productivity Commission (2010, p. 30), innovation outcomes can relate to measures of:

- Increases in per capita income and consumption;
- Boosts to industry, productivity and/or markets;
- Improvements in health and other social measures; and
- Sustained improvements in the quality of the natural and built environments.

Unsurprisingly, innovation is now a national priority for many individual countries, as well at higher levels such as the Organisation for Economic Cooperation and Development (OECD) and European Union. However, the tendency to date has been to focus on the science and technology mode of innovation, which is connected with end points in intellectual property, commercialization (the number of patents), spending on research and development, reduced time-to-market or additional sales.

It is also being increasingly recognised that new global patterns including access to mass communication and e-knowledge provides new opportunities for innovation by doing, using and interacting ('DUI' mode). This is often highly adaptable, quick to respond to change and crises, and more driven by disruption. When thinking about innovation, therefore, we need to recognise the creation of better and more effective ways of doing things, different ways of thinking about how problems are defined and how to approach problem solving. This latter approach is less formal and often more closely linked to organisational innovation, end users and entrepreneurship. Unfortunately, this can—sometimes, but not always—mean long lead times between the implementation of reforms and the realization of benefits.

## 1.5 The Nexus Between Regions and Innovation

### 1.5.1 *Regional Innovation Systems*

Over the past two decades social scientists and policy makers have been paying more and more attention to regions as designated sites of innovation and competitiveness in the globalising economy (Cooke 2006, p. 29).

How and why do regions innovate?

What do regional communities have to offer innovation?

What does innovation have to offer regions?

In regions, innovation can affect efficiency, productivity, market share; competitiveness and quality; durability, service and price; convenience, efficiency, safety, speed and capacity. It can be in effect across many disciplines such as transport, communication, economy, business, design, health, engineering and energy. Some of the less tangible (or less obvious) regional advantages for innovation include the greater permeability of boundaries between internal and external organisational activities, where ideas, people and resources flow in and out of organisations more easily due to multiple roles and longer relationship histories.

Concepts like industrial districts (Becattini et al. 2003; Brusco 1990), clusters (Porter 1990), innovative milieux (Camagni 1995), regional innovation systems (Cooke 2001) and learning regions (Asheim 1996) have stressed the importance of regions as key drivers of innovation. This body of literature claims that knowledge externalities are geographically identifiable but also unbounded, because geographical proximity facilitates local and global knowledge sharing and innovation. Inspired by this literature, and forced by globalization, economic policy makers in many countries have reintroduced a regional dimension to their innovation policy (Fritsch and Stephan 2005; Asheim 2006; Asheim et al. 2009).

The academic literature on these regional innovation systems (RIS) is now large, and it continues to grow: a search on 'regional innovation systems' in SCOPUS now easily returns over 2,000 results. However, most of this is based on the European or Asian perspectives, where the context of a 'region' is quite different from the Australian definition. There is a focus on cluster development and outcomes, planning frameworks, policy intervention, and commentary on technological innovation (especially in the sustainability fields).

Regional innovation systems (RIS) are seen as an increasingly important policy framework for implementing long-term, innovation based regional development strategies (Cooke 2006, p. 13).

Much of the published work is also case-study based, and, whilst this may provide for excellent illustration of the possibilities that RIS might offer to regional development, there are few examples of the concise pathways or processes by which to replicate that success in other regions; and no offerings of models to explain regional dynamics and functioning in the context of innovation and regional development (this gap is examined by Geoff Edwards in Chap. 7 of this volume).

As such, a more comprehensive study of innovation needs to include where and when innovation actually happens; and from there, broaden and deepen our understanding of innovation-based opportunities. As commented by Cooke (2006, p. 16), 'regional innovation systems have played and will continue to play a strategic role in promoting the innovativeness and competitiveness of regions', but such systems must be strengthened by 'directing attention to the broader basis of constructing regional advantage'.

Regions are the real bases in which innovation occurs concretely. . . the regional scale is more tractable for detailed unpicking of the sometime circuitous and unexpected ways it [innovation] occurs (Cooke 2012, pp. 2, 12).

An innovation system or platform must include people, knowledge, technology, infrastructure and culture; the locational advantage; as well as capacities for application. David Adams, in his address to the 2011 SEGRA, noted that platforms for regional advantage could be constructed in the economic, community and governance sectors; and that the conditions for regional advantage included:

- Appropriate regional policy models;
- Platforms the enable innovation, growth and sustainability;
- Opportunities to diversify;
- Collaboration, clustering, and access to science and technology;
- Access to finance;
- Access to high quality knowledge.

It is of particular note that five of the above six conditions are also key components of the national innovation system, as described by the DIISR (2011) and DIISR (2009). It is this nexus between regional advantage and innovation that is the focus of this book.

### ***1.5.2 Innovation in Regions***

Innovation is an intrinsically important part of life and business in regional areas. Without agility and creativity through innovation, how else can regions survive and overcome the problems of low population base, wide geographic areas, distance from markets and other challenges?

Given that innovation often occurs close to the customer, there is particular potential for innovation in regional Australia. Here, in regions, innovation can be driven by both geographical and relationally-driven processes. Regions already have an exceptionally well-developed capacity to respond to their challenges with great resourcefulness: as there are less opportunities to ‘call in experts’, there is greater capacity to anticipate and exploit ‘on-the-ground’ information. The tyranny of distance often means that local reactions are quicker and more effective than others. There are also a range of other drivers and influences on innovation in regions, for example:

- Flatter organisational structures can lead to greater levels of collaboration as a consequence of less specialized job specifications;
- A life style that is less cluttered can allow space for dreaming and creativity;



- Longer time and experience in a workplace can allow for deeper appreciation of challenges and new ways to confront them;
- Having to deal head-on with the uncertainty and changeability of climate opens new opportunities to recognise the synergies with the natural environment;
- Capacity to quickly re-value and re-position assets to maximise and create an additional dynamic value of resources;
- Greater community territorial control and sense of empowerment to act; and
- Greater permeability of boundaries between internal and external organisational activities, ideas, people and resources flow in and out of organisations more easily due to multiple roles and longer histories of relationship.

There are also many other examples of drivers for innovation in regions: many of these are covered by the case studies contained in this book. As David Admans points out, regional areas are places where trust, leadership, liveability, resilience and networking strength can be powerful enablers of innovation.<sup>7</sup>

## 1.6 Innovation for Regional Advantage: A Concept

To coalesce the theories of regional advantage and regional innovation is not necessarily a novel concept. For example, in past discussions, the theory of comparative advantage has ‘been criticised for ignoring the role of technological change and innovation’; this gave rise to the transition to constructed advantage, which uses a regional innovation systems approach (Cooke 2006, p. 16). A report released by European Commission also gives a detailed treatment of ‘constructed regional advantage’, including its intersection with regional innovation systems (Cooke 2006).

In this book, the goal is to use innovation as the key mechanism by which the multiple goals for sustainable regional development can be better understood and achieved—with innovation as the tool by which regional development enablers can be identified, strengthened and supported.

Innovation can provide new value:

- From new connections and relationships—applications of social innovation for liveability;
- From new processes, products and technologies—applications of eco-innovation for environmental outcomes;
- From new business models and practices—creating innovative businesses for enduring economies; and supporting and growing the competitiveness of

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<sup>7</sup> Professor David Admans, *Keynote address—constructing regional advantage*, Fifteenth National Conference of SEGRA, Geelong, October 28, 2011.

regional business and industry through innovative investment and entrepreneurship; and

- From new leadership and governance practices—allowing strong and cohesive strategic planning and direction.

In February 2011, a meeting of the Council of Australian Government (COAG) saw the emergence and adoption of five theme areas of strategic importance to Australia:

- A long-term strategy for economic and social participation;
- A national economy driven by our competitive advantages;
- A more sustainable and liveable Australia;
- Better health services and a more sustainable health system for all Australians; and
- Closing the Gap on Indigenous disadvantage.<sup>8</sup>

Whilst the involvement of regional Australia is embedded in each of these theme areas, this book argues that in achieving this agenda, regional Australia and regional Australians must be included as a deliberate, fundamental and articulated part of any action agenda at practitioner, policy, business and research levels.

Many of the key national challenges—economic change, the ageing of the population, climate change and water supply, shifting trade markets, increasing competition for labour and skills and access to facilities and services such as health and education<sup>9</sup>—are felt most acutely in regional Australia, and it is in these communities that solutions will be revealed. There is a need to explore ventures that simultaneously address these pressures if regional areas are to flourish and contribute to national targets in social, environmental and economic areas. One way to achieve this is to exploit the natural advantage that regional areas may have for innovation. This will bring multiple benefits, as innovation can be used as a vehicle to help drive regional development as well as simultaneously resolving a range of regional pressures. This notion is explored in Kinnear and Ogden (2011), as below:

The importance and benefits of a regional approach to innovation:

The global drivers for innovation have never been greater. Regional areas in Australia are increasingly being connected to the global economy; those who do not innovate frequently discover that ‘business as usual’ actually translates to productivity losses and threats to business sustainability from competitors who are continually innovating. Globally, changes in product

<sup>8</sup> Council of Australian Governments Meeting Communiqué, Canberra 13 February 2011.

<sup>9</sup> House of Representatives Standing Committee on Infrastructure and Communications, *Inquiry into the role and potential of the National Broadband Network*, submission by the Department of Regional Australia, Regional Development and Local Government, March 2011.

demands, design and offerings are being driven by the rapid expansion of the Chinese and Indian economies, coupled with the rise of the Asian middle class, an increasing environmental consciousness, and the challenges of carbon, climate change and resilience to natural disasters. Recent volatility in exchange rates (e.g. \$AU compared with \$US) and geopolitical relations (e.g. live cattle exports) have further highlighted the need for innovative responses to external pressures. The national drivers for innovation also stem from policy focus on matters of regional development, and government commitments in the Clean21, business innovation and research and development fields.

There is abundant evidence that ‘regions matter’. More and more we are defined by our regional presence rather than a particular town or city. This is increasingly the case when we enter into international relationships and major projects. Often, the investment decisions that surround major investments are made with a view to the overall asset strength of the region—its knowledge base, its governance, its supply chain maturity, its security and its ability to respond and adapt to change.

From a knowledge creation perspective, developing and consolidating strength in innovative and sustainable regional development is a natural fit with national policy objectives to helping communities to grow economically, socially and environmentally. Innovation is a critical tool by which our region can simultaneously achieve greater environmental sustainability, increased economic prosperity and enhanced community wellbeing.

However, there is also a recognised need to explore how the broad mix of stakeholders can collaborate regionally to further develop this capability. It is important to note the tensions that may arise between groups, brought about by the differences in organisational footprints, jurisdictional boundaries, as well as cultural rivalries. For example:

- The regional boundaries of the three tiers of government do not necessarily align with the economic zones, administrative, functional, or natural resource catchment areas;
- Multiple stakeholders can vie for the same investment pool (when available at either state or federal level); and
- Whilst there may be a genuine interest in joint projects, there is always a need for individual organisations/departments to be able to maintain some sense of ownership, and to be able to demonstrate their value and success of their entity (that is, to satisfy key performance indicators). Operating in unstructured collaborative groups can therefore pose the risk of anonymity.

There is therefore a strong rationale for the use of innovation, as well as for a whole-of-region approach: the innovation agenda is critical as an umbrella to draw together multiple stakeholders, blend multiple regional agendas,  
*(continued)*

better integrate regional planning instruments and improve regional decision-making. This is possible because innovation is the one agenda that bridges social, economic, environmental and governance issues; because it is relevant to all types of organisational structures and all operational footprints, and because it can be embedded in every regional project, strategy, investment, culture and leadership agenda.

Excerpt from Kinnear and Ogden (2011).

Australia's regions are uniquely well-placed to contribute to national goals in innovation, infrastructure provision, water and food security, environmental sustainability, industry diversification, healthy and liveable communities, and natural disaster preparedness and response. Consider, for example, that:

- Regional areas provide the nation's ecosystem services;
- Regional populations are physically close to (and value highly) their natural environment—so regions are a natural place to explore the interface between humans and their surrounds (unlike the built environs of cities);
- Regional areas cover vast geographic areas with the potential to develop renewable energies such as solar, wind and geothermal bases;
- Regional areas house our most productive lands;
- Regional areas are already dealing with the most confronting of our environmental challenges—climate change, land use conflict, water management, energy efficiencies—and are doing so under extraordinary constraints of funding and support per km/per capita;
- Regions must be agile and innovative to survive the problems of low population base, wide geographic areas and distance from markets;
- Regional areas can offer better liveability (if managed properly) and this will help resolve Australia's population growth issues through regionalisation;
- Regional areas typically host large indigenous populations—so it is here that we can begin to 'close the gap'; and
- Regions also represent excellent case study areas in which further research and innovation, based on national priorities, could be located.

Regions are the gatekeepers of Australia's national assets: physical and natural (water, energy and land); economic (industry, exports) and social (liveability). These assets must be unlocked for the good of regions, as well as the good of the nation. This book is about leveraging these strengths of Australia's regions for the national good; via competitive, comparative and constructed advantage; and by choreographing a greater understanding of, and nexus between, innovation, sustainability and regional development.

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**Part II**  
**Commentary and Analysis**

## Chapter 2

# Innovation in Regional Australia: Effective, Lagging or Under-Utilised?

Kilian Perrem

**Abstract** This chapter examines the Australian National Innovation System (NIS), in the context of the potential for policy intervention designed to boost regional development. It explores the contributions that regional Australia makes to the national innovation system, as well as the unique challenges faced by regions in innovating—including problems of a low base in human resources and a lack of innovation assets—and the potential role of new technologies, such as the National Broadband Network (NBN), in ameliorating these. The chapter also explores regional development intervention in Australia, before examining the influence of geographic isolation on regional innovation success. The section on policy considerations examines regional development anchored in innovation, and concludes that this might best be developed through assistance for regional SMEs to develop better linkages, and support to maximise opportunities under the NBN.

### 2.1 Innovation: An Introduction

When considering the issue of what constitutes an effective innovation system in Australia, including regional areas, it is useful to first consider what such a system actually looks like—that is, what the principal components are. A wide body of literature has identified some fundamental actors that are common amongst innovation systems: these include firms of all sizes, universities and other tertiary institutions, public research facilities, technology centres, industry associations, governments and public sector agencies, financial institutions and other sources of investment, human capital, physical capital, and both formal and informal networks. There is also a general consensus in the literature that the pipeline in a given innovation system involves non-linear and thus often unpredictable

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interactions between some or all of these components. In theory, therefore, regions lacking or deficient in any of these actors may suffer from an innovation deficiency unless they can forge the necessary linkages to bridge the gap (Collaborative Economics 2008).

There is a wide array of innovation actors, and the innovation pathway is non-linear with often unpredictable interactions between them.

It is widely perceived that regional Australia lacks a critical mass of innovation actors or assets, and that Australian regional businesses lack the sophistication to be as innovative as their metropolitan counterparts. However, regional innovation makes a crucial contribution to the Australian National Innovation System (NIS) in a number of ways. For example, agriculture and mining are regionally-based sectors that are vital to the Australian economy. Productivity growth will be critical in these areas into the future: this will require the regional actors in these industries to be continually innovative. Significantly, however, there have been no greenfield discoveries by mining companies in Australia for many years, due in no small part to a reduced investment in exploration. As a consequence, many of the mineral deposits that underpin the success of the resources sector in Australia are now depleting or experiencing declining grades (CSIRO 2011). Productivity growth in the Australian agricultural sector is also in decline due to a fall in R&D investment and there are challenges for primary producers in the face of climate change (Nossal 2011).

Regional innovation makes a crucial contribution to the Australian National Innovation System through its interface with agriculture and mining productivity; innovation activities in regional universities and other private and public sector assets; as well as through the participation of regional business and industry.

Both private and public sector innovation assets exist in regions, including 13 regional universities plus a number of regional campuses of metropolitan universities; Cooperative Research Centres (CRCs), Rural Research and Development Corporations (RDCs) that commission R&D for primary producers; regional CSIRO sites; State and Federal government agencies; the Australian Local Government Association (ALGA), regional business networks and non-government organisations such as Sustainable Economic Growth for Regional Australia (SEGRA). Additional assets necessarily include suppliers and customers, business R&D, and finance, all of which can contribute to the innovative capacity of the regions. However, in a geographical sense they are of course dispersed throughout a huge area and lack the concentration that cities possess. Enhanced networking is therefore critical and the rollout of the National Broadband Network (discussed further below), is almost certain to play a central role in this in the future.

Regional innovation assets are dispersed across a wide geographical expanse: linkages and networks (introduction of the national broadband network) are therefore critical for the optimal development all regional innovation systems.

The lack of sufficient human capital is a key barrier facing Australia's regions from an innovation perspective. The Australian census data from 2006 show quite clearly that most regions have fewer skilled professionals, higher unemployment and a larger proportion of workers in low-skilled jobs compared with the cities (ABS 2006). In terms of the current thinking on innovation geography metrics, these are regarded as negative indicators (Ratanawahara and Polenske 2007). On a more positive note however, recent Australian Bureau of Statistics (ABS) data from its business characteristics survey of 2008–2009 show that although product and operational innovation are lower in larger regional firms (>200 employees) compared with city-based businesses of comparable size, there are no such differences in terms of marketing and organisational innovation. Moreover, the same dataset clearly shows that regional small to medium enterprises (SMEs; <200 employees) are as innovative as their city counterparts across all four recognised categories (product, process, marketing and organisational). This is an encouraging statistic for the regions in Australia where SMEs are at the heart of wealth creation and employment and represent 99.8 % of all businesses (DTR 2003).

Census data shows that regional small to medium enterprises (SMEs; <200 employees) are as innovative as their city counterparts across all four recognised categories (product, process, marketing and organisational).

Despite these comparable innovation statistics for regional SMEs however, there is evidence also showing lower productivity and employment growth in regions compared with the cities: this suggests that regional SMEs are lagging behind their city counterparts in deriving outcomes from their innovations, or are perhaps facing larger problems (Infrastructure Australia 2010). In turn, this suggests that the national innovation system may not be optimal and that market failures possibly exist in relation to regional innovation. There are examples of regional sectors that have become innovative and that have connected very effectively with global markets, such as the wine industry which was built from the ground up on a foundation of tacit knowledge of wine producers (Scott-Kemmis et al. 2005). In principal therefore, regional sectors in Australia can and do innovate to become globally competitive and derive high value outcomes.

The available data also show that the value to the economy provided by regional innovation is less than that of the cities, even though regional small and medium sized enterprises (SMEs), which comprise the backbone of regional economies

(DTR 2003), appear to be no less innovative than metropolitan firms as determined by the ABS business characteristics survey. Australia's major cities contribute to approximately 80 % of GDP and employ 75 % of the national workforce (Infrastructure Australia 2010). Moreover, it is reported that 81 % of the economic growth and 84 % of the employment growth from 2003 to 2008 in Australia was in the major cities (Raskall 2010). This suggests that regional SMEs are lagging behind their city counterparts in terms of deriving optimal economic returns and that they may continue to rely on government assistance into the future.

This is further evidenced by data from recently published State of the Regions Report for 2011–2012 released by the Australian Local Government Association (ALGA 2011) on the gross local product of 67 regions. The figures provided in this report show that whereas most areas of the major capital cities are above the national gross local regional product average, almost all of the areas outside the capital cities are below this average. Central Sydney, for example, is 61 % above the national average whereas the NSW Mid-North Coast is 38.4 % below in terms of gross local regional product (ALGA 2011). It may be the case that regional businesses are often remarkably innovative and successful given the challenges they face; but the lack of innovation assets will continue to put these firms at a disadvantage into the future.

In terms of developing a skills base, data from Graduate Careers Australia show that graduates from regional universities are more likely to establish careers in the cities (the latest figures show that approximately 45 % move to a major city and only 30 % stay in the region; Graduate Careers Australia 2011). In addition, Australia's top ranked universities (collectively known as the Group of Eight) are all metropolitan. Although university qualifications are not essential for innovation per se, it has been reported that the ability of businesses to absorb new work practices or information that will foster innovation is increased by having a more highly educated workforce (Abreu et al. 2006). The R&D tax concession data from 2001 is also informative as it revealed that regional businesses only represented about 16 % of the firms that claimed the concession but accounted for less than 6 % of the reported R&D expenditure under this scheme.

The ability of (regional) businesses to absorb new work practices or information that will foster innovation is increased by having a more highly educated workforce.

Based on current skills trends and absorptive capacity, regional businesses in Australia also appear to be at a distinct disadvantage compared with their metropolitan counterparts with respect to innovation output. In terms of all other actors in an innovation system, the cities have these in far greater abundance leading to a natural tendency for agglomerations to increase and newly form in cities. The question of whether modern technology has the capacity to reduce the tyranny of distance that impacts upon regional Australia from a skills, opportunities and knowledge perspective is further discussed below.

## 2.2 Regional Development in Australia: Past and Present Interventions

Regional development has been at the forefront of Australian government policy both prior to and following Federation. During the colonial period, government interventions in Australia were aimed at promoting the expansion of primary export industries including wool, cereal crops and natural resources. Following federation in the early twentieth century, the focus of the Commonwealth was to protect and enlarge secondary and tertiary industries through the imposition of a tariff regime (BTRE 2003). There were also various population decentralisation attempts during this time. Since the mid-1980s, however, (sometimes referred to as the post-trade liberalisation era) it has been more accepted that regional intervention policies could no longer be isolated from global trends and international market conditions.

Consequently, there has been a shift since the 1970s towards more targeted approaches and less dilution of funding in Australia. This is evidenced also in Europe and Asia by a reduced emphasis on ameliorating inequalities between regions and a focus instead on supporting regional diversity and enterprise (Hassink 2002). Expenditure on regional issues in Australia has been considerable in previous years. Between 1996 and 2001 alone, the Australian Federal government spent \$28.5 billion on supporting development activities in non-metropolitan Australia across a wide spectrum of areas with the intention of correcting market failures and providing social benefits. However, in many instances the effectiveness of these interventions has been uncertain due to the cumulative effects of a wide range of policies and both macroeconomic influences and regional diversity (BTRE 2003).

Between 1996 and 2001 alone, the Australian Federal government spent \$28.5 billion on supporting development activities in non-metropolitan Australia across a wide spectrum of areas with the intention of correcting market failures and providing social benefits.

Regional development in Australia is currently the principal policy focus of a number of dedicated public sector agencies at the Federal, State and Local Government levels. At the Federal level, a new department, Regional Development Australia<sup>1</sup> (RDA), has been formed to oversee the economic advancement of the regions and provides central support for 55 committees that have been formed to address regional issues across Australia. State and local governments also have direct responsibility for providing services to regions and supporting regional development and are closer to the points of policy delivery in this respect. Education, agriculture, health, and Indigenous policies that have direct relevance to the regions are the remit of their respective departments at the State and Federal levels.

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<sup>1</sup> see <http://www.rda.gov.au/>

In 2010, the Federal Government committed \$10 billion to regional development, due in no small part to the unusual political circumstances involving a minority Government and regional members of parliament holding the balance of power in the House of Representatives. It remains to be seen what the actual impact of this funding will be and it is noteworthy that the OECD view is that infrastructure spending must be combined with investment in human capital, R&D and education, and that an integrated policy approach is critical for sustainable economic outcomes and enhanced innovation in regions (OECD 2009).

According to the OECD, infrastructure spending must be combined with investment in human capital, R&D and education to create sustainable economic outcomes and enhanced innovation in regions.

The national broadband network (NBN) is a significant ongoing investment by government that has significant implications for regional innovation. The internet has now been valued at \$70–\$80 billion to the Australian economy (almost equivalent to the retail sector). The promise of the NBN is that it will enable faster knowledge exchange to and from the regions and will create business and growth opportunities. However, this infrastructure may also be detrimental to some regional firms who are forced to compete in new markets (ALGA 2011). As stated above however, human capital investment is regarded in many quarters as a vital adjunct to infrastructure spending in order to maximise the returns to the economy. This will almost certainly be true also of the NBN and training for regional businesses is essential to take full advantage of this infrastructure.

### **2.3 The Geography of the Australian Innovation System: Are the Regions Stranded?**

Kajikawa et al. (2008) report that networking among innovation actors and trust building is a critical indicator of regional cluster performance. The importance of knowledge flow and collaborative networking for successful regional innovation systems is evidenced by a number of seminal examples from overseas. The Emilia Romagna regional cluster of clothing and footwear businesses in Italy is a striking example of collaborative networking and a community of practice that enables multiple SMEs in this sector to share knowledge, overcome size disadvantages through partnerships, and thereby innovate strongly (Mitra 2000). Silicon Valley in the US is the quintessential example of a high technology innovative regional cluster that has deeply embedded tacit knowledge networks (Kolko 2002). Many governments have attempted to replicate the achievements of Silicon Valley (Mason et al. 2005) but with very limited success, possibly due in the main to policy and governance barriers (Charnock 2011).

The motor sports valley region of the UK has been regarded as highly innovative due to the ease of staff movement between firms (Henry and Pinch 2000).

The characteristics of a learning region that have been described by Hospers and Beugelsdijk (2002) are:

- SMEs simultaneously competing and cooperating;
- A unique physical, knowledge and legal infrastructure;
- Enhanced regional collective learning; and
- Improved competitive positioning of individual SMEs.

In terms of skills, the OECD has cited six categories that are required for innovation, based on the current literature (OECD 2011b): basic digital, academic, technical, generic, ‘soft’ skills, and leadership. There are no hard and fast rules regarding the balance of these skills needed as the requirements for innovation to flourish are context-dependent. However, the ability of businesses to adopt innovations i.e. their absorptive capacity, has been reported to be directly related to the education and knowledge levels of their managers (in OECD 2011b). This capacity is further increased by firms who invest in R&D and who involve their suppliers and customers in their decision making (so called ‘user involvers’). Indeed, West (2006) emphasises that innovation usually begins with a customer problem and not a technical advance or R&D breakthrough. Considerable value can be gleaned also by firms who devise business strategies that incorporate the acquisition of different skills and training with innovation in mind.

The OECD skill set for innovation includes digital, academic, technical, generic and soft skills and leadership.

A core question that arises is whether regional SMEs in Australia are in fact geographically stranded from an innovation perspective and whether they can realistically replicate the knowledge and learning networks that characterise successful regional innovation clusters. Australia’s particular population demographics and geography are unlike almost any other nation or international region, with 70 % of the population is concentrated in the five major cities, there are few other population centres of appreciable size, and the physical distances on average between Australia’s cities and towns are very large in relative terms. Indeed, ABS figures show that only 18 non-capital cities in Australia have populations exceeding 70,000, which rises to 36 for populations above 30,000 (SEGRA 2011).

With respect to the role of geography and clustering in fostering innovation, this presents some significant challenges for regional Australia. The fundamental actors in an innovation have been identified as inventors, transformers, financiers and brokers (Collaborative Economics 2008). There is no theoretical difference between cities and regions in their innovation system requirements in this regard.

Social capital is also recognised in many quarters as a positive component of innovation (Gudergan 2007). Australia’s regions may have a general advantage in

this area and a comprehensive study by Onyx and Bullen (2001) has reported that social capital was generally higher in rural communities compared with urban centres, particularly in relation to community connections, feelings of trust and safety and neighbourhood ties. These authors also reported, however, that ‘tolerance of diversity’, which can be understood as a willingness or propensity of people to forge bridging ties, was lower on average in the two rural communities under study than in the urban localities. The possibility that social capital may be a barrier to innovation has also been discussed in the literature in terms of the resistance to change that strong ties can engender (Florida et al. 2002).

Given that fact that the physical agglomerations that satisfy the current definition of an innovation cluster are much less likely to form in Australia’s regions, a different form of innovation architecture is likely to be needed for regional SMEs. Hence, it is the recipe for innovation that will probably differ between regions, which will in part be dependent on spatial/geographic considerations and the inputs of physical and human capital. However, the spatial and geographical aspects of innovation cannot be readily changed in the short to intermediate term. It is noteworthy in this regard that regional universities are argued to be necessary but not sufficient for regional innovation (Feldman and Kogler 2010). The presence of a university however can make a significant contribution to a region in conjunction with other innovation actors.

Innovation clusters are traditionally formed by physical agglomerations: but Australia’s regions will need a different form of innovation architecture.

A notable example of an Australian region that has been quite successful in terms of building its innovation capacity is Townsville–Thuringowa. Townsville outperformed the national average (as did Queensland) in terms of jobs created between 1981 and 2001 (BTRE 2003). Among the key drivers of this performance has been identified as the ability of this region to diversify its economy, maintain a well developed infrastructure, the presence of knowledge clusters including James Cook University and the CSIRO, a skilled labour force (tertiary qualifications grew from 4.6 % to 10.8 % of the population between 1986 and 2001) and stable local governments.

It is notable also that Townsville is among the few regional areas to show a higher GRP than the national average, albeit slight (ALGA 2011). In contrast, Albury–Wodonga has in the past represented the most ambitious plan for a deliberate federal government intervention in terms of regional growth. An initial population target of 300,000 by the year 2000 from a base of 37,931 residents in 1971 was set (BTRE 2003) but the population of this region is still less than 100,000 today. The initial government investment was intended to provide “attractive conditions for industry, including low priced land, a skilled labour force, efficient transport and communications facilities and high quality living standards for residents” (BTRE 2003). However, the lack of diversity in the skills and industry base and an over reliance on public investment has been cited by BTRE as some of the reasons why the growth targets for this region were not reached.

These examples from Australia lend strong credence to the current thinking on regional policy, particularly from the OECD (2011c), which is that only endogenous strategies will yield long term sustainable growth (see section on ‘place-based’ approaches below) and that the attempt to create a favourable business environment through direct government policy alone will ultimately fail. Innovative regional SMEs do exist across all sectors and there is no theoretical reason why networks of knowledge could not develop in Australia’s regions that could circumvent innovation geography barriers in the same way as the wine industry has done so successfully. It could be argued based on the economic data mentioned above that innovative regional SMEs are not reaching their potential within the NIS, and this has implications for key national challenges as discussed below.

## 2.4 Role of Australia’s Regions in Addressing National Innovation Priorities

Regional Australia has a particularly important role to play in the NIS in the areas of food security, the future efficiency and sustainability of the resources sector, and the response to climate change. In addition, two of Australia’s key industry sectors, agriculture and mining, are principally located in regions. In addition, a predicted population of 36 million (an increase of 14 million) in Australia by 2050 with a higher age demographic (IGR 2010) will put severe resource pressure on Australia’s cities if the regions cannot support a higher percentage of this increase.

Food security is a complex national and international challenge that will require a multi-pronged approach (PMSEIC 2010). Innovation will need to be a central plank of most solutions to this global issue and regional Australia will have a critical role to play in ensuring that the nation has continuing access to safe, affordable and nutritious foods. The ‘green revolution’ of the 1970s cannot be replicated to deal with food security as large scale increases in land use for agriculture and irrigation are no longer feasible.

There are some well established government agencies that foster R&D and innovation in food and agriculture such as CSIRO, the RDCs and specific CRCs. However, agricultural productivity is in decline in Australia and enhanced regional innovation in this area is regarded as critical to address this and contribute to food security (Nossal 2011). Innovation and knowledge flow metrics for agriculture are currently sparse in Australia and the impacts of R&D can take many years to be realised (Nossal 2011). However, the promotion of an innovation system framework among primary producers is regarded as key (Nossal 2011) and this would be entirely consistent with an innovation architecture that fosters enhanced networking and tacit knowledge spillovers.

The resources sector is another regionally based industry that is vital to the national economy. The development of local expertise in mining and exploration is however a potential platform from which regions could develop place-based



innovative strategies. In terms of innovation assets in this sector in Australia, AMIRA International Ltd is an independent association of minerals companies which develops, brokers and facilitates collaborative research projects. In addition, two public agencies, CSIRO and Geoscience Australia, conduct research that provides the minerals industry with new mining and exploration technologies.

Adaptation to climate change will also require significant regional innovation inputs. Australian water supplies, coastal settlements, agriculture and natural ecosystems are particularly vulnerable to climate change (CSIRO 2010). Of note also, urban and industrial development, population growth, recreation and tourism and environmental decline is having a profound impact on Australia's coastal regions and with the risk of coastal inundation expected to increase over the next few decades, more people, property and infrastructure will become exposed (CSIRO 2010).

#### ***2.4.1 The National Broadband Network (NBN) as an Innovation Asset***

A detailed analysis of the NBN and its possible future impact is beyond the scope of this review. This new infrastructure is however worthy of discussion from the point of view of regional innovation, as it is regional areas that will experience the greatest step change in terms of internet access.

The information technology (IT) age has had a transformative effect on many types of business and business practices and the internet has been at the forefront of these developments since the 1990s. Investment in IT is now regarded as crucial for modern businesses from both an operational perspective and indeed as a component of innovation. The 2006 census statistics for regional areas are intuitive i.e. there are fewer homes with internet access outside of the major cities, in some cases less than 50 % of the national average, and the use of dial up is higher in the regions (ABS 2006). Whilst the rollout of the NBN will plug this infrastructural gap in the regions, its long-term impact on regional innovation is not yet certain.

The NBN is likely to have a clear impact on the geography of innovation as it pertains to regional Australia. The capacity for knowledge flow will be increased by the effective use of the NBN and the skills needed to maximise the benefits of this enhanced flow must be provided in conjunction with the roll out of this infrastructure. Measuring and evaluating knowledge flow are problematic and is the subject of much interest worldwide. A paper by Gardner et al. (2010) suggests that the measurement of the number and quality of outputs instead of inputs and a detailed assessment of the fundamental causes of these outputs are better knowledge transfer metrics as they reflect successes. Some consideration of this is warranted in evaluating the future impacts of the NBN.

The extent to which the NBN may have a detrimental effect on some regional businesses is also not clear at this stage. For example an increase in the provision of competitively priced goods or services in regional areas from distant companies

may affect local providers. The ALGA has stated in its recent State of the Regions report (2011) that there will be benefits to regions in terms of more service options and competition but also that some businesses may suffer. Innovations that arise as a result of the NBN will therefore provide both opportunities and threats to regions as there will be greater exposure to global systems and vice versa.

## 2.5 Fostering Regional Innovation in Australia: Considerations for Policy Makers

In considering the types of regional innovation policy interventions that are warranted in the future, there are some key considerations. The evidence presented in this paper shows that Australian regional businesses are often innovative, are vital for key national challenges such as climate change, food security, sustainable resources and population, but are in many cases disconnected from each other and from the metropolitan parts of the NIS. This likely underpins the lower returns to the national economy from most regions despite comparable reported levels of innovation between regional and city-based SMEs. The evidence from both Australia and overseas also shows that any policy interventions to foster regional innovation will have to be carefully designed and that endogenous strategies are more effective. This is further discussed below.

Regional innovation is a topic of much discussion and interest in the international policy arena, and a significant body of work in this area has been disseminated to date, particularly by the EU and the OECD (OECD 2011a, c). The literature on the geography of innovation shows that places are not all equal and are defined over time by an evolutionary process. Knowledge flow and access to tacit knowledge are the foundations of innovation, with codified knowledge playing an important complementary role (Gertler 2003). Hence, agglomerations of tacit knowledge and local spatially concentrated knowledge spillovers between firms and other actors in the innovation pipeline is fundamental (Feldman and Kogler 2010). Linkages and networks are therefore critical for all innovation systems. Indeed, multinational enterprises have begun to recognise that R&D needs to be conducted in different locations to take advantage of local knowledge. The evidence discussed above suggests also however that the value of the tacit knowledge in Australia's regions to the cities and vice versa may not be fully realised under the current innovation system architecture i.e. that there are insufficient linkages in the system between the regions.

The regional innovation policy paradigms that have been promoted in recent years, most notably by the OECD, are underpinned by endogenous or place-based strategies that seek to build on the comparative strengths of each region for more sustainable development (OECD 2011c). Good governance is at the heart of these approaches. The cumulative evidence now suggests that from an economic and innovation standpoint, this is a more effective strategy than subsidy-based incentives (Tomaney 2010). In Australia also, the regions that have performed

above the national average economically have a stronger and more durable innovation architecture with fewer deficiencies in terms of innovation actors and better long term planning processes at a local level (BTRE 2003).

In addition to developing a sustainable resource sector and ensuring food security, population and climate change are other key national challenges where regional innovation will be critical. Adaptation and mitigation strategies for carbon emissions require regional expertise in land management, coastal erosion, etc. The capacity of the regions to support an increased future population will also be vital to prevent unacceptable levels of congestion and resource constraints in the major cities. The ability of Australia's regions to contribute to these challenges at an effective level is uncertain however, although the evidence suggests that the regions do have this potential and that this will be realised if regional innovation is better utilised and linked within the NIS.

Developing a sustainable resource sector and ensuring food security; and meeting population, climate change and other key national challenges are examples where regional innovation will be critical.

The regions have long been a policy focus of the Commonwealth Government in terms of fostering sustainable economic growth (BTRE 2003). At the time of writing, the Australian Federal Government is developing a scheme whereby regionally based businesses will be able to sponsor an additional 16,000 skilled migrant workers. A doubling of the loading received by regional university campuses has also been announced in the 2011–2012 federal budget; \$500 million from the education investment fund will be directed to regional universities to pay for infrastructure. However, the possible implementation of a demand-driven system allowing metropolitan universities to increase their student intake may affect the numbers of talented students that the regional universities are able to attract which will have an impact on the quality of their R&D output and the long term viability of these institutions.

The innovative capacity of the regions and the value derived from this does not seem to have been a major focus of many past or present government interventions. It is almost universally accepted that innovation is fundamental to economic growth and prosperity. A fresh look at whether innovation in regional Australia is effective or in need of assistance is therefore warranted as this may assist policy makers to better design future programs that are aimed at regional development and sustainable future growth.

The broad OECD definition of innovation encompasses four pillars: product, process, marketing and organisational (OECD 2011a) and has gained wide acceptance. This definition is readily applicable to the Australian context, and is adopted in this review. Whilst there are some useful lessons for Australia with respect to the global experiences with regional issues and innovation, Australia's regions as defined in political/policy settings are geographically and socially quite distinct

from OECD definitions. This has to be reflected in considering any activities to foster regional innovation in Australia that seek to use a wide evidence base in their design. It is also the case that regions in Australia and elsewhere are diverse and have different strengths and weaknesses in terms of capturing opportunities and capacity for change. It is for this reason that the place-based approach is gaining wide acceptance as an underlying policy paradigm (Tomaney 2010).

Australia's regions as defined in political/policy settings are geographically and socially quite distinct from EU/OECD definitions—this must be reflected when considering policy interventions to foster regional innovation in Australia.

What can be done to boost regional innovation capacity in Australia from the perspective of the State or Federal policy maker? This review argues that there are three core strands that should be central to the approach of government to regional interventions in order to foster innovation and hence more sustainable economic outcomes:

- Assist innovative regional SMEs to grow by fostering new linkages with larger businesses as potential new suppliers/business partners;
- Maximise the NBN-readiness of regional businesses by providing advice and training, including an understanding of both the opportunities and potentially detrimental effects of this infrastructure; and
- Enable regional businesses to develop a vastly enhanced networking capacity, beginning with existing networks that will link regional innovation actors with each other and with metropolitan innovation networks for greater knowledge transfer. Seek also to foster communities of practice and virtual communities of practice through the use of NBN and other technologies.

### ***2.5.1 Barriers to Regional Innovation***

Because there are fewer skilled workers in the regions (ABS 2006) there is less access to a critical mass of accessible tacit knowledge. There will be fewer opportunities for skilled professionals in regions as a consequence of this which may be a circular problem in terms of attracting these individuals to bolster innovative capacity. Regions vary in terms of their degree of remoteness and the most rural and sparsely populated regions have the least local innovation assets. Regional business networks do exist (some are described later in this book) but anecdotal evidence from AusIndustry and others suggests that they are not as well linked with each other or with external networks as they should be.

An over reliance on local knowledge and lack of trust in external expertise is also an issue which is not insurmountable in the regions but will require better networks with trusted points of contact for regional businesses. Finance is also a problem in

the regions with very little access to venture or start-up capital. Regional markets also commonly lack the sophistication of their metropolitan counterparts and so suffer from a lack of user-driven innovation. In addition, because most regional businesses are SMEs, there are fewer firms with the capacity for R&D and the absorptive capacity for change innovation.

### ***2.5.2 Effectiveness of the Intervention***

Government needs to carefully consider the types of innovation policies and investments that will be optimal for regional Australia, otherwise commitment of resources could result in low returns.

Government needs to carefully consider the types of innovation policies and investments that will be optimal for regional Australia, particularly in lagging regions for which the commitment of resources could result in a low return if other components of innovation are fundamentally lacking, particularly human capital. The OECD policy brief ‘Regions and Innovation Policy’ (OECD 2011c) also warns against a ‘one-size fits all’ approach (i.e. not all regions can become biotech hubs or the next Silicon Valley!) and emphasises that the involvement of the private sector as essential for a regional innovation strategy. The development of a shared vision and strategic framework within the actors of a given region is seen as key (OECD 2011c), and indeed the examples of Townsville and Albury-Wodonga cited earlier are consistent with this view.

### ***2.5.3 Current Policy Paradigms for Regional Innovation: the Placed-Based Approach***

Innovation policy measures for the regions should look in the first instance to grow the most innovative businesses that are already in existence and that are constrained by lack of finance, skills, access to potential new markets and other impediments. These may represent the ‘lowest hanging fruit’ in terms of beginning to stimulate regional innovation.

The OECD has recently updated its Regions and Innovation Policy Brief (OECD 2011c) and emphasises that regions need to adopt the mantle of ‘change agents’ and that to implement such a strategy will need to:

- Develop a shared vision and strategic framework based on sound analysis to encourage innovation in the context of a regional development strategy;
- Design a smart policy mix that mobilises relevant assets drawing from different policy fields;

- Establish multi-level, open and networked governance structures that include public and private actors; and
- Foster policy learning through better metrics, evaluation and experimentation, as well as enhanced policy capacity.

The place-based approach to regional policy in the Australian context is discussed by Tomaney (2010) in a report commissioned by the Australian Business Foundation and is consistent with the OECD view. The central tenets of this report are that:

- Place-based thinking is being adopted in many places around the world and it could be applied with equal value both in metropolitan regions and regional Australia;
- Place-based approaches require strengthened local and regional institutions that are able to assess and develop local economic assets in ways that amount to more than “tailoring national policies”;
- The active role of local stakeholders is critical to the success of place-based approaches but this places new demands on local business and other bodies to actively shape local policy, rather than merely make demands on State and Federal agencies;
- Successful place-based approaches place the development of human capital and the promotion of innovation at their centre; and
- Successful place-based economic development is generally a long-term process.

Australia’s system of fiscal federalism potentially provides a supportive framework for the emergence of place-based approaches.

### ***2.5.4 Possible Approaches to Regional Innovation Policy***

One interesting example of a program that has been in existence since 2005 in France that seeks to grow innovative SMEs is ‘SME Pact’. In this scheme, large companies, and some large public agencies that have significant procurement budgets, are linked with innovative SMEs that may be able to supply new and valuable goods and services. This brokering role played by the program helps to create linkages that would otherwise not occur. The risk for the large companies in engaging with SMEs for the first time (the ‘liability of newness’ aspects of young firms in particular; Kajikawa et al. 2008) is reduced by the due diligence role that the program plays and expertise that it provides in identifying these smaller firms from its extensive networks, not just in France but also in other European countries. The larger companies pay a subscription for this service and it is intended that the number of members will increase sufficiently for the program to become self-funding. The French Government has provided funding for a period of time to establish the scheme.

In an SME ‘Pact’, large companies are linked with regional, innovative SMEs that may be able to supply new and valuable goods and services.

A similar type of program in Australia could be very useful for regional SMEs, and indeed for many SMEs in the cities, who find it difficult to enter new markets and therefore to grow. The Commonwealth government runs a variety of programs to assist regional firms and could devise a scheme like SME pact through various agencies such as Enterprise Connect or AusIndustry. It would in the first instance require the development of an active and live database of innovative SMEs but this information could be gleaned from a variety of sources and existing contacts and networks. A list of large companies to invite into the scheme and pitch the benefits of the program would then need to be developed.

As innovation often begins with a customer problem (West 2006), a strategy to create new customer supplier relationships may in itself be a driver of innovation. Courvisanos (2003) also states that ‘the most exciting developments in RIS (regional innovation systems) are how the synergies between large and small firms are creating strong effective innovative processes towards regional development. This type of synergy allows the R&D and network strengths of large firms to be linked with the more flexible and creative elements of small innovative firms’.

The importance of networks to innovation is widely discussed in the literature and Australia’s regions will likely need to work particularly hard to develop more effective linkages given the geographical constraints that they face. A report produced in the United States for the Bay Area Council Economic Institute (Collaborative Economics 2008) is of interest in this regard as it states unequivocally that regions need active innovation ‘brokers’ and also that ‘regions still vary by their relative strengths and weaknesses from which regional specializations and comparative advantages emerge—creating spikes in a flat world.’

A region’s challenge as stated by this report is to recognize its own strengths, identify other regional “spikes” based on their strengths, and then connect to those “spikes” for mutual benefit’ (Collaborative Economics 2008). Although, as stated earlier, Australia’s regions are socially and geographically distinct from those of Europe and the US, there are some useful paradigms with regards to regional networking and innovation described in this study that are worth consideration in an Australian context. For example:

- The most effective (innovation) brokers often come from the ranks of business service professionals;
- Innovation is everyone’s business and needs a human face;
- Assets are critical building blocks but traditional assets (raw materials, low cost labour) are no longer sufficient to succeed in a knowledge-driven global economy;
- Regions may have different amounts of assets but every region has basic innovation assets or the ability to identify and cultivate them;

- Culture is an intangible cornerstone of innovation and views failure as a lesson in how to succeed and encourages reinvention when necessary;
- The drivers of innovation will primarily come from the private sector; and
- Forget worrying about institutions and programs per se and focus on connecting people.

The importance of networks cannot be understated for innovation to occur and in Australia's regions these need to be greatly expanded and incorporate all of the available innovation actors. Regional universities should be involved in all of the innovation networks in their areas to assist with problem solving and develop an understanding of what regional businesses need beyond R&D.

In a detailed analysis of the importance of networks to innovation from a European medium technology perspective, Cappellin (2008) states that 'the development of knowledge and networks in medium technology sectors requires a modern governance approach, rather than to rely on the traditional free market approach' and that promoting integration between key nodes and weakly connected nodes is vital.

## 2.6 Conclusions

In considering the core issues examined in this review, the evidence suggests that Australia's regions have made and continue to make significant contributions to the NIS but face barriers to innovation that likely underpin their lower returns to the economy. However, critical national challenges will require a vibrant regional innovation system and much of this will need to be provided by SMEs which are central to wealth creation and growth in the regions. The innovation and regional policy literature is overwhelmingly of the view that bottom up or place-based policies are more effective than subsidy-based exogenous interventions that have had very mixed results. Government interventions that do not take this approach are likely to produce marginal outcomes only. Regional businesses must foster increased internal linkages and form stronger connections with other parts of the national and global innovation systems to derive greater value from their innovations and generate new opportunities for growth. Finally, the NBN will have a major impact on regional firms and they will need to adapt to this technology.

Regional Australia already has innovative SMEs but may struggle to compete with cities from an innovation output perspective in the future under the current spatial framework, which will continue put pressure on the Australian economy when political pressure to support lagging regions is periodically brought to bear. Increased regional innovation will reduce the necessity to subsidise lagging regions, will boost the economy, and will increase the capacity of regions to support a larger percentage of the population.



Regional Australia already has innovative SMEs, but they may struggle to compete with cities from an innovation output perspective.

Regional inventions and innovative ideas with the potential for high impact are less likely to be commercialised under the spatial framework of current national innovation system. Regional tacit knowledge and enhanced regional innovation will however be essential in the future for solutions to the challenges that Australia faces including climate change, food security, and environmental issues. However, these innovations will require a continuing supply of skilled professionals but the wine industry has shown that this barrier can be overcome through enhanced knowledge flows. Achieving the required critical mass of human capital in the regions in other sectors however will require both lifestyle and career opportunities to be available. This will only come about if regional businesses continue to innovate and grow.

Accordingly, three policy recommendations platforms, as for this field might be discussed earlier, are recommended in this review:

- Assist innovative regional SMEs to grow by fostering new linkages with larger businesses as potential new suppliers/business partners;
- Maximise the NBN readiness of regional businesses by providing advice and training, including an understanding of both the opportunities and potentially detrimental effects of this infrastructure; and
- Enable regional businesses to develop a vastly enhanced networking capacity, beginning with existing networks that will link regional innovation actors with each other and with metropolitan innovation networks for greater knowledge transfer. Seek also to foster communities of practice and virtual communities of practice through the use of NBN and other technologies.

These recommendations are consistent with place-based policy paradigm, drawing on the innovative capacity that is already present in regional SMEs. They harness the vital role of knowledge networking in an innovation geography/architecture. They also take account of the NBN which will have potentially large step change impacts in the regions. Significantly, they also facilitate the growth of existing businesses and potential emergence of new businesses which will be critical to achieving sustainable regional innovation and growth in Australia.

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# Chapter 3

## The Challenges of Delivering a ‘Sustainable Australia’

Jamie Quinn and Sonia Kirby

**Abstract** Congested cities, water crises, soaring living costs, loss of biodiversity values and natural disaster impacts: these are key national issues that scream out for better planning and implementation of the future. How can they be addressed and Australia assured of a sustainable future? ‘Sustainable Australia’ is about where and how Australia can productively and sustainably accommodate more people. The sustainable development of Australia will not happen by accident: it must be planned, designed, and co-operatively delivered. This chapter explores Sustainable Australia through three themes:

- Why Sustainable Australia is our greatest challenge;
- A Framework for communities, business and governments to face the challenge together; and
- Delivering Sustainable Australia through regional development.

The chapter concludes by proposing the establishment of an integrated ‘top-down bottom-up approach’ for sustainable development decision making, known as the Sustainable Australia Framework. It is supported by a Local Sustainable Development System, a new evidence-based engine for council community planning. Much of the proposed Framework already exists in disparate parts of Australia’s sustainable development policy and planning landscape, but it lacks proper integration and collaboration. This chapter explains how to stitch together relevant parts and combine them with new tools to focus on productivity and community wellbeing. It also recommends that further research and development is necessary to deliver ‘Sustainable Australia’, particularly through innovative regional and urban design.

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### 3.1 Sustainable Australia: Our Greatest Challenge

In 1987, the United Nations Brundtland Commission Report described sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’. Despite this simple wisdom being articulated some 25 years ago, parts of the planet are now groaning under the legacy of unsustainable development. Left unabated, this will gradually impact the whole world. In large part, global development has not been regionally sustainable: some regions have borrowed sustainability capacity from other regions with little or no accountability.

In the Australian context, the future is being impacted by a changing world as well as many ‘home-grown’ issues. Increasingly, Australia must be accountable for its own future—managing sustainable development, productivity and wellbeing in a way that is planned, integrated, scientific and supported by good governance. As a nation of human beings Australia will not get everything right; however, pursuing a co-operative, methodical, transparent, evidence-based and accountable approach (as proposed herein) will provide a good chance of success.

‘Sustainable Australia’ is about where and how the nation can productively and sustainably accommodate more people. Given that Australia’s sustainability is impacted on by global challenges, the national objectives for sustainability are focussed both internally and externally. These objectives will be predominantly achieved through the sustainable development of the nation’s 55 regions (comprising about 560 local governments), which are in turn governed through the structures of Australia’s Six States and two Territories. The regional scale is the most appropriate level at which to implement a national sustainability framework. Regional planning to achieve Australia’s sustainable future should be underpinned by a philosophy of achieving national objectives through optimal regional contributions: this necessitates co-operation, alignment, integration and optimisation across regions.

Regional planning to achieve Australia’s sustainable future should be underpinned by a philosophy of achieving national objectives through optimal regional contributions.

### 3.2 The Global Population Context

Earth’s geological time clock traces about 4,600 million years. The human race has existed for many thousands of years in Earth’s recent history, but it took until just over 200 years ago (about the year 1800) for the population to reach 1 billion. Since then, humans have continued to populate the Earth at a tremendous, and unsustainable, rate. The US Census Bureau (June 2011 update) reports that the world population doubled from three to six billion in the 40 years to 1999; and that it is projected to grow to 9 billion in the 45 years to 2044. It projects a rise of about 2.4 billion between

**Table 3.1** A comparison of growth and urbanisation in selected global economies Major Country Comparison with Australia (Source: Primarily CIA Factbook, 2011)

	Population (million)	Proportion urbanised (%)	Urbanisation rate (% pa)	GDP per capita (\$)	Population of major cities
Australia	22	89	1.2	41,000	18 > 100,000 including 5 > 1 million (e.g. Sydney 4.6 million)
China	1,300	47*	2.3	7,600	160 > 1 million Including 4 > 9 million (e.g. Shanghai 16 million and Beijing 12 million)
India	1,100	30	2.4	3,500	43 > 1 million Including 5 > 7 million (e.g. New Delhi 2.1 million and Mumbai 19 million and Kolkata 15 million)
USA	313	82	1.2	47,200	280 > 100,000 Including 4 > 5 million (e.g. New York 19 million and Los Angeles 12 million)
Indonesia	245	44	1.7	4,200	4 > 2 million (e.g. Jakarta 9 million)

\*In January 2012, some media outlets reported estimates that China’s urbanisation had reached 50 %.

Source: Adapted from CIA (2011)

2010 and 2050—equivalent to adding the combined population of current-day China (1.3 billion) and India (1.1 billion) in just 40 years.

The implications of world population growth for the sustainable development of Australia should not be underestimated. In world terms, Australia is only the 55th largest nation by population; but Australia ranks 18th for GDP (CIA *World Factbook* 2011). This disproportionate economic influence largely results from our abundant and diverse natural resources, together with the demand for our commodities by major countries, including the rapidly urbanising China. World growth of 2.4 billion in 40 years will force Australia, a large, resource rich, sparsely inhabited land, to confront enormous international pressures and world food security challenges. If Australia can get its internal planning in order it will be easier to deal with these international pressures. To assist in understanding Australia’s situation in the global context, Table 3.1 provides a comparison of population, level and rate of urbanisation and per capita GDP amongst Australia and other selected nations.

Australia’s future is now intrinsically interwoven with the future of its major trading partners. Australia will experience increasing opportunity and risk as these relationships evolve in the face of world population growth, increasing urbanisation, energy security risk and food security challenged by weight of numbers, peak energy, peak phosphorus and weather extremes.

Australia's future is now intrinsically interwoven with the future of its major trading partners.

### 3.3 The Australian Population Context

Australia's population has increased by 10 million in the last 40 years, from 12 million to 22 million people (Table 3.2). In the next 40 years, the Australian Government's *2010 Intergenerational Report* has projected a further increase of 13 million to 35 million by 2050. The combination of an aging population and reducing tax payer base will pose a serious challenge to Australia's economic sustainability going forward.

Some 15 million (68%) of the Australian population is currently accommodated in the five capital city/metropolitan regions of Sydney, Melbourne, Brisbane, Perth and Adelaide. A further 1.5 million (7%) is accommodated in the remaining 13 major cities of 100,000 population or greater (Fig. 3.1). Whilst these 18 major cities comprise just a few percent of the Australian land mass, they house 75% of the population, 75% of jobs and provide 80% of GDP.

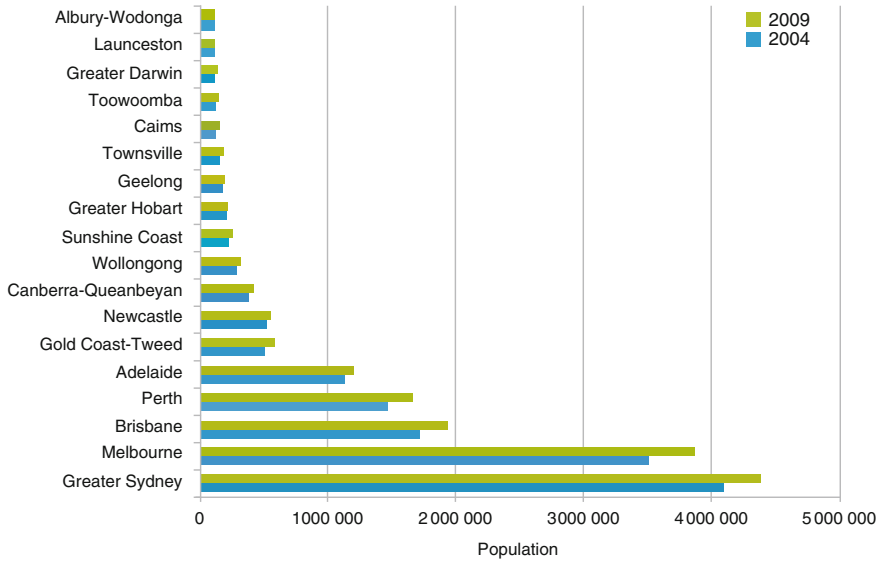
The Australian population challenge is not only one of raw growth. Growth trends are also shifting, with only cities in Queensland (e.g. Gold Coast, Sunshine Coast, Cairns, Townsville, Brisbane and Toowoomba) recording above 10% rates of increase in the 5 years to 2006 (Fig. 3.2). Meanwhile, the absolute growth was greatest in metropolitan Melbourne (about 270,000) followed by metropolitan Brisbane (about 180,000) and metropolitan Sydney (about 150,000).

The changes in absolute growth, as well as rate of growth and location are significant in foreshadowing sustainable development capacity, since these are major considerations in infrastructure provision. The uneven patterns of growth now being experienced across Australia's regions (Fig. 3.3) adds complexity to the Sustainable Australia challenge.

**Table 3.2** Australian population projection and changing profile

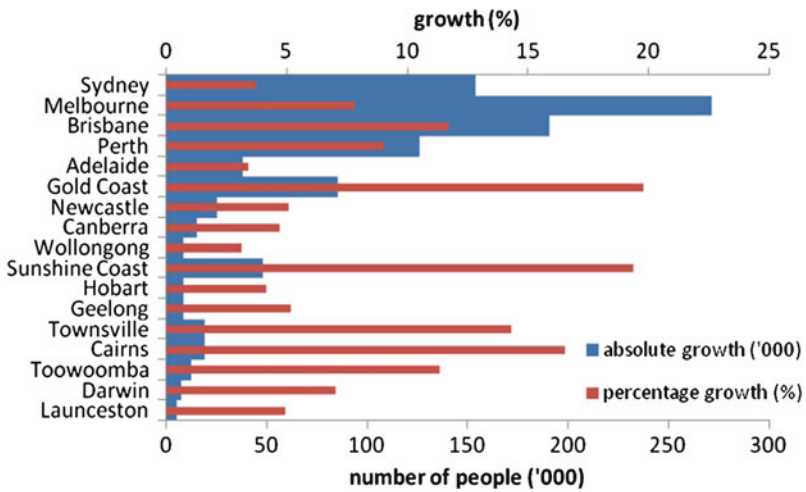
Age range	1970	2010	2020	2030	2040	2050
Population as at 30 June (millions of people)						
0–14	3.6	4.2	4.9	5.4	5.7	6.2
15–64	7.9	15.0	16.6	18.2	20.0	21.6
65–84	1.0	2.6	3.7	4.8	5.6	6.3
85+	0.1	0.4	0.5	0.8	1.3	1.8
Total	12.5	22.2	25.7	29.2	32.6	35.9
Percentage of total population						
0–14	28.8	19.1	19.0	18.3	17.4	17.2
15–64	62.8	67.4	64.7	62.4	61.3	60.2
65–84	7.8	11.7	14.3	16.6	17.2	17.6
85+	0.5	1.8	2.1	2.7	4.0	5.1

Source: Adapted from the Australian Government 2010 Intergenerational Report



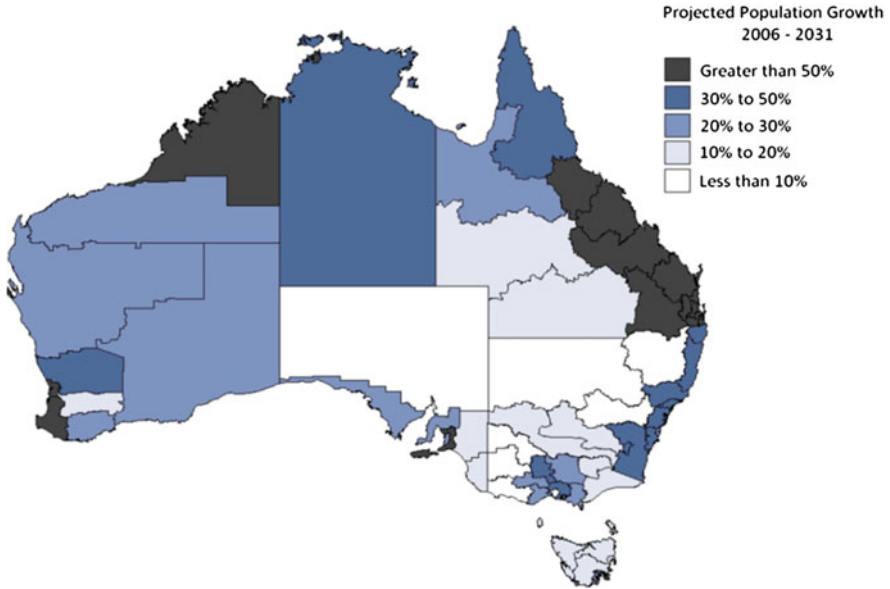
Source: *Regional Population Growth* (ABS 3218.0)

**Fig. 3.1** Population bases of Australia’s 18 major cities (2004 to 2009 comparison) (Source: Australia Government (2010b, p. 4)



**Fig. 3.2** Absolute and percentage growth in major Australian cities between 2001 and 2006 (Source: Australian Government (2011b) (Appendix II—Productivity and Prosperity Advisory Panel Report, p. 45))





**Fig. 3.3** Projected rates of population growth in Australian regions, 2006 and 2031 (Source: The Australian Government (2011b) (Appendix II—Productivity and Prosperity Advisory Panel Report, p. 17)).

### 3.4 The Sustainable Australia Challenge

Understanding where and how Australia can productively and sustainably accommodate between 8 million (world trend) and 13 million (Australian Government 2010 Intergenerational Report projection) additional people in metropolitan and regional areas by 2050 is fundamental to addressing the Sustainable Australia challenge. Solutions need to be the result of an iterative dialogue between governments, business and the Australian people, within an agreed Sustainable Australia Framework. The map of projected rates of growth may be different once Australia's communities and business have been fully engaged from the ground up, with the benefit of a sound evidence base.

Solutions need to be the result of an iterative dialogue between governments, business and the Australian people.

Already, sustainability warning bells are sounding loud for listening Australians. The growing and changing world will exacerbate home-grown issues and confound matters further (Table 3.3). All these issues will impact the challenge that is

**Table 3.3** Warnings, other internal factors and international factors influencing Sustainable Australia

‘Warning bells’	Other internal factors	International factors
Metropolitan traffic congestion	National security	World population growth
Urban water security crises	Health servicing	China/India urbanisation
Murray-Darling water crisis	Carbon constraint	World economic uncertainty
Underground water risk	Immigration	Energy security
Waterway health risk	Productivity	Food security
Soaring living costs—housing affordability, electricity, water and transport	Workforce participation	Climate change
Natural disaster impacts exacerbated by previous poor planning	Crime and personal safety	
Environmental and economic production conflict	Energy security	
Energy and environment conflict	Resource consumption	
Energy and economic production conflict	Public and active transport	
Metropolitan creep into good agricultural land	Ecological sustainability	
	Marine health	
	Impacts on biodiversity	

Sustainable Australia in some way, in the face of energy, resource and food hungry world growth. However, the warnings in particular, combined with the potential for the projected population profile to challenge Australia’s economic sustainability, constitute a real and immediate risk Australia cannot ignore. They scream out that Australia plan and implement the future better than the past—in a comprehensive, scientific and integrated way.

Irrespective of the extent of population increase (between 8 million and 13 million by 2050), the issues will remain the same: only the magnitude of the impacts will differ. Increased population, urban renewal and the need for productivity growth will continue to drive development. The communities, businesses and governments of Australia are the current custodians of the great southern land and must co-operate to face the Sustainable Australia challenge together. Anything less than sustainable development in the future will tear at the fabric of Australian society, which is already stressed as indicated by the warnings bells ringing in the major cities, the Murray–Darling basin and across the nation. Sustainability is about delivering for all of Australia, not a preparedness to sacrifice some of it; as sacrifice of some reduces the sustainability capacity of the whole.

### 3.5 A Framework for Communities, Business and Governments to Face the Challenge Together

Communities are the building blocks of Australian society. They are many and varied; and insightful and powerful when well informed, engaged and well governed. Communities across Australia are alert to the sustainability challenge. Evidence based engagement of local communities and business, and collectively regional communities, is essential in achieving Sustainable Australia.

Communities are the building blocks of Australian society. They are many and varied; and insightful and powerful when well informed, engaged and well-governed.

Australia's federal system of government comprises the Australian government, 8 state and territory governments and about 560 local governments (in 55 regions). Without comprehensive community and business engagement and integrated inter-government planning, Australia's federal system of government struggles to deliver regional outcomes that contribute to national objectives. At best, it can result in a substantial lag between Australian Government policy direction and when a response at the local or regional level is enacted. At worst, the outcome fails to be realised. This is often exacerbated by intermeshing national, state and local election cycles.

Where and how does Australia grow sustainable communities in metropolitan and regional areas?

How does Australia ensure the renewal of towns and cities is sustainable?

How does Australia ensure sustainable development delivers productivity growth and community wellbeing?

The answers to these tough where and how questions are explored in the section dealing with 'Delivering Sustainable Australia through Regional Development' and in the following subsections which:

- Propose a Sustainable Australia Framework within which Australia's three levels of government can co-ordinate government, community and business effort for the sustainable development of Australia, with a focus on productivity growth and community wellbeing;
- Identify existing or evolving Australian Government sustainability and nation building policies that comprise the top component of the Framework; and
- Identify State and Territory Governments and Regional Development Australia as the glue in the middle; and Local Government as the foundation component of the Framework.

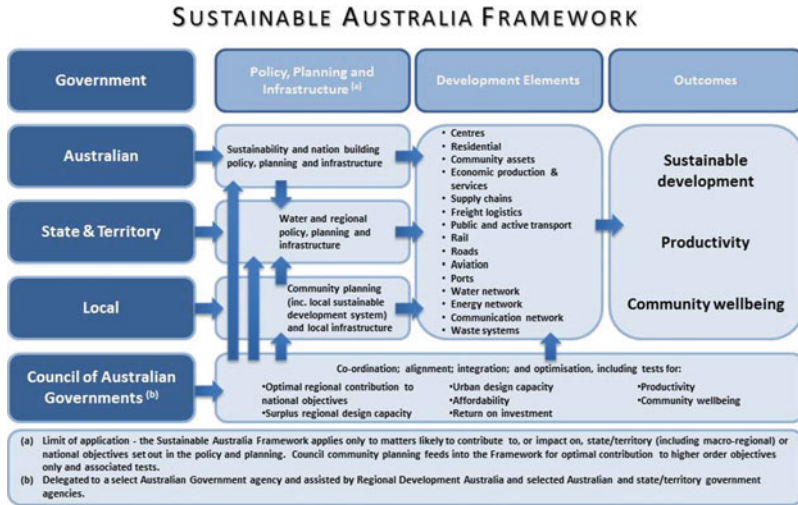


Fig. 3.4 The proposed Sustainable Australia Framework

### 3.6 Sustainable Australia Framework

The three levels of government do not lack appropriate policy or planning—what is lacking is an integrated framework to ensure it all works together efficiently and effectively, to contribute to national objectives. The same federal system of government, facilitated by a robust Sustainable Australia Framework and evidence based community planning, can move beyond national, state and local election cycles and deliver agreed planning objectives.

The Sustainable Australia Framework is a comprehensive inter-government planning approach, designed to pull community, business and governments together, around a serious evidence base, to face the Sustainable Australia challenge (Fig. 3.4). It is an integrated top-down bottom-up approach for answering the where and how questions for each region and assists better understanding of the relationships between regional and national objectives. It provides an arrangement for the nation’s 55 regions (comprising 560 Council areas) to contribute optimally to the national objectives. The Framework will guide and integrate national, State/Territory and local planning for where and how Australia can productively and sustainably accommodate more people; and guide implementation of Sustainable Australia.

The Sustainable Australia Framework is an integrated inter-government planning approach, designed to pull community, business and governments together, around a comprehensive evidence base.

To streamline inter-government interaction, the Sustainable Australia Framework should apply only to matters likely to contribute to, or impact on, state/territory (including macro-regional) or national objectives, which are set out in the policy or planning of those levels of government. Through council community planning, the Local Sustainable Development System feeds into the Framework for optimal contribution to the higher order objectives and for the associated tests only, but, in working as the engine for council community planning, the System also supports all local and regional planning and design. Application of the System at the local level will help inform determination of the contributory matters for application of the Framework.

The guiding principles for the assembly of a comprehensive Sustainable Australia Framework (including the Local Sustainable Development System) should include:

- Evidence based community and business engagement;
- Rationalisation of regional contributions to the state and national agenda;
- Local/regional development consistency with national and State/Territory strategic investment e.g. water, ports, land freight, transport, aviation, communications and energy;
- Sustainable regional design;
- Assessment of sustainable growth capacity;
- Minimization of the differential between optimum and acceptable urban design capacities;
- Value adding public and private investment in enabling infrastructure;
- Return on investment;
- Sustainable growth and/or sustainable renewal;
- Productivity growth;
- Community wellbeing; and
- Maintenance of surplus regional design capacity (e.g. water, energy, ecosystems, air quality).

### **3.7 Australian Government Sustainability and Nation Building Policies**

The Council of Australian Governments, established in 1992, is the peak intergovernmental forum in Australia. The Council comprises the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association. The Prime Minister chairs the Council. The role of the Council of Australian Governments is to initiate, develop and monitor the implementation of policy reforms that are of national significance and which require cooperative action by Australian governments. 'Facing the Sustainable Australia challenge together' fits that role well.

The following existing or evolving Australian Government sustainability and nation building policies or reviews could effectively contribute to the top component of the Framework:

- Infrastructure Australia (Infrastructure Australia Act 2008);
- National Broadband Network (FTTP announcement April 2009);
- Powering Ideas: An Innovation Agenda for the twenty-first century (May 2009);
- National Aviation Policy (December 2009);
- Regional Development Australia (Charter released September 2009);
- 2010 Intergenerational Report (January 2010);
- State of Australian Cities Report 2010 (March 2010);
- National Housing Supply Council State of Supply 2010 Report (May 2010);
- Urban Water Security Strategies Review for Infrastructure Australia (May 2010);
- Regional Towns Water Quality and Security Review for Infrastructure Australia (May 2010);
- Council of Australian Governments’ Reform Council—Capital Cities Strategic Planning Systems (June 2010–February 2012);
- Water for the Future Initiative (fact sheet issued October 2010);
- National Ports Strategy (December 2010);
- National Land Freight Strategy (consultation paper issued February 2011);
- Sustainable Australia—Sustainable Communities Strategy (May 2011);
- National Urban Policy (May 2011);
- Investing in Regional Australia (Ministerial Statement May 2011);
- National Digital Economy Strategy (May 2011);
- Carbon Price (transition to ETS announcement July 2011); and
- Reform of the Environmental Protection and Biodiversity Conservation Act 1999 (August 2011 response to Dr. Allan Hawke review).

Community wellbeing generally, and economic sustainability in particular, are major goals of this concentrated national effort. The Australian Government 2010 Intergenerational Report describes the three pillars of sustainable economic growth as productivity, participation and population. Over the last 40 years productivity growth has been the major contributor to GDP growth. Over the next 40 years, our ageing population is expected to reduce the workforce participation rate, which will make a negative contribution to GDP growth. Productivity growth is expected to continue to be the dominant contributor to GDP growth, but less than was the case in the previous 40 years. Enabling infrastructure, removal of economic constraints and skills development contribute significantly to productivity growth. Efficient mechanisms to facilitate private investment in enabling infrastructure will be important going forward. These things will be critical for economic sustainability in the face of an aging population and reducing tax payer base. Part of the Sustainable Australia challenge is to minimize the negative impact on workforce participation and maximize productivity growth.

Reform of the Environment Protection and Biodiversity Conservation Act 1999, the Sustainable Australia—Sustainable Communities Strategy, National Urban Policy (and summary action plan), Infrastructure Australia and the Council of Australian Governments’ Reform Council’s review of Capital Cities Strategic

Planning Systems will become the main drivers in a comprehensive Sustainable Australia Framework. The Council of Australian Governments is likely the appropriate institution to oversee the development and monitor the implementation of the Framework. Set out below is a broader description of some of these important elements of Australian Government policy.

In August 2011, the Government released its *Response to the review of the Environment Protection and Biodiversity Conservation Act 1999*, as undertaken by Dr Allan Hawke. The report recognises a continuing decline in global biodiversity and proposes to address the decline by changing how we manage the natural environment including:

- A shift from individual project approvals to strategic approaches, including new regional environment plans;
- Cooperative national standards and guidelines to harmonise approaches between jurisdictions and foster cooperation with all stakeholders;
- Management of our natural assets on a whole-of-ecosystem scale, mindful of interactions and connections across landscapes and seascapes;
- Accounting for all environmental assets in an area, including habitats, species, ecological communities, geographical features, native vegetation, heritage values and water supplies; and
- Environmental policies and programs based on an understanding of how the different aspects of the environment interact, and how best to reduce the impacts of both natural events and human activity.

The *Sustainable Australia—Sustainable Communities Strategy* (Australian Government, 2011a) outlines the Government’s existing framework for a Sustainable Australia and aims to ensure that future population change is compatible with the economic, environmental and social wellbeing of Australia. It recognises that population change is not only about the growth and overall size of our population, but also about the needs and skills of our population, how we live, and importantly, where we live. The Strategy identifies its focus as ensuring that we have in place the necessary policy settings and governance arrangements which will deliver improvements in our wellbeing, at the local, regional and national levels into the future. It outlines the Government’s commitment to improving the liveability of our urban areas, and building stronger regions.

The *National Urban Policy* describes its goals as:

- Productivity—to harness the productivity of Australia’s people and industry, by better managing our use of labour, creativity and knowledge, land and infrastructure;
- Sustainability—to advance the sustainability of Australia’s natural and built environment, including through better resource and risk management; and
- Liveability—to enhance the liveability of our cities by promoting better urban design, planning and affordable access to recreational, cultural and community facilities.

The National Urban Policy and summary action plan applies to cities with population greater than 100,000, which in aggregate comprise 75% of Australia's population. The summary action plan sets out:

- Australian Government initiatives to deliver the goals of productivity, sustainability and liveability;
- Current programs and reform areas;
- Short term (2011–2014) actions; and
- Medium (2014–2017) to long term (2017–2020) actions.

The *Infrastructure Australia Act* establishes Infrastructure Australia with the primary function of providing advice to governments and investors and owners of infrastructure about:

- Australia's needs and priorities relating to nationally significant infrastructure;
- Policy, pricing and regulatory issues that may impact on the utilisation of infrastructure;
- Impediments to the efficient utilisation of national infrastructure networks;
- Options and reforms, including regulatory reforms, to make the utilisation of national infrastructure networks more efficient;
- The needs of users of infrastructure; and
- Mechanisms for financing investment in infrastructure.

The *Infrastructure Australia Act* defines nationally significant infrastructure as infrastructure, including the following, in which investment will materially improve national productivity:

- Transport infrastructure;
- Energy infrastructure;
- Communications infrastructure; and
- Water infrastructure.

In June 2011, Infrastructure Australia released its 'Communicating the Imperative for Action' Report to the Council of Australian Governments in relation to the seven Infrastructure Australia themes set out in Fig. 3.5. In June 2010, the Council of Australian Governments' Reform Council appointed an Expert Advisory Panel to consider and report on Capital Cities Strategic Planning Systems. This commissioning involves:

- Reviewing capital city strategic planning systems against agreed national criteria;
- Supporting continuous national improvement in capital city strategic planning; and
- Building and sharing knowledge of best practice planning approaches.

Upon completion, the improved Capital Cities Strategic Planning Systems should contribute substantially to council community planning and the Local Sustainable Development System proposed in this chapter.



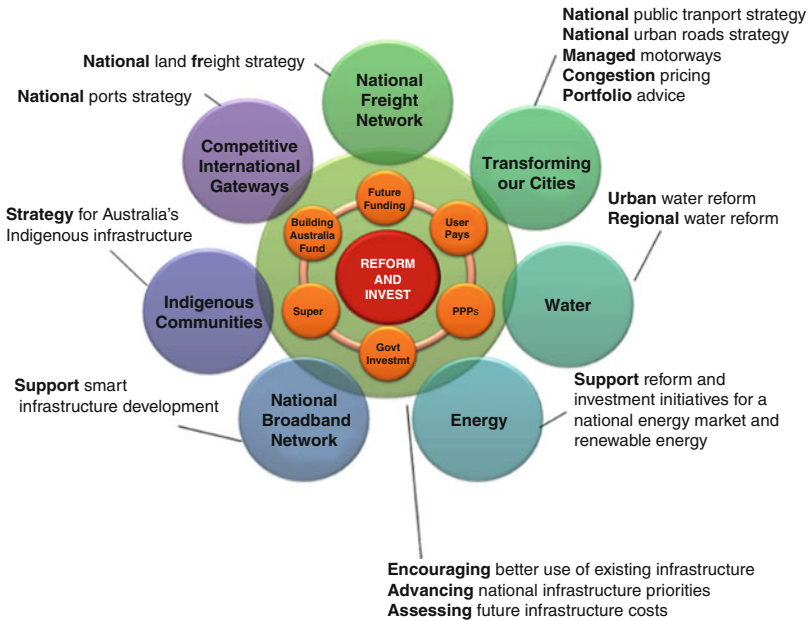


Fig. 3.5 Themes and relationships for Infrastructure Australia (Source: Reproduced under the Creative Commons arrangement, from [www.infrastructureaustralia.gov.au](http://www.infrastructureaustralia.gov.au))

### 3.8 State, Territory and Local Governments and Regional Development Australia

State and Territory government legislation significantly shapes sustainable development planning in individual council areas and regions across Australia. The State/Territory water and regional planning roles and their interface with the Australian and Local Governments provide the glue in the middle of the Framework. Water is a fundamental issue in regional planning and design.

Local Government is a creature of State and Territory legislation and functions in accordance with that legislation. The Local Government discussion in this chapter is based on the Queensland government example. However, there is sufficient commonality in Local Government arrangements between Australian States for the conclusions drawn to be applicable in other States and Territories. The main proposal of this chapter, in relation to the foundation component of the Sustainable Australia Framework, is the establishment of a Local Sustainable Development System as a new, evidence-based engine for council community planning. This System is based on the existing Queensland government legislative planning framework, which is reasonably well advanced. The core of Queensland’s sustainable development planning is established in:

- The *Water Act*—involving Water Resource Plans, Resource Operations Plans and Water Supply Strategies;
- The *Sustainable Planning Act*—involving State Regional Plans and Council Land Use Planning Schemes;
- The *Local Government Act*—involving Community Plans, Corporate Plans, Financial Plans and Asset Management Plans;
- The *Queensland Regionalisation Strategy*; and
- The *Queensland Infrastructure Plan*.

A key outcome of the Local Sustainable Development System, and a critical test of sustainability, is the maintenance of surplus regional design capacity. Metrics to test for this capacity should be established and applied by the State/Territory government, possibly with Regional Development Australia involvement. This ensures accountability in the critical impact assessment phases of the Framework’s processes.

The September 2009 *Regional Development Australia Charter* establishes a partnership between the Australian, State, Territory and Local governments to develop and strengthen the regional communities of Australia. There are 55 Regional Development Australia committees in Australia and the Charter provides that each will work with all sectors of the community to contribute to and drive:

- Regional business growth plans and strategies;
- Environmental solutions for sustainability and management of climate change; and
- Social inclusion strategies.

At an operational level, the Regional Development Australia partnership, implemented through the 55 regional committees across the nation, is appropriately structured to help integrate the effort of all three levels of government for sustainable regional development. The committees can play a critical integration role in the Framework.

### ***3.8.1 Delivering ‘Sustainable Australia’ Through Regional Development***

Sustainable Australia will only be achieved by co-operative, integrated effort. Australia’s Federal system of government, including the Council of Australian Governments (COAG), is capable of planning and implementing Sustainable Australia; our egalitarian Australian society demands a top down bottom up approach. Reliance on a top down only approach will fail. Similarly, reliance on a bottom up only approach will fail. All levels of Government working together, encouraged and empowered by an informed and engaged general and business community, can deliver the necessary integrated planning and implementation.

The Australian Government initiated a public policy conversation with the Australian community on Sustainable Australia through community consultation papers on the Sustainable Population Strategy and the National Urban Policy.

The outcome of much of that dialogue with the Australian people crystallised, in May 2011, in the Sustainable Australia—Sustainable Communities Strategy and the National Urban Policy and associated summary action plan. Together with the previously created Infrastructure Australia, the Environmental Protection and Biodiversity Conservation Act and various other sustainability and nation building policy initiatives, the Australian Government has effectively established the top component of the Sustainable Australia Framework. The Regional Development Australia partnership (a 2009 Australian Government initiative) strengthens the inter-government, business and community interface.

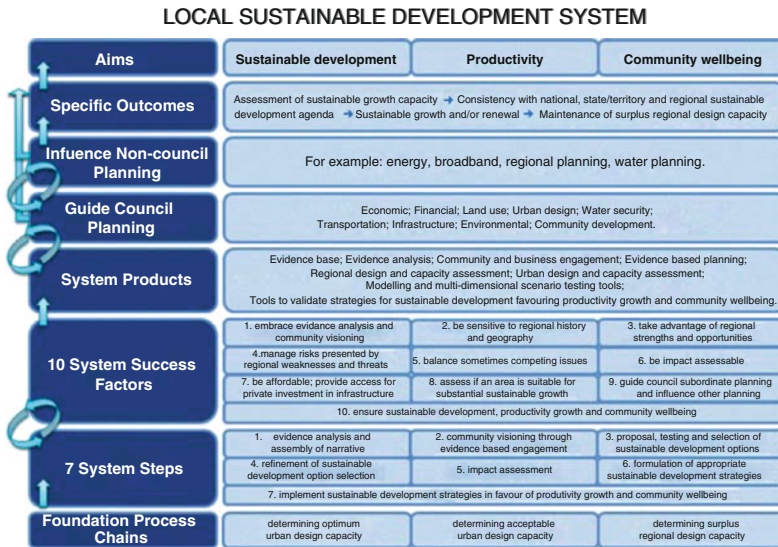
Delivery of the recently established national agenda for Sustainable Australia—Sustainable Communities, and the National Urban Policy can be greatly enhanced by:

- Research and development of aspects of the Sustainable Australia Framework’s integration and optimization roles;
- Establishment and incorporation of a Local Sustainable Development System as an engine for existing council community planning;
- Nation building infrastructure to remove economic constraints and lift productivity; and
- Innovative private and public finance arrangements for enabling infrastructure.

State and Territory Government legislation significantly shapes sustainable development planning in individual council areas and regions across Australia. Councils are creatures of State and Territory legislation and function in accordance with State/Territory legislation. It is the combined effort of individual Councils that develops a region; and sustainable development is best delivered at the regional scale. The key will be establishing each region’s most efficient and effective contributions to Australia’s national objectives, determining optimal contributions across the nation and funding accordingly. The design of each of the 55 regions (and consequently the 560 Council areas) should be based on an understanding the region’s advantage and management of associated strengths and risks. The design should be underpinned by a philosophy of achievement of national objectives through optimal regional contribution.

The key will be establishing each region’s most efficient and effective contributions to Australia’s national objectives, determining optimal contributions across the nation and funding accordingly.

The regional design role warrants significant innovation to ensure local and regional strategies are integrated and optimised for conversion to sustainable reality and optimal contribution to the national objectives. The Local Sustainable Development System is the appropriate vehicle for linkage between local and regional scale, and establishes the basis for innovative regional design. The 55 Regional Development Australia committees can play an important role in integrating the



**Fig. 3.6** Local sustainable development system (a synopsis diagram showing an evidence-based engine of Council Community Planning)

efforts of all three levels of government in this regard. Success will emanate from integration through the Framework to achieve nationally agreed goals and regional sustainable development deliverables.

Good regional design will support the ability to fund large step, long term payback infrastructure projects. Projects often fail the ‘chicken or egg’ funding test because of poor regional design. Good regional design will surpass the chicken or egg test. It will facilitate innovative and efficient infrastructure financing solutions to account for intergenerational equity and use Australia’s strengths to convert the growth threat to growth opportunity. Infrastructure Australia is tasked with developing these solutions and the establishment of the Sustainable Australia Framework and the Local Sustainable Development System will assist that task substantially.

### 3.8.2 A Local Sustainable Development System

The best way to engage local and regional communities is through Local Government, with Regional Development Australia enhancement. Local community and business engagement is a key function of the proposed Local Sustainable Development System, which operates as an evidence based engine for council community planning. Figure 3.6 is a diagrammatic representation of the System. Importantly for streamlined inter-government interaction, the Local Sustainable Development System feeds into the Sustainable Australia Framework for optimal contribution to

state/territory (including macro-regional) and national objectives only. However, as the engine for council community planning, it also supports all local and regional planning and design and accordingly helps inform determination as to the contributory matters for application of the Framework.

In the state of Queensland, the community plan is the peak council planning instrument which establishes the community's vision and gives direction to all other council planning. Community plans are based on community engagement, are for a minimum 10 years and must align with state water plans (developed for each water catchment) and State regional plans. In most circumstances the water catchments and State regional planning areas will have different boundaries and be greater than the council area, or group of council areas which may be the subject of a composite community plan. The Local Sustainable Development System enhances existing community planning by inspiring greater community ownership and commitment to the implementation of the community's objectives.

Some council areas will be suited for substantial growth and some will not be suitable. The region will likely contain several urban areas. Councils and communities will successfully engage in the challenge when they see themselves as part of the solution, have some influence over their own destiny and are not being forced down an unwelcome path. Resolution and ownership of planning issues at the council and community level will greatly assist state and Australian government effort.

Australian communities want to address the sustainability challenge. They want to be engaged with government in public policy dialogue; and they want their local planning to convert their vision into sustainable reality and community wellbeing. The Local Sustainable Development System incorporates evidence emanating from national and state policy and planning outcomes and builds upon government and private investment. Local councils must engage and lead their communities in understanding their region's capacity for sustainable development and its contribution to Sustainable Australia.

### ***3.8.3 Aim and Specific Outcome***

Most communities experience development as phases of growth and renewal; or a mix of growth and renewal; or renewal only. That development may be sustainable or it may not be sustainable. Sustainable development will not happen by accident. It must be planned and delivered.

The aim of the Local Sustainable Development System, as the evidence based engine of community planning, is to deliver sustainable development, productivity growth and community wellbeing through specific outcomes including:

- Assessment of sustainable growth capacity;
- Consistency with the national, state and regional sustainable development agenda (and a feedback loop for agenda improvement);

- Sustainable growth and/or sustainable renewal; and
- Maintenance of surplus regional design capacity.

The aim of the Local Sustainable Development System, as the evidence based engine of community planning, is to deliver sustainable development, productivity growth and community wellbeing.

Assessment of sustainable growth capacity and consistency with the national, state and regional sustainable development agenda will help address the ‘knowing where’ part of the Sustainable Australia challenge. Importantly the System will also operate as feedback loop to inform enhancement of the sustainable development agenda. However, notwithstanding the outcome of the sustainable growth capacity assessment, sustainable development planning should aim for a community to achieve productivity growth and community wellbeing through sustainable growth and/or sustainable renewal. The focus is usually on sustainability tests for growth, but often ignored is the need to ensure renewal development is also delivered in a sustainable manner. In the future, urban renewal will impact significantly on Australia’s urban design capacity.

Australian and state/territory government components of the Framework should include incentives for council delivery of local and regional outcomes that contribute to Sustainable Australia, in the context of the national and state/territory economic, social and environmental agenda. Incentives should be offset by return on investment through value adding government and private enabling infrastructure investment. Test criteria for incentive funding should include:

- Consistency with national, state and regional strategic investment;
- Optimal contribution to national objectives;
- Minimisation of the differential between the optimum and acceptable urban design capacities;
- Return on investment;
- Productivity growth; and
- Surplus regional design capacity.

### ***3.8.4 Ten Critical Success Factors***

Irrespective of State or Territory jurisdiction and the language variously describing the planning, critical success factors for the System will:

1. Embrace evidence analysis (including evidence emanating from national and State/Territory policy and planning outcomes) and community visioning and validation through evidence based communication, community engagement and political leadership

2. Be sensitive to regional history and geography (including demography, hydrology, ecology and soil types)
3. Take advantage of regional strengths and opportunities
4. Manage risks presented by regional weaknesses and threats
5. Balance sometimes competing issues including economic development, jobs, land development cost, housing affordability, water security, energy security, food security flooding and other constraints, urban design, enabling infrastructure, quality lifestyle, waterway health, air quality, community development, natural resource consumption, environmental conservation and financial capacity
6. Be impact assessable (including incentive funding testing)
7. Be affordable and provide access for private investment in enabling infrastructure
8. Assess if an area is suitable for substantial sustainable growth
9. Guide subordinate planning (including economic, financial, land use, urban design, water security, transportation, infrastructure, environmental and community development) and influence other planning (e.g. energy, broadband, regional planning and water planning) to deliver sustainable growth and/or sustainable renewal
10. Ensure sustainable development, productivity growth and community wellbeing

The keys to success are to embrace evidence; be sensitive to regional history; take advantage of regional strengths and opportunities; manage regional risk; balance competing issues; be impact-assessable; be affordable; assess suitability for growth; guide subordinate planning . . . this will help to ensure sustainable development, productivity growth and community wellbeing.

### 3.8.5 *System Definitions*

The following definitions assist explanation of the Local Sustainable Development System:

*Council area* may be a single council or a group of councils within a region or water catchment. For example, the Queensland Government legislation provides for a community plan to apply for a single council or a group of councils. Following the 2008 amalgamations, Queensland councils are generally of a sustainable size, but if this were not the case the System would be best applied for a group of councils.

*Sustainable development* is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations Brundtland Commission Report, 1987).

*Lifestyle development*—In modern society, for a population to experience community wellbeing it requires the support of significant development that provides

for example food, shelter, energy, water, sanitation, governance, commerce, justice, health, education, transport, communications, waste recycling and disposal, community facilities, recreation, greenspace and, in the context of Sustainable Australia, productivity growth. For the purpose of the Local Sustainable Development System, this development, supporting community wellbeing, is called lifestyle development.

*Export development* includes, for example, a substantial industry type and size which is assessed as additional to lifestyle development. It is an economic exporter from the region and consumes water and energy measured by number of persons with associated lifestyle development. Another example of export development is agricultural irrigation. Export development reduces the regional design capacity.

*Regional design capacity* is measured in terms of the aggregate optimum urban design capacity (population), plus the rural population, the region can support and is determined by issues such as water, energy, ecosystems, air quality and other natural resources. Regional design capacity may gradually change over time as lifestyle development per capita consumption of regional resources changes.

*Surplus regional design capacity* is the differential between the existing population and the regional design capacity (population). It will change over time as a result of population change, new lifestyle development for existing population (improved services), renewal lifestyle development, export development and technology improvements; and any change in the regional design capacity. See the process chain for determination of surplus regional design capacity in a later sub-section.

*Optimum urban design capacity* is the maximum population for which the urban footprint/s can be sustainably developed, while ensuring community wellbeing and a surplus regional design capacity. It will change over time as a result of regional design, urban design, new export development and technology improvements in transportation, water security, energy security, waterway health and air quality. See the process chain for determination of optimum urban design capacity in a later sub-section.

*Acceptable urban design capacity* is the product of the urban design density profile, which is acceptable to the community, and the size and shape of the urban footprint. See the process chain for determination of acceptable urban design capacity in a later sub-section.

*Productivity growth* will be underpinned by technological advances, new products and processes, capital intensity and the flexibility and efficiency of the allocation of labour and capital. It will be supported through investment in Australia's skills base and infrastructure and removal of economic constraints (Adapted from Australian Government Intergenerational Report, 2010).

*Community wellbeing* prevails if communities embrace sustainable development; are well serviced, healthy and resilient; protect places of special significance; and have integrated networks of pleasant and safe public areas (Adapted from Queensland Sustainable Planning Act, 2009).



### ***3.8.6 Seven Steps in the System***

The system involves the following steps by the council (or the local/regional planning authority):

1. Evidence analysis and assembly of narrative
2. Community visioning through evidence based communication, community engagement and political leadership
3. Proposal, testing and selection of sustainable development options to deliver productivity growth and community wellbeing, based on:
  - Size and shape of the urban footprint;
  - Understanding of regional and urban design options and capacity;
  - Understanding of national, state and regional sustainable development agenda;
  - Understanding of local and regional economic issues;
  - Understanding of local community issues; and
  - Maintenance of surplus regional design capacity.
4. Refinement of sustainable development option selection through understanding of:
  - Sustainable regional design;
  - Urban design scenarios (new and renewal lifestyle development) and acceptable urban design;
  - Urban design capacity;
  - Export development (existing and planned);
  - Government and private enabling infrastructure investment;
  - Local and regional economic consequences;
  - Local community consequences; and
  - Potential impact of technology improvements on long term options.
5. Impact assessment (including Sustainable Australia Framework testing) for:
  - Consistency with national and regional sustainable development agenda;
  - Productivity growth;
  - Affordability;
  - Return on investment;
  - Differential between optimum urban design capacity and acceptable urban design capacity;
  - Sustainable growth capacity based on population of existing urban footprint/s and urban design capacity;
  - Maintenance of surplus regional design capacity; and
  - Consistency with community vision (or opportunity for vision review).
6. Formulation of appropriate sustainable development strategies based on:
  - Sustainable regional design;
  - Acceptable urban design capacity;
  - Investment in enabling infrastructure;

- Affordability;
  - Value adding implications and return on investment;
  - Impact in favour of productivity growth and community wellbeing;
  - Enhancement of regional economic 'balance sheet';
  - Validation of community vision; and
  - Validation that regional design capacity remains in surplus.
7. Implementation of sustainable development strategies in favour of productivity growth and community wellbeing to:
- Guide subordinate planning (e.g. economic, financial, land use, urban design, water security, transportation, infrastructure, environmental and community development);
  - Influence other planning (e.g. energy, broadband, regional planning and water planning);
  - Deliver sustainable growth and/or sustainable renewal;
  - Add value to Australian and state/territory government and private enabling infrastructure investment and deliver a return on investment; and
  - Enhance regional economic 'balance sheet'.

Australia's informed and pragmatic communities will not accept an impractical or forced development solution; or a solution they do not fully understand. This is why grassroots evidence based engagement is so important. The applicable urban design capacity for an urban footprint will be that which is accepted by the local/regional community, not necessarily the optimum urban design capacity.

The differential between the optimum and acceptable urban design capacities of an urban footprint is a crucial aspect of the System and the overall Framework. It is a key measure of the Framework integration and optimisation roles. It should also be a critical test for incentive funding for enabling infrastructure. The lower the differential the more optimal is the sustainable development solution and the greater the return on investment.

### ***3.8.7 Processes for Determining Urban Design Capacity and Surplus Regional Design Capacity***

The process chain for determining *optimum* urban design capacity is:

- Determine the size and shape of urban footprint (using traditional land use planning and sustainability criteria based on topography, waterway health requirements, ecological requirements, soil type, good quality agricultural land, economic production land and flooding and other constraints);
- Through urban design scenario testing and application of capacity limitations (including water security, energy security, waterway health, air quality criteria and residual urban design legacy), establish the optimum urban footprint density profile; and

- Determine the optimum urban design capacity by application of the optimum urban footprint density profile to the size and shape of the urban footprint.

The process chain for determining *acceptable* urban design capacity is:

- Through community engagement in relation to the optimum urban design capacity (and associated optimum urban footprint density profile and urban design scenario testing) establish the acceptable urban footprint density profile; and
- Determine the acceptable urban design capacity by application of the acceptable urban footprint density profile to the size and shape of the urban footprint.

The process chain for determining *surplus* regional design capacity is:

- Determine the regional design capacity by assessment of the proportion of consumption of the most limiting natural resources (e.g. water supply or urban land supply) by the existing regional population and export development; and extrapolation to the population that would consume the most limiting resource (undertaken by state/territory government); and
- Surplus regional design capacity is the differential between the existing regional population and the regional design capacity population (undertaken by state/territory government).

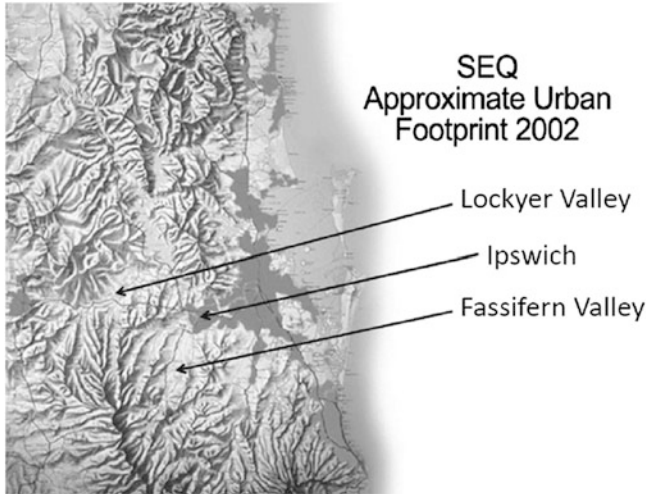
The aggregate optimum urban design capacity of the various urban footprints of a community planning area is limited by the regional design capacity. It is appropriate that the regional design capacity and surplus regional design capacity metrics are established and tested by the state/territory government, with potential involvement by Regional Development Australia. This promotes accountability in these critical impact assessment phases of the Sustainable Australia Framework.

Sustainable regional design and acceptable urban design are each key aspects of the following steps of the System:

- Step 4—Refinement of sustainable development option selection;
- Step 5—Impact assessment; and
- Step 6—Formulation of appropriate sustainable development strategies.

### **3.9 Some Explanatory Examples—Ipswich and Lockyer Valley in South East Queensland**

The Sustainable Australia Framework facilitates assessment of each region's most efficient and effective contributions to Australia's national objectives and how the nation's 55 regions can optimally contribute to those objectives. Optimal contribution can only result from co-operation, alignment, integration and optimisation across regions. Optimal contribution is achieved by sustainable design of the region



**Fig. 3.7** The South-East Queensland corner, showing the proximity of Ipswich, and the Lockyer and Fassifern Valleys. Shading indicates the approximate urban footprint

and design of the urban footprints within the region in a manner that maintains a surplus regional design capacity and meets the Framework integration and optimisation tests applied across regions.

South East Queensland (SEQ), as set out in Fig. 3.7, provides a couple of good examples to help explain the key issues of sustainable regional design and acceptable urban design. Sustainable regional design and acceptable urban design are interdependent enablers of sustainable development. They work together to deliver productivity and community wellbeing.

The first example relates to the significance of Lockyer Valley in the sustainable regional design of SEQ. The second example pertains to acceptable urban design and involves the impact of water security on Ipswich’s development of major business and industrial parks in reasonable proximity to residential growth.

*Example 1—Lockyer Valley—SEQ Sustainable Regional Design*

The Lockyer Valley is a freak of the earth’s geologic development. The valley’s rare geographic configuration creates one of Australia’s premium food bowls. Emerging global food security risk and increasing carbon intensive food miles combine to elevate its development as a priority in SEQ sustainable design. Current non-existence of the proposals contained in this chapter mean that the appropriate integration and optimisation tests have not yet been applied, but for the purpose of this discussion, we can assume a proposal to develop Lockyer Valley as a sustainable food bowl would pass those tests.

The current SEQ regional plan treatment of the development of Lockyer Valley is not commensurate with its capacity to contribute to national (and state)

objectives. There are understandable reasons for this at this time, however the regional plan's inability to appropriately design the region to take advantage of the food production capability of Lockyer Valley, and the food processing potential of its surrounding areas, is a good example of the need for the Sustainable Australia Framework and a Local Sustainable Development System. It is hoped that food production and processing are more appropriately incorporated in SEQ's regional design in the next iteration of the SEQ regional plan. Such treatment will provide authority for the necessary land use and infrastructure planning by the relevant councils and other agencies.

Part of future SEQ regional planning and design should include consideration of aspects discussed below.

Maintenance of surplus regional design capacity is the ultimate test for sustainable design of a region. The process chain for determining surplus regional design capacity is set out in an earlier subsection. In the case of development of Lockyer Valley for food production and surrounding areas for food processing, upon full analysis and consideration within the context of a Local Sustainable Development System, it is likely the most limiting natural resource will be water. As explained in the process chain, regional design capacity is consumed by export development. Irrigation for food production and water for food processing constitute export development (see export development definition in earlier subsection). Accordingly, the regional design analysis will involve an understanding of resource consumption and net economic benefit associated with the development or otherwise of food production and processing.

The tests for integration and optimisation involve, amongst others things, circumstantial synergy and competitive advantage. Synergy and competitive advantage underscore two issues that warrant Lockyer Valley being an important element of SEQ's future planning and design. The first is that Lockyer Valley's proximity to SEQ's secure water supply, ample industrial land, large metropolitan population, aviation and sea ports and good highway and rail connectivity provide sufficient synergy and competitive advantage to establish an efficient network of food production, processing and metropolitan and export supply chains, as a substantial economic generator. The second is that very few of the 55 Australian regions can contribute to our national objectives in relation to food production and food processing to the extent of Lockyer Valley and its surrounding areas.

*Example 2—Ipswich's Major Business and Industry Parks—Acceptable Urban Design*

Ipswich is the heart of the SEQ Western Corridor. Ipswich:

- Has a population of 170,000 at 2011, expected to rise to 435,000 by 2031;
- Contains 43% of industrial land available for development in SEQ;
- Is central to the SEQ water grid established in recent years at a cost of about \$9 billion, and which assures SEQ's water security;
- Is adjacent to the Lockyer Valley and the Fassifern Valley;

- Contains Australia's largest master planned community at Springfield (ultimate development 85,000) and Australia's next largest master planned community at Ripley Valley (ultimate development 120,000);
- Is adjacent to Queensland's capital city, Brisbane;
- Is at the confluence of six major highways;
- Is traversed by the western freight rail and contains the route for the proposed new freight rail;
- Is serviced by two metropolitan passenger rail routes;
- Is home to Australia's largest defence base at Amberley; and
- Contains significant campuses of two major universities.

For Australia to be sustainable in the face of increasing population and a changing population profile that will challenge our economic sustainability, we need to accommodate more people productively and sustainably. The nature and extent of contribution by a region to Sustainable Australia varies from region to region. In an urban area, such as that of which Ipswich is part, the nature of the contribution will mostly involve community capacity, safe environmental outcomes, residential, industry and commerce; and the extent will mainly relate to population density, the level of economic production and the quality of service delivery.

Ipswich is planned as a city of centres and job generators, based on well suited geographic and socioeconomic attributes. At the macro level, Ipswich's urban design must embrace and conserve the environmental attributes of the area, build community capacity through its layout and facilities and promote productivity by capitalising on geographic and economic synergy and competitive advantage. At the infrastructure level, Ipswich's urban design must provide a modern, integrated, efficient and effective urban framework of mixed use centres, residential, business and industrial parks, community assets, and sport and recreation facilities underpinned by well designed rail, roads, freight logistics, public and active transport, flood mitigation and drainage, water, energy and communication networks and waste removal and recycle or disposal systems. At a micro level, Ipswich's urban design must foster and support community capacity, social inclusiveness, workforce participation, lifestyle amenity and affordability, learning and creativity, land and waterway care, ecological conservation, efficient supply chains, digital economy advantage, economic production and service delivery.

Acceptable urban design capacity is based on an urban footprint density profile acceptable to the community and must account for all sustainability issues. For a community to accept an urban design capacity approaching the optimum, the urban design of the area must deliver close to optimum lifestyle, economic and environmental outcomes. Successful community planning through application of the Local Sustainable Development System will engage the general and business community and other stakeholders to facilitate understanding of innovative urban design to achieve desirable lifestyle and economic objectives and environmentally sensitive outcomes. Australia has to get much better at urban design; and the approach taken in Ipswich's latest master planned community in Ripley Valley is heading in the

right direction. Innovative, efficient and responsive urban design is integral to meeting the Sustainable Australia challenge.

Population and jobs must come together. Population without jobs is not sustainable. Water security is critical for population and jobs. Synergy and competitive advantage through the traditional and evolving attributes of Ipswich mean it is well positioned to play its role in Sustainable Australia through the development of its major business and industry parks, in reasonable proximity to large residential and available workforce. Proximity to Lockyer Valley and Fassifern Valley also contributes to the city's food processing potential. The measure of Ipswich's future success will be its ability to develop efficient supply chains and lift economic production, the quality of service delivery and acceptable urban design capacity, whilst achieving community wellbeing and maintaining surplus regional design capacity.

A classic opportunity for innovative urban design is evolving in Ipswich in the form of the 120,000 master planned community of Ripley Valley, the adjacent Swanbank Enterprise Park (14,000 job generation potential estimated by Ipswich City Council) and the nearby Aerospace and Defence Support Centre at Amberley. Residential walkability, efficient passive and active transportation, mixed use centres, healthy recreational facilities, community capacity, integrated environmental outcomes, efficient water and energy consumption, high capacity digital connectivity, workforce participation and efficient supply chains in an innovative business and industrial ecology will all be hallmarks of successful urban design of this area. The effectiveness of council's community planning and the quality of the urban design of this large residential, business and industrial configuration will mainly determine how close to optimum will be the acceptable urban design capacity of the area.

### **3.10 Need for Research and Development**

Australia did not plan and implement the past anywhere near well enough because it did not understand the implications for the future well enough. Australia can't make the same mistakes again. A 'she'll be right mate' culture cannot be allowed to blindside the nation in the next 40 years, as it did in the last 40 years. Australia's wealth of resources and low population base let it dodge a bullet. The world and Australia have changed. Australia can't ignore the warnings any longer. It has to invest in research and development to plan and implement the future better than the past.

Various elements of sustainable development planning exist in councils and government agencies throughout Australia, with varying ranges of scope and effectiveness. However, research and development are necessary to establish a comprehensive approach, including a Local Sustainable Development System, to ensure integration and optimization of Australian, State/Territory and Local Government and private enterprise effort and outcomes.

Research and development needs will emerge across a broad spectrum of the Sustainable Australia Framework as it is established. However, the System and Framework integration and optimization roles proposed in this chapter clearly highlight research and development needs that include:

- Tools to develop the evidence base and evidence analysis to inform our communities and businesses;
- World class engagement practices to lead and empower communities;
- Evidence based planning, regional design and capacity assessment and urban design and capacity assessment tools;
- Modelling and multi-dimensional scenario testing tools;
- Tools to test for integration and optimization, e.g. rationalisation of regional contributions to the national agenda; local/regional development consistency with national strategic investment; value adding public and private investment in enabling infrastructure; return on investment; productivity growth;
- Tools to test and validate strategies for sustainable development in favour of productivity growth and community wellbeing;
- Good governance practices for strategy implementation;
- Efficient mechanisms for private investment in enabling infrastructure; and
- Efficient incentive mechanisms for councils and communities to add value to enabling infrastructure investment.

It is imperative that Australia creates a kit of effective, affordable tools and practices capable of use by all councils and other planning agencies in all jurisdictions throughout Australia. Accordingly the research and development methodology must be subject to stringent criticality tests to ensure pragmatic and efficient product. A possible research and development approach could incorporate the following:

- Identifying and categorising existing mainstream sustainable development planning practice and tools which appear fit for the purposes of the Framework and System;
- Assessing fitness for purpose of existing practice and tools in order to identify any deficiencies or gaps in the tool kit for each purpose; and
- Developing new or improved practice and tools for each purpose to complement or replace existing practice and tools to achieve critical success factors.

### **3.11 Conclusions and the Way Ahead**

Australian, State/Territory and Local governments understand the need for effective public policy and substantial public and private investment in enabling infrastructure to manage Australia's continuing population growth in a productive and sustainable way. Australian communities are alert to the need for involvement and innovation to ensure that planning converts their vision into sustainable



reality, productivity growth and community wellbeing. Australia's egalitarian society demands a top down bottom up approach to sustainable development. The Australian federal system of government is well suited to deliver this approach.

The Australian Government has effectively established the top component of the Sustainable Australia Framework. The State and Territory governments have reasonably advanced water and regional planning legislative frameworks in place, comprising the glue in the middle of the Framework. The Regional Development Australia partnership substantially strengthens the middle component. The major gap in a comprehensive Framework is in the foundation component, in the form of a Local Sustainable Development System as an evidence based engine for council community planning. The lack of an effective System jeopardises the whole Sustainable Australia effort by depriving all levels of government of:

- A valuable local/regional evidence base;
- Essential community and business engagement; and
- Tools and practices to deliver integrated and optimised regional and urban planning and design.

Establishment of a comprehensive Sustainable Australia Framework will facilitate integrated effort by all levels of government to plan and implement our future better than our past. Through council community planning based on a Local Sustainable Development System, incentives based on optimal contribution to national objectives and minimisation of the differential between optimum and acceptable urban design capacities, councils and their communities can deliver sustainable growth and/or sustainable renewal and add significant value to the national, State/Territory and private enabling infrastructure investment.

For Australia to productively and sustainably accommodate more people, the way ahead should be forged by the following actions by government to develop a comprehensive Sustainable Australia Framework, including a Local Sustainable Development System, and research and development necessary to support the planning and implementation of Sustainable Australia.

Action 1: Acknowledge the need for a comprehensive Sustainable Australia Framework to guide, integrate and optimise national, State/Territory and local effort.

Action 2: Establish the Sustainable Australia Framework.

The Framework should be based on:

- Existing Australian government sustainability and nation building policy (headlined by the Sustainable Australia—Sustainable Communities Strategy, the National Urban Policy and associated summary action plan and Infrastructure Australia) as the top component;

- Existing, or improved, State and Territorial government water and regional planning and the Regional Development Australia partnership as the middle component; and
- A new Local Sustainable Development System, as the evidence based engine for the foundation component comprising council community planning.

The Framework will facilitate:

- Planning for where and how Australia can productively and sustainably accommodate more people; and
- Implementation of Sustainable Australia.

Action 3: Undertake research and development in respect of aspects of the Local Sustainable Development System and the Sustainable Australia Framework integration and optimisation roles.

The following guiding principles should underpin actions 1, 2 and 3:

- Evidence based community and business engagement;
- Rationalisation of regional contributions to the national agenda;
- Local/regional development consistency with national and State/Territory strategic investment e.g. water, ports, land freight, transport, aviation, communications and energy;
- Sustainable regional design;
- Minimization of the differential between optimum and acceptable urban design capacities;
- Assessment of sustainable growth capacity;
- Value adding public and private investment in enabling infrastructure;
- Return on investment;
- Sustainable growth and/or sustainable renewal;
- Productivity growth;
- Community wellbeing; and
- Maintenance of surplus regional design capacity.

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## Chapter 4

# Transitions in Regional Development Policy: Comparative to Competitive Advantage

Tony McCall

**Abstract** This chapter explores the progress of international regional development policy, including new regionalism and the knowledge economy, regional innovation systems, and constructed advantage. The role of SMEs is highlighted in anchoring regional science, and collaboration is examined as an emerging driver of competitive advantage. The text explains the rise of globalisation in shifting the focus of regional science from competitive to comparative advantage, based on the abilities of regional SMEs to operate in the global context. However, the failures of this as a base for regional policy are highlighted, and ‘new regionalism’ is instead explored as a theoretical base to connect globalisation with the knowledge-based economy.

The chapter remarks on the emerging perspective that knowledge is rapidly becoming an important input to economic growth, and that regions can rapidly respond to opportunities presented by the knowledge economy due to their pre-existing social capital and commercial networks. It also provides a critical analysis of new regionalism (NR) theory, its policy implications, and the research questions arising about how NR links with innovation, regional innovation systems, governance and institutional design, and intervention. Finally, the chapter covers the theory of regional innovation systems, including the implementation of regional development platform methods (RDPM) to enhance opportunities for regional enterprises—providing an alternative collaborative business model for defining ‘how regions do business’.

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## 4.1 Introduction

The evocation for regional development and its policy challenges made by Michael Storper in the late twentieth century remains true for the twenty-first century: regionalisation and localisation will be present in the global economy—but what forms will this look like?

As Campbell-Ellis and McCall (2010: 4) suggest, Storper (1995, 2002) challenges regions to organise creative institutional milieus that construct ‘absolute advantages’ in the global economy. These should be manifested through ‘territorial specialisation and differentiation’ that are path dependent, temporarily constrained and spatial. Storper (1995, 2002) argues that regional economic prosperity is reliant on un-traded interdependencies supported by network interactions producing shared learning and knowledge spillovers.

The current state of play within the regional development discipline has been a long journey of discovery; to appreciate where we are now requires some reflection of where we have come from by way of analysis and critique. Like all disciplines, regional science is a product of the past and the learning capacities that drove the discipline to greater levels of analysis and capacity. In the case of regional development policy, that journey features a number of milestones that reflect a range of issues, techniques (tools of analysis) and layers of expertise that bring us to the exciting regional science platforms, including:

- New regionalism (Rainnie and Grobbelaar 2005; Steiner 2011);
- Regional innovations systems (Tödtling and Trippel 2011);
- Constructing advantage (Cooke and Boschma 2011);
- Innovation; and
- The emerging driver of competitive advantage at a regional level—collaboration.

### 4.1.1 *Regional Development: A Potted History*

When the pioneers of the discipline of regional science—Isard (1960) and colleagues—attempted to outline their ‘methods of regional analysis’ a range of now familiar challenges confronted them:

- How would they define a region? Would it be confined by geography? What about the cultural and political dimensions?
- What would development mean? Economic prosperity? How would that be measured? What/who would be the agent(s) of development?
- Would the discipline be able to shed its economic dependence and reach out to the emerging social sciences (geography, sociology and political science) to expand its theoretical and analytical reference points?

Regional science, as a discipline, is confronted by many challenges and tensions—the definition of a region and of ‘development’; and the need to travel beyond economic constructs.

As the regional science discipline emerged, so did preliminary answers to most of these questions: regions would be essentially amalgams of political and geographical spaces; development would mean economic prosperity measured by GDP per capita and most significantly, the agent of regional development would be the ‘firm’—the small to medium size enterprise that dominated the economic and social landscape of what constituted ‘the region’. The emphasis on the ‘firm’ as the agent of regional development is extremely significant because that focus—albeit in a different form and emphasis—remains pertinent to regional science’s endeavours in the twenty-first century.

The ‘firm’ anchored the emerging regional development discipline around industry, business, enterprise and growth as the drivers of ‘development’ in a region. Understanding how a firm worked became the applied science project of regional science. By the 1950s, assisting how a firm worked became the very limited role of government. This led to training and education provision, infrastructure support and energy subsidies, tax breaks and protection against competition—all in the name of supporting the capacity of firms—latter referred to as Small Medium Enterprises (SMEs). Regional science had found its purpose and role—to develop a science of how the small firm operated in a regional economy and the relationship between the firm and the region’s economic development.

By the 1950s, the objective of regional science became understanding how SMEs operated in regions, and how this influenced regional economic development. But by the 1970s, government intervention became favoured.

During the next 30 years, the focus hardly shifted from this point. During the period of the 1960s to 1970s—when Keynesian political economy provided policy support for government intervention in the market place to correct ‘market failure’, usually through the establishment of monopoly government infrastructure provision in transport, and energy supplies—governments became more confident of the desirability for an ‘increasing role for government’. By the early 1970s, governments in liberal-democratic political systems were adopting Perroux’s ‘growth pole’ theories of regional development (Higgins and Savoie 1995: 100–101) and embracing the ‘trickle down effect’ of those growth poles as ‘manna from heaven’; actively intervening in large scale regional development policy initiatives, such as the Albury-Wodonga and Bathurst-Orange interventions in Australia, together with satellite city development such as Elizabeth in South Australia.

Growth pole theory did have a down side. It was extremely expensive to develop, and impossible to sustain financially, especially when fiscal restraint emerged in the early to mid-seventies to correct the massive reliance on deficit funding that government became addicted to in the 1970s.

The 1980s reaction to ‘big spending governments’ and the corresponding political mantra of ‘small government’ had a significant impact on regional development policy. Whilst governments were reluctant to spend, political communities were somewhat used to the extravagant spending of the 1960s and 1970s. They continued to demand the ‘land of milk and honey’ particularly in relation to infrastructure development and social provision—roads, rail and airports; schools; and health services. A dilemma emerged for fiscally conservative governments: how to manage the political aspirations of regional communities against the need for fiscal restraint?

One of the answers was an institutional intervention—provide a regional-based institutional policy instrument—a regional development organisation or direct support for local governments through policy initiatives—that would effectively ameliorate political agitation on the one hand, and have the advantage of allowing government to have their hands on the policy levers driving regional development at a regional and community level. A potential win-win situation?

Regional development agencies, authorities and bodies emerged in the late 1970s and 1980s as largely planning authorities for the provision and facilitation of existing state or federal government policy areas: water and agriculture, highway and port development; urban and rural planning scheme development.

Regional development entities of the 1970s and 1980s were largely planning authorities, but there remained an emphasis on attracting business and industry to regions.

Even with this institutional intervention, much of regional development policy continued to focus on the firm even if there was a more concerted effort to locate that activity at a regional level rather than an individual enterprise level. Regions began to think seriously about how they could attract firms (smoke stacks) to their regions and what incentives and subsidies might be applied to support increased investment in firms in their regions. In Tasmania, for example, the biggest driver of incentives was hydro-industrialisation and the promise of relatively cheap energy supplies supporting firms such as Comalco, APPM and the Zinc works in Hobart. This was the period when comparative advantage was seen to be the principal ingredient for competitive advantage: the apple isle brand; ‘living off the sheep’s back’; climate and soil; cheap electricity; political stability; reliable and stable workforce were the comparative staples for Tasmania.

In many remote and regional economies, such as Canadian provinces Harold Innis’ staples theory (Higgins and Savoie 1995: 271–288) shaped the emerging notion of comparative advantage as a foundation idea for regional development policy. The complacency and certainty attached to comparative advantage were to

face severe challenges under the emerging liberalisation of the global economy brought about by a combination of events, including the emergence of Japan as a post-war economic mega-star; the collapse of Bretton Woods as a currency regime and the demise of the \$US as a currency benchmark; the collapse of communism and the emergence of a growing and expanding EU as a trading bloc; the emergence of China and India as economic powerhouses; the continuing ideological ‘triumph’ of neo-liberalism and liberal democracy (Fukuyama 1992) as an end in themselves (rather than a means to an end).

By the 1980s, regional development policy, regional science, political and policy discourse globally readily adopted the mantra of globalisation as both the new challenge and opportunity confronting the disciplines and political regimes (Amin and Thrift 1994; McLeod 2001a,b; Storper 1997). The single most significant impact of globalisation paradoxically perhaps was the focus it rendered on the ‘local’ in the global context. This was best illustrated by the demise of comparative advantage (Porter 1990, 1998, 2003) as the driver of regional development and a renewed focus on competitive advantage as a niche market opportunity for regions and local communities to attach themselves to the alleged benefits of the emerging global market place. What markets are available for local enterprise became a driving ethos for policy makers and entrepreneurs at the local/regional level?

By the 1980s, globalisation was the new mantra—underpinning both challenges and opportunities in regions. This created a conceptual shift from seeking to understand the physical features of firms, to instead emphasising how they operate in the global economy.

In the transition from the twentieth to the twenty-first century, globalisation moved from being the ‘bogey man’ (compete or perish) for regions, to being the brand opportunity for regional economies. Tuscany in Italy is perhaps the best known region to move from a ‘basket case’ a pre-industrial relic to being a prosperous region branded around place, provenance and identity. A case can also be made for the Basque country as another agrarian ‘backwater’ that drove policy change through the adaptation of its ‘quality as survival’ policy collaboration in agri-food production.

This is not to suggest that the globalisation challenge was a one-way trip to prosperity as the global financial crisis (GFC) has demonstrated in regions from developed to developing nations. Globalisation is a set of expansionary processes that are: transforming state power; which is being dispersed across local, regional, national and supra-national levels; decreasing the influence of nation state government and increasing the power of multi-national corporations; increasing the pace of change for regional economies and communities; and, creating greater socio-economic disparities and diversity between localities (Cooke and Morgan 1998; Dunning 2002a; Bellamy et al. 2003).



The implication for regions and regional development policy is that globalisation brings a shift in emphasis on the physical attributes of a ‘firm’—what it is, where it is, how big it is and what it does—to an emphasis on how it operates in a global economy with a subsequent shift in emphasis to knowledge and learning as the key drivers of competitive advantage (Cooke and Boschma 2011). The implication is that regions and regional development need a people meter just as much as a business meter. Learning and innovation become the economically useful forms of knowledge at the localised level and subsequent competitive—as distinct from comparative advantage—is the new driver of regional prosperity.

Regions and regional development need a people meter just as much as a business meter.

At best, the story of regional development in relation to the changing trends in the global economy is one of adoption and adaptation. At worst, the critique of regional development as a policy framework for regional scientists includes the following:

- Regional development theories are slow to adapt to changes on the ground;
- Focus on the firm was isolated and lacked the context of where the firm was located and how it operated;
- Institutional interventions were ideological and expensive—hard to maintain integrity and sustainable outcomes over the long term;
- Comparative advantage was never going to be sufficient in a competitive global economy nor was a reliance on social capital—resilience—when human capital—knowledge and skills—was the key driver of global economic prosperity;
- Focus on the firm made regional development slow to respond to the challenges and demands of cultural and environmental challenges that constitute significant ‘brands’ for regional prosperity in the twenty-first century; and
- Competitive advantage has often focused attention on the relative weakness of the learning and knowledge frameworks at regional level that have become entrenched to the detriment of a region’s capacity to grow and prosper.

Globalisation has propelled new thinking in relation to regional development. Paradoxically, it has refocused our attention on ‘the local’ in a global knowledge economy.

#### **4.1.2 *New Regionalism (NR)***

This new context is represented by a re-shaping of our definition of regional development. For our purpose, the emerging emphasis is on: dynamic; complex interaction; territorialised relational networks; and regional governance structures.

These concepts are critical to the twenty-first century notion of new regionalism. What is the logic of new regionalism? Central to the NR is an argument that regions need to govern themselves in a way that supports localised learning and innovation. In essence, the theoretical support for NR lies in four integrated series of literature: associational economy; learning regions; competitive regionalism and regional innovation systems. Four significant theoretical frameworks support that literature: social and human capital theory, institutional theory and network theory.

Central to the NR is an argument that regions need to govern themselves in a way that supports localised learning and innovation: local governance is therefore a key strategy.

Institutional theory is the grounding logic of NR because it links the three other theoretical frameworks through its emphasis on: people acting through networks, communities, firms, governments and non-market organisations.

New Regionalism (NR) embraces a number of components or discourses, including associational economy, learning regions, competitive regionalism, and regional innovation systems (RIS). NR is critical of both Keynesian (state-based) and neo-liberal (market-based) approaches to regional development and argues that whilst useful, in the face of globalisation and the knowledge economy, both approaches have passed their use-by-date. NR also argues that effective local governance is necessary to ensure regional competitiveness and sustainability in an increasingly globalised knowledge economy. Local governance becomes a key strategy in the promotion of regional development. This is an institutional approach supported theoretically by RIS.

NR connects increasing globalisation with the emergence of a knowledge-based economy. In a knowledge-based economy, employment growth and regional prosperity are dependent on the generation and deployment of economically useful knowledge through the processes of localised learning and innovation. It follows that NR connects these arguments about the changing political economy of regional development with particular types of governance. This argument supports the idea of government working in networks and partnerships with, for example, universities, vocational training and firms to produce learning and innovation.

New regionalism supports the idea of government working in networks and partnerships with universities, vocational training providers and firms to produce learning and innovation.

This change in the objectives and organisation of governance is justified theoretically by arguing the knowledge economy is associated with: increased emphasis on investment in human and social capital, and a tendency to move away from hierarchical modes of organisation towards networked modes. NR is thus

underpinned by an institutional logic that argues that regions are entities created by people acting through networks, communities, firms, governments and non-market organisations. Here, a region becomes a ‘medium for social interaction’ (MacLeod and Jones 2001: 675). This institutional perspective is the grounding logic of NR.

## 4.2 New Regionalism and the Knowledge Economy

The knowledge economy entails a more collaborative view of economic growth and therefore more interest in the social and institutional conditions underpinning economic activity and away from the traditional (neo-liberal) concerns about material linkages (capital) and transaction costs. In the 1980s, regional development policy focused on clusters and agglomeration as the link to the knowledge economy literature and policy practice. Some cities and some regions had or established collaborative networks and they became key sites of knowledge activity and agglomeration—locations such as Austin, Texas; Dublin, Ireland; Stanford, California; Boston, Massachusetts, USA; and Seattle, USA.

The emergence of the knowledge economy is linked to a changing emphasis on what drives growth in the global economy with a consequent shift from comparative advantage around firms—for instance—to competitive advantage, with the latter being driven by knowledge, learning and innovation. In the knowledge economy, there is a distinct shift in the mode of production from the traditional capital and labour divisions to instead one of knowledge generation and diffusion. At the regional level, opportunities for participation in the knowledge economy often evolve where existing networks are able to be engaged.

NR draws from the emerging perspective that knowledge is becoming an important input to economic growth and links it to an institutional perspective drawn from the newly emerging economic geography literature that emphasises a multi-disciplinary approach to understanding the knowledge economy. One of the claims about the propensity for the knowledge economy to offer opportunities for regions is that the existing social capital and commercial network formations, already existent in some regions, allows for the required trust and team-based forms of organisation. In turn, these are able to respond quickly to opportunities; whilst hierarchical and bureaucratic organisations find it difficult to respond with the efficiency and timeline requirements.

There is an emerging perspective that knowledge is becoming more important as an input to economic growth.

In summary, the region can be understood—in the twenty-first century and late twentieth century—as a constituted social order with people engaged in distinct political, cultural and economic practices. These practices are embedded and developed historically. These practices are also sustained and reinforced within

networks, processes and infrastructures. Alongside this, economic, political and cultural globalisation—the drivers of economic growth and competitiveness—are shifting and becoming orientated around knowledge, learning and innovation. The challenge for regional scientists is to recognise this, analyse it, develop approaches that incorporate that knowledge and translate the outcomes into policy frameworks and recommendations in response to the challenges and opportunities confronting the regions they live and work in.

### ***4.2.1 New Regionalism: Learning and Innovation***

NR argues that learning occurs through the sharing and diffusion of codified (formal) and tacit (informal) knowledge. This enables individuals, communities and organisations to improve skills, create new products and refine business processes. Codified knowledge is defined as information that can be transmitted and stored while tacit knowledge is more informal and tends to be experiential. NR defines innovation as an output of this knowledge generation and diffusion that is produced at the scale of individuals and organisations (OECD 2001).

NR defines innovation as the output of knowledge generation and diffusion.

NR also argues that innovation at the regional level is better understood as a locally embedded understanding and a more ‘micro-process’, rather than being the outcome of a structural processes (scientific research and development). In practice, NR argues that the actual process of innovation is sustained through the practices of individuals within these organisations and in more ad-hoc networks and communities generating and sharing knowledge. Furthermore, these individuals within networks and communities tend to be locally embedded. Four types of economic knowledge, which combine in innovation processes are identified: knowledge about facts or know what; specialised scientific knowledge or know why; knowledge embedded in social relations or know who; and; practical on the job skills or know how.

Recent attempts have tried to move beyond the tacit-codified binary to propose a more sophisticated typology of the knowledge found in regions. Asheim et al. (2011: 898) describe three types or domains of knowledge: analytical knowledge, synthetic knowledge, and symbolic knowledge. They thus distinguish among science-based knowledge (analytical; know why), engineering based-knowledge (synthetic knowledge; know-how) and arts-based knowledge (symbolic knowledge, know who). This typology recognises that the knowledge found in regions (and thus, in regional innovation systems) is in fact comprised of diverse knowledge of different types. Importantly, Asheim et al. they emphasise the importance of focusing, not on ‘high’ or ‘low’ technology, but on ‘how different knowledge

bases are combined and intertwined' (2011: 899). Governments at regional and local level can play a pivotal role in shaping combined knowledge bases, but such a role brings a change of function.

Three domains of knowledge include those based on science, engineering and arts: the 'know why, know how and know who'.

### ***4.2.2 New Regionalism: Implications for Policy***

NR argues that the role of government in regional economic development need to be reconceived as the governance of regional innovation systems. There are two elements to this re-conception:

1. A substantial shift in policy priorities; and
2. An instrumental shift in the organisation and mechanisms of the state.

In terms of policy priorities, the NR argues that a shift is occurring from uniform, industry-level intervention to promote sector growth and full employment, to instead towards investing in the pre-conditions that support learning and innovation within particular regions. These pre-conditions include investment in education and training, supporting small and medium enterprises, and building up the networking capacity of firms and research institutions. In terms of the instruments and organisation of government the NR argues a shift is occurring from a central and unitary role for the state toward governance through local partnerships with government as an enabler, facilitator and broker (Eversole and Martin 2005).

A shift is occurring—no longer can policy promote intervention for sector growth and full employment, but instead, it must invest in supporting learning and innovation.

Some key research questions emerge from these introductory notes regarding NR and its linkages to innovation, regional innovation systems, governance and institutional design and intervention:

- How do regions negotiate a shared vision and priority actions?
- How do they develop and sustain regional leadership?
- How do they build and sustain relationships of confidence and trust?
- How do regions establish increased control over decision-making and resource allocation?
- How do regions proclaim and measure progress and communicate that success?
- How do regions create a learning environment linked to organisational and skills development?

The NR literature condenses its broad answers to these questions around institutional intervention at a regional level. But before we look at that ‘model’ of intervention it will be helpful to be reminded about the theoretical foundations of NR and the cause-and-effect relationship between that framework and the prognosis and paucity of the NR hypothesis.

### 4.3 Localised Governance

The notion of localised governance of regional development is one of the theoretical frameworks informed by the four integrated literature frameworks of NR.

Localised governance of regional development is defined as the combinations of ‘institutions, processes and relationships’, which bind together various state, civil society and market-based organisations and govern collective decision-making in a locality. Traditional theories of regional development have argued that the state or the market provide a mechanism to make decisions and allocate resources at a regional level. NR claims to be different, by arguing that governance is emerging as a distinct mechanism to undertake this lead planning and coordination role at a regional level, a shift toward a more pluralistic and localised governance. This pluralistic and localised governance has strong links to the new economic geography’s associational economy (Eversole and Martin 2005; Cooke 2003; Morgan 2005; Beer and Maude 2005; Wood and Valler 2004).

The NR constructs an argument that the associational model moves beyond the two dominant ‘old’ arguments about the role of government in the economy: the state-based Keynesian model and market based neo-liberal approaches. Three historical perspectives on the role of government are linked to this argument:

- Keynesian political economy emerged from the problems associated with high levels of unemployment in the pre-war era and advocated for state-based planning of economic activity;
- In the face of stagflation (economic growth plus inflation) in the 1970s the neo-liberal critique gained force, which advocated that economic management is best left to individuals and firms; and
- During the 1990s critiques of neo-liberalism informed governance gained force and at the same time new community-based ideas gained currency—especially in Australia and Canada—as two examples (Beer et al. 2003a).

The NR theory argues that traditional state and market-based approaches to regional development are unable to generate better and sustainable economic and social outcomes at the local level. NR suggests that this failure is due to organisational problems within the state that means it cannot effectively or efficiently support learning and innovation at a local level. These problems include:

- Centralised decision-making;
- Hierarchical-based organisation;
- Universal approach to planning and delivery—“one shoe fits all”;

- Action focus on traditional infrastructure (roads and railways, port and airports) and maximising economic growth; and
- Paternalistic relationships between the state, the market and civil society.

The NR theory argues that traditional state and market-based approaches to regional development are unable to generate better and sustainable economic and social outcomes at the local level.

The associational approach is now regarded as a ‘third way’ to the governance of regional development. The NR argues that governance is being re-scaled in this context and devolved economic governance becomes an important strategy to address democratic deficits and economic restructuring at a regional level (Jones 2004, in Valler and Wood).

Regional scientists are now familiar with the second part of this argument that relates to the emergence of a knowledge-based economy. In a knowledge-based economy employment growth and regional prosperity is dependent on generating and deploying economically useful knowledge through processes of learning and innovation. The NR argues learning and innovation occurs through localised associations between individuals, firms and other organisations. In this sense the state simply becomes a ‘carrier’ of innovation alongside other economic players. The shift to a knowledge-based economy demands more flexible modes of organisation that can efficiently transfer and apply knowledge (Wood and Valler 2004). The NR adopts an institutional logic to shape its conception of governance. The NR adopts the idea of ‘institutional thickness’ to define ‘good’ regional governance. Here, institutional thickness is defined as ‘strong presence of intermediary organisations such as Chamber of Commerce; good mixture of strong and weak ties between organisations; collective purpose between firms; and a strong sense of place identity’ (MacLeod 2004: 66).

In a knowledge-based economy employment growth and regional prosperity is dependent on generating and deploying economically useful knowledge through processes of learning and innovation.

An institutional approach emphasises the importance of embedded social relations in providing the foundations for economic activity (Amin 1999). Wood and Valler (2004) define an institutional logic as economic activity embedded within a local institutional context and a focus on social relations, networks and patterns of behaviour and how they shape patterns of economic activity (Wood and Valler 2004: 2). An institutionalist perspective argues individuals draw economic benefits from these social networks such as tacit knowledge, trust and embedded conventions of behaviour and communication (Amin 1999). In this sense, effective

governance then requires firms and development agencies to create the right kind of institutions to create localised systems of learning and innovation.

#### 4.4 Critical Assessment of NR Theory

Whilst there is considerable support for the theoretical foundation for NR within the regional science discipline and the aligned associational ‘new economic geographers’ (Peck 2005), some academics remain sceptical of the NR foundations. These include Marxist critiques and neo-liberal critiques. Some of the critiques focus on NR’s alleged weaknesses in relation to:

- Being an ideological strategy justifying the withdrawal of the state and prescribing local community based solutions without devolving decision-making power or appropriate resources;
- NR as an ‘institutional fix’ in contemporary capitalism as a way to prescribe competition as a policy mantra (Bristow 2005), flexibility, autonomy and risk onto regions; and
- Neglecting the role of the nation-state the mechanism for improving spatial equality and overstates the role of bottom-up regionalism;

Critics also argue that NR should be seen as one strategy to manage and regulate capital in the context of increased globalisation rather than as a new model of regional development. There is an observable gap between government and academic rhetoric in relation to a new model (NR) and the actual limited changes to state organisation and resources; there remains an uncritical conception in NR about the role of the state particularly its capacity to participate equally in partnership with business and communities; NR doesn’t draw a distinction between regionalisation (top-down administrative strategy) and regionalism (bottom-up demands for change) and an alternative view that regional development change already has an existing link to communitarianism as a theory within the ‘new public management’ strategy.

Critics argue that new regionalism doesn’t distinguish between regionalisation (top-down administrative strategy) and regionalism (bottom-up demands for change).

A number of questions arise as a result of our exploration of some of the foundation ideas linked to NR theory. They include:

- How can the NR be coherently conceptualised? How does the NR construct an understanding of the region within a globally competitive knowledge economy?
- What is an analytically useful conception of globalisation and the knowledge economy as causal drivers of change to regional economic governance? How



does the NR construct an understanding about the governance of regional economies in this context? What does the NR say about actual changes to the organisation of regional economic governance, particularly the role of partnerships?

It is the answers to some of these questions that have founded the emergence of Regional Innovations Systems (RIS).

## 4.5 Regional Innovation Systems: Ideas and Knowledge

Regional Innovation Systems (RIS) have been traditionally linked to regions of considerable size and productive capacity. For example the industrial districts of northern Italy; Tuscany; Ireland and the famed, Silicon Valley in California. RIS theory is essentially endogenous (local) in its focus and is seen as a response to three challenges for regional communities:

1. Increased intensity of international competitiveness in a globalised knowledge-based economy;
2. Apparent short-comings of traditional regional development models and policies; and
3. The emergence of successful clusters of firms and industries in many regions around the world.

The key argument supporting the emergence of RIS is that: firm-specific competencies and learning processes can lead to regional competitive advantages if they are based on localised capabilities such as specialised resources, skills, institutions and share of common social and cultural values. The cause-and-effect relationship between RIS and regional development is one where regional development ensues as competitiveness occurs in places where localised capabilities such as institutional endowment, built structures, knowledge and skills exist. This is in marked contrast to top-down command approaches: ‘picking winners’; or smoke-stack development: ‘build it and they will come, approaches’.

Cooke (2001: 954) suggests that there are five key concepts or ideas that inform our understanding of RIS: region, innovation, network, learning and interaction.

Cooke suggests that it is possible to measure the strengths and weaknesses of RIS along five axes of region, innovation, network, learning and interaction (2001: 954). Taken together, these concepts constitute a system of regional innovation. RIS emerge from or enhance existing endogenous (local) sectors and the relationship between the components above is developed and sustained by regional

governance. At the regional level, the institutional entity—firm or governance—is therefore vital to embedding the ideas of RIS in regional development policy outcomes.

Cooke (2001: 961) argues that an embedded region will display ‘inclusivity, monitoring, consultation, delegation and networking propensities among its policy makers.’ Cooke also observed that national innovation systems were essentially problematic in terms of implementation because the ‘one-size fits all’ approach did not taken into account the regional disparities present in national boundaries. Cooke led the policy development around RIS in Europe and was able to establish an RIS framework that could be applied at a regional level. This in turn gave rise to the recognition that RIS best represented opportunities for competitive advantage based on innovation and its impact on productivity and competitiveness.

## 4.6 Regional Innovation Systems and Constructing Advantage

RIS models emerged in Europe as policy templates for other regions however there was an acknowledgement in the regional science literature that the basic tenet of regional science: focus on the local/regional assets—still applied. Cooke began to observe that the application of RIS across nation states—particularly in Europe—was increasingly looking like a ‘one-size fits all’ approach. At the same time, economic geographers such as Storper were loudly claiming that ‘the local was the winner in the globalisation challenge’. This view was supported by a range of orthodox economists, notably Krugman and Porter, but the key question remained: what would the local response in terms of innovative governance look like?

Cooke took the view that rather than construct another layer of innovation ‘practice’ around regional science by developing ‘local innovation systems’, the best approach would be to press the argument that the adoption of RIS in any region was not appropriate, indeed it was likely to be counterproductive. Cooke began to articulate the view that a new phase in the competitive context of globalisation had emerged that required not comparative, nor competitive, but instead *constructed* advantage.

Constructing advantage, as advocated by Cooke, cements a number of components of regional/local responses to the challenges and opportunities of globalisation in one foundation that overcomes the propensity to adopt inappropriate RIS models into regions in the hope that the model would match up to the local conditions and drive productive capacity. Cooke took the view that if the local was to be the winner a careful and methodical approach—“build the platform first” to the construction of competitive advantage (Cooke and Boschma 2011; Heidenreich and Koschatzky 2011; Simmie 2011 and Harmaakorpi et al. 2011) needed to be established in order to answer two questions: what would the local governance response look like and; what would a local RIS look like and how would we know one if we came across one?

Regional Innovations Systems (RIS) develop, promote and support regional knowledge capabilities.

Regional knowledge capabilities become structurally embedded by specific institutions that facilitate network interrelationships, supported—in some cases—by complex and sophisticated processes (digital) data exchanges or rely on tacit knowledge exchange within community, social and enterprise networks. RIS emerge in response to a critical regional development issue/research question: how to configure a viable environment for stimulating individuals, organisations or regional economies to adopt new practices and continuously innovate? The answer is to move away from natural or comparative advantage (climate, location, social, human, investment capital resources) and on to constructing advantage.

The relationship between RIS and constructing advantage for a regional economy is a complex one. Constructing advantage becomes the foundation for the ‘new competitive advantage’ in regions.

Competitive advantage highlights regional development economics, the dynamic of which draws upon constructed advantage. This knowledge-based construction requires interfacing development in various directions:

- Economy—regionalisation of economic development; ‘open systems’ inter-firm interactions; integration of knowledge generation and commercialisation; smart infrastructures; strong local and global business networks;
- Governance—multi-level governance of associational and stakeholder interests; strong policy-support for innovators; enhanced budgets for research; vision-led policy leadership; global positioning of local assets; and
- Community and Culture—cosmopolitanism; sustainability; talented human capital; creative cultural environments; social tolerance.

In an adjustment of Cooke’s (2007: 187) foundation work, these three foundations for constructed advantage give rise to a knowledge infrastructure.

A knowledge-based constructed advantage demands the interface of economy, governance and community and culture.

The knowledge infrastructure consists of universities, public sector research, intermediary agencies, professional consultancies, all being actively involved as structural puzzle-solving capacities, with commercial and public interest links to the market place—regionally and globally. Constructed advantage ‘develops’ in regional economies that tend to possess ‘related variety’ (flow on effects and linkages through networks or clusters) in their economic structures. This knowledge infrastructure is both complex and pertinent to constructing regional advantage. For example, Cooke (2007: 191) suggested it might activate Geographical Information

System (GIS)-based external knowledge to develop a model of ‘precision farming’ to determine seed and fertilizer requirements in accordance with micro-variations in natural soil humidity and fertility. In this case, as with the broader application of knowledge infrastructure in constructing advantage, regional advantage accrues from the precision application of supportive inputs designed to optimize efficiency, while effective outcomes accrue from capabilities in rapid development of available technologies and capacity building in relation to knowledge development and diffusion.

Constructed advantage, according to Cooke (2007: 191) is concerned ‘fundamentally with the relational embedding of institutions that assist regions to evolve spatial knowledge domains’. These spatial knowledge domains tend to emerge from existing comparative advantage to form localised industrial clusters that specialise in one thing: mining, vegetable production, eco-tourism or aged care enterprise development. The significance of RIS and its link to constructing advantage is that RIS becomes the ‘missing knowledge “switching” mechanism that enables tacit knowledge to be transformed systematically into codified and commercialisable knowledge (Cooke 2007: 191). Constructed advantage has five assets: infrastructure; leadership; capital; people; and learning. As such constructed advantage is based on not only what one has but on what one thinks and does in a region. Knowledge becomes a central factor of production.

Spatial knowledge domains tend to emerge from existing comparative advantage . . . to form localised industrial clusters with a sole specialty.

Constructed advantage becomes a process of building on and expanding social capital—skills, organisations and networks. Creating regional communities around constructed advantage is a full-on contact sport, not a dry policy making exercise. The plan, programme development and budget approach is replaced with a far more engaged approach around establishing a vision, manage and monitor strategy.

Three key points are critically important to understanding the notion of constructing advantage:

- Intangible assets (ideas and knowledge, know-how, common-sense, trust and cooperation) so critical to constructing advantage are open to local construction—through encouragement, manipulation and sponsorship;
- Local organisations and networks are of fundamental importance in marshalling a region’s people and intangible asset; and
- Uniqueness of place is a critical part of emphasising the importance of knowledge, assets, history and institutions.

Answering the question of how and why RIS and constructed advantage works in regional economies and their communities requires an examination of the values and ideas attached to the interface of business (markets), government and community with innovation in the regional area.

How does constructed advantage work within RIS in regional and rural communities and economies? The answer lies in the establishment of Regional Development Platform Methods (RDPM) as a tool for regional innovation policy.

RDPM translates the theoretical rhetoric of the benefits of a regional innovation system into a practical and pragmatic tool for delivering real outcomes for regions, across social and human capital objectives, together with significant enhancement of enterprise opportunities.

## 4.7 Constructing Advantage with RDPM

RDPM is future-based and focused. Random innovation might occur in the present, to respond to a need, either market-based or ethical. RDPM is not just about replication or adoption, it is about building on, existing resource configurations. For RDPM to be a useful tool for a twenty-first century regional scientist, it needs to be systemic in its approach to knowledge management, not just reactive or responsive. The application of the RDPM as a regional economic development tool able to create RIS has been argued by Harmaakorpi and Pekkarinen (2003); Pekkarinen and Harmaakorpi (2006) and Harmaakorpi (2004, 2006, 2011) who draw on their experiences applying the RDPM in Lahti, Finland.

Harmaakorpi and Pekkarinen (2003: 2, 6) focus on five dynamic capabilities as important components of a networked regional innovation environment, these are: (1) the innovative capability of the region; (2) the learning capability of the region; (3) networking capabilities; (4) leadership capabilities, and; (5) forecasting capabilities. According to Harmaakorpi and Pekkarinen (2003), these dynamic capabilities contain the region's ability to generate interactions and competitive resource configurations that are based on the region's history and potential opportunities. Essential to their RDPM approach, and for regional competitive capabilities, are socio-economic networks (Harmaakorpi and Pekkarinen 2003) that not only develop a collective vision and associated goals, but also develop trust 'in order to overcome some of the uncertainties characterising the innovation process' (Ludvall and Borrás 1999, cited in Harmaakorpi and Pekkarinen 2003: 4).

Harmaakorpi and Pekkarinen's (2003: 10) RDPM approach involves eight distinct phases, being: (1) benchmarking through the assessment of regional innovation system theories, (2) background study of the industries and areas of expertise in the region, (3) expert panels, (4) assessment of future scenarios, (5) analysis of statistical and empirical information, (6) conceptualisation of the regional innovation system, (7) search of core processes of the regional innovation system and (8) definition of knowledge creation and management system. The purpose of the RDPM in the Lahti case study was 'to exploit the potential existing in the defined regional resource configurations—regional development platforms—

and enhance the formation of regional dynamic capabilities in the innovation networks founded' (Pekkarinen and Harmaakorpi 2006: 402).

As Campbell-Ellis and McCall (2010) concur, to construct a RIS, Harmaakorpi and Pekkarinen (2003) advocate the use of the RDPM approach which identifies and creates many of the conditions that support and deliver innovative competitive advantages. Campbell-Ellis and McCall (2010) also propose an adaptation of RDPM—Sustainable Development Platform Methods (SDPM)—that may be capable of providing fiscal incentives and resourcing for common pool resource management.

In the RDPM, the development of the platform requires an assessment of regional resources, capabilities and competencies, and future opportunities leading to 'business potential' (H&P 2006: 403) promoting regional competitiveness through constructed advantage. One of the claims attached to Lahti is the impact RDPM has had on the region—in a sense culturally—in terms of the way the region responds to innovation opportunities. RDPM in Lahti has gone beyond a proven methodology applied to a particular project but has 'drawn a way forward' in terms of how Lahti locals approach regional innovation and more critically, how they see their region vis-à-vis the Storper challenge and the Cooke evocation.

The challenge for RDPM is to convert knowledge—both explicit and tacit—into 'productive outcomes'. This is achieved within the knowledge management approach of RDPM where explicit knowledge is converted into tacit knowledge in a learning process that promotes, enhances and informs action and practice.

RDPM manages complexity as a knowledge management system and hence requires careful design to be successful. Much of that design revolves around the 'wicked' complexity of the social and human capital challenges evident in the Lahti case study. In the case of Lahti, RDPM was not imposed but grew out of the process adopted in the region with a heavy contextual shaping: both cultural and path-dependent. All the literature from the Lahti case-study reiterates the challenges attached to the development of the RDPM, especially the development of the core process—shaped by social and human capital considerations—that shapes the knowledge management system that is the outcome of RDPM, as a regional innovation system. It becomes apparent in the literature review of RDPM as a design for knowledge management that the critical challenge in success lies in the ability to form creative social capital in the multi-focused networks that emerge in the RDPM. RDPM is also a leadership tool (Pekkarinen and Harmaakorpi 2006) linking the human and social capital in a region around enterprise opportunities.

## 4.8 Implementing an RDPM: Key Components

The Lahti case study provides significant insight into the implementation of an RDPM in a regional community. Some of these include:

- Stakeholders can agree on priorities and compete at the product and service innovation level;
- There is an accepted ‘owner’ of the core process who is trusted and can ‘manage’ commercial sensitivities;
- Three sets of actors are important: social actors; producers of technology and services; and users; and
- RDPM provides the ‘business plan’ for a range of social/community enterprise organisations and more collaborative business models for existing operators.

In summary, the competitive advantage of a region greatly depends on its visionary, innovative, learning, networking and leadership processes, shaped by its specific asset position and the paths available to it. Cooke’s (2007) mantra in relation to RIS is a simple one: RIS is tricky so first design and build an appropriate policy platform, an RDPM.

The competitive advantage of a region greatly depends on its visionary, innovative, learning, networking and leadership processes, shaped by its specific asset position and the paths available to it.

Since RIS are defined as loose-actor networks composed on many different actors—firms, institutions, government agencies—particular attention must be given to the relationships in the networks. How is it possible to create a trusting relationship/atmosphere in the network?

This requires the aspiration of building a common knowledge management system for the innovation network. This requirement is central to the objective of RDPM: to develop and conceptualise an innovation policy tool for designing and running regional innovation systems in order to increase sustainable regional competitiveness. The development of the RDPM requires a dynamic view of regional capacity building.

## 4.9 Regional Dynamic Capability

There are a number of factors that determine/shape regional dynamic capability. They include:

- Regions are strongly dependent on history: path dependency is a key factor influencing future trajectories;
- Regional assets and resource configurations need to be assessed; and

- Five dynamic capabilities are identified as being important in developing regional dynamic capability: innovative capability; learning capability; networking capability; leadership capability; and visionary capability.

Regional innovative capability means the joint innovation capability of the enterprises and other organisations in the region. The key link here is learning. The ‘learning economy’ is an economy where the ability to learn is decisive for the economic success of individuals, firms, regions and nations. Learning extends beyond the acquisition of knowledge to the development of new areas of competence and new skills. Regional learning capability can be defined as an RIS’s ability to create and manage knowledge in a collective, interactive and cumulative learning process leading to new settings of resources, competencies and skills.

Regional innovative capability means the joint innovation capability of the enterprises and other organisations in the region.

Regional learning capability relies on network capability as a strategic tool. The network is a tool to distribute knowledge and continuous learning from the other actors of the network. Regional networking capability can be defined as an RIS’s ability to build interactive networks including field-specific creative social capital leading to effective utilisation of the resource configurations in the networks. The processes should lead to building regional capabilities, competences and core competences based on regional resources, in order to enhance a sustainable competitive advantage.

#### **4.10 Constructing Competitive Advantage Through Collaboration in Agri-Food**

Constructing competitive advantage through collaboration can be both the process and outcome of a learning economy at a regional level. RDPM is an alternative collaborative business model for defining ‘how regions do business’. Collaboration brings a range of values and ideas to enterprise activity that link regional assets to innovation and competitive advantage because collaborative can be the key mechanism to manage knowledge spillovers between related industry sectors. In addition, collaboration embraces a range of mitigating factors critical for the constructing of competitive advantage in regional economies and demonstrating benefits. The competitive advantage benefits especially evident in the agri-food sector (McCall 2011a, b, c)—drawn from examples in Wales, Tuscany, the Basque country and Tasmania—include:

- Increased competitive advantage through collaboration and synergy;
- Opportunities to concentrate on long-term competitiveness rather than short-term costs/gains; and sharing risks and benefits;



- Optimisation of combined expertise and capabilities of members, with opportunities to pool resources and expertise in market research and product development;
- Combining resources such as machinery, equipment capital and/or knowledge and market contacts;
- New marketing and product design relationships;
- Increased financial security and stability due to long-term commitment of all members;
- Co-operative intelligence—information on costing, marketing, and organisation is shared to increase competitive advantage;
- A speeding up of the process of innovation and product or market development;;
- Establishment of co-operative quality assurance and food safety systems;
- The development and promotion of branded food products and or the protection of brand-name capital investments through quality assurance;
- An increased ability to produce consumer products differentiated in product quality, farming practices, community values and environmental benefits to satisfy the increasing market for different products with a host of characteristics to suit different consumer segments;
- Providing competitive advantage when the value chain’s product and processes are difficult to duplicate; and
- Opportunities for members of the value chain business model to reach goals which they would be unable to reach on their own.

Collaboration in the agri-food sector builds the critical mass required to increase market share and drive sustainable growth in regions where a lack of scale and scope add a critical dimension to the persistent supply and demand challenges. In rural and regional economies, collaborative business models have become one ‘big idea’ in response to the challenges of a competitive global economy, vertically integrated supply chains where producers are price takers rather than price makers and a persistent threat of a ‘race to the bottom’ on profitability and sustainability.

Collaborative business models require a mindset amongst collaborators who understand their limitations under the status quo; accept that trust, respect and incentives can only be delivered on the back of demonstrable outcomes where decisions, risks and rewards are distributed fairly through the adoption of an appropriate governance/corporate structure.

## 4.11 Conclusion

Storper’s edict and Cooke’s evocation—what will regional configurations look like and how can they be constructed?—are in turn focusing both the regional science discipline and regional development policy on a number of compelling applied observations in relation to a region’s capacity to link its own assets to innovation and competitive advantage. Central to this analysis is the critical assertion that in

many regional economies, resilience and complacency around the compelling challenge of making a policy transition from comparative to competitive advantage, won't get the job done.

A learning economy as an RIS needs to be constructed, taking into account a range of substantive and contextual considerations that are defined by spatial regional factors: biophysical resource endowment; geographical accessibility—to markets and services; human and social capital capacity; demography and settlement patterns; changing lifestyle preferences; communication technology availability and access; new production technologies available in resource sectors with comparative advantage; public/private investment levels in infrastructure; business managements and development capacity; international events—for example, the value of the Australian dollar, the global financial crisis, and climate change (Sorensen 2000).

Recent regional development literature (Asheim et al. 2011) identifies a number of key components and imperatives that are shaping the capacity of regions to construct competitive advantage through regional innovation policy. These include:

- Regional policy models must be embedded in their spatial settings (see factors above); and
- Policy platforms are increasingly informed through the identification of 'differentiated knowledge bases across people, firms and sectors in regions.

This literature makes one policy issue clear: “regional policy needs to evolve, capitalising on region-specific assets, rather than selecting from a portfolio of policy recipes that owed their success in different environments” (Asheim et al. 2011: 900). Platforms connect different but related activities.

As Asheim et al. (2011) conclude: a region's current position in a product space determines its opportunities for future diversification because innovation—in the first instance—is deeply rooted in related, local activities where knowledge is likely to spill over between local sectors, rather than within one sector if there is a technological link—build on what is present in the first instance because enterprise profiles in regions diversify slowly and that diversification is strongly rooted in existing industry profiles. Innovation is more likely to occur when knowledge spills over between related industries. These knowledge bases are the platforms for clusters, innovation, and collaboration that demonstrate that the relevant knowledge for many industries is not just internal to the industry but is distributed across a range of technologies, stakeholders and sectors—this supports the global push for integration and collaboration as alternative business models at a regional level, the next frontier for regional science.

Innovation is more likely to occur when knowledge spills over between related industries. These knowledge bases are the platforms for clusters, innovation, and collaboration . . . the next frontier for regional science.

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# Chapter 5

## Integrating Innovation, Sustainability and Regional Development Goals: Delivering on National Policy Through ‘Regional Collaboratives’

Susan Kinnear and Ian Ogden

**Abstract** This chapter explores the potential for policy overlap across the themes of innovation, sustainability and regional development. It notes that Australia currently has no integrated policy platform that addresses the significant and valuable intersection between these areas. To tackle this, the authors propose a model for better policy integration focussed on regional areas, based on new system of collaboration and leadership amongst the key regional stakeholders in innovative and sustainable regional development (ISRDR). This mechanism—the basis of an integrated policy platform—uses ‘regional collaboratives’ as an innovative amalgam of existing models, delivered in regions and by regions. Thus, whilst ‘collaboration and connectedness’ have become the accepted pathway for accelerating innovation outcomes, this chapter argues that what is needed instead is a model that overcomes the disconnects that can limit innovation in regional Australia. In doing so, ‘regional collaboratives’ should identify and deepen the mutual-value relationships that already exist between regional innovation actors. The development and strategic deployment of ‘regional collaboratives’ would therefore allow Australia’s regional advantages (comparative, competitive and constructed) to be better realised via innovation.

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## 5.1 Introduction

The policy areas of innovation, sustainability and regional development are of immense importance to Australia and Australians, but all share the problem of being large and complex agendas.

### 5.1.1 *Innovation Policy: Current Direction and Future Challenges*

The Australian Government's *Powering Ideas: An Innovation Agenda for the 21st Century* defines innovation as the capacity for invention and discovery. However, in its broadest sense, innovation also refers to the creation of new value from the ideation and application of novel concepts, products and processes. Here, innovation is distinguished from novel ideas by the fact that it combines inspiration with entrepreneurship to create new value—be it either commercial or social (Pool 2010). However, 'value' itself can be a highly subjective term—and one that requires consideration across economic, social and environmental outcomes.

In practice, it appears that much innovation policy has focussed on 'value' in mostly the economic context. For example, although the OECD (1996, p. 6), recognised that innovation policy was emerging 'as an amalgam of science and technology policy and industrial policy', this was only in response to 'a growing recognition that knowledge in all its forms plays a crucial role in economic progress'. This has led to some examples of innovation where new value delivered in one context is linked with losses in another, especially where such values are realised in different places and/or by different audiences. Consider, for example, an innovation that creates workforce efficiencies in a multi-national corporation: this may increase productivity and decrease costs, thereby delivering stronger return to shareholders; but it also results in reduced employment opportunities and social investment in the communities that host business operations.

Fortunately, more recent thinking on innovation policy has included a more holistic interpretation of innovation, with the OECD (2011, p. 19) noting that innovation is now viewed as central to building 'stronger, cleaner and fairer economies'. In the Australian context, this is an important shift, given that many of the key industries contributing to national GDP are those that face significant social and environmental challenges—agriculture, mining and manufacturing being key examples.

As innovation policy paradigms are moving toward a holistic interpretation of 'innovation', this introduces the possibility of overlap with many other policy areas.

Given that the Australian government's overarching goal is to create a fairer, richer, healthier and greener nation, investment in Australia's Innovation capacity has been a key government priority since 2007 (CoA 2009). Australia is also in the midst of a renewed focus on innovation for productivity. The 2011–2012 federal budget included a record \$9.4 billion in government investment in Australian science, research and innovation,<sup>1</sup> which follows successive rises in expenditure on that portfolio since 2007–2008. The \$43 billion rollout of the National Broadband Network is also expected to present significant opportunities to the business and research sectors as an asset to increase innovation outcomes and outputs. Nevertheless, Australia remains challenged by 'uneven' innovation performance, marred by productivity decline and poor innovation rates within Australian firms (CoA 2009). Meanwhile, global competition continues to intensify and grow, and there is a risk that Australia will continue to lag behind other nations in terms of innovation capacity and achievements.

Australian innovation policy is based on the principles of 'collaboration and connectedness' to achieve the 'production, diffusion and application of new knowledge'; and to create the 'habitat for innovation' between business, industry and researchers. As part of a renewed focus on innovation through Powering Ideas,<sup>2</sup> the Australian government has adopted seven national innovation priorities each aimed at improving business innovation and collaboration between researchers and industry (Fig. 5.1). These priorities complement Australia's national research priorities focusing on the production, diffusion and application of new knowledge, particularly the goal for 'promoting an innovation culture and economy'.

Together with a range of programs designed to provide direct assistance to eligible businesses, a novel approach by the federal government has been the inclusion of the Innovative Regions Centres (IRC) as part of the Enterprise Connect division of the Department of Innovation, Industry, Science and Research (DIISR) (Fig. 5.2). Each region has an innovative regions facilitator, who works to promote and facilitate collaboration and connectedness between key innovation actors in each region. Given the administration of the program through Enterprise Connect, there is a particular emphasis on engagement with regional small-to-medium enterprises (SMEs).<sup>3</sup> This is based on the premise that strong relationships across regional spaces will help drive the interactions that are so important to the ideation and commercialisation process.

Clearly, innovation is a critical tool to realise economic, social and environmental outcomes in Australia. However, a number of key policy challenges must be faced if innovation is to be properly supported. For example:

- Resolving the balance of investment and risk between public and private institutions in funding primary R&D, especially for 'high-risk, experimental

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<sup>1</sup> This figure was obtained from a 2011 address by the DIISR Minister, Kim Carr.

<sup>2</sup> The Powering Ideas: An innovation agenda for the twenty-first century national strategy for innovation.

<sup>3</sup> Variously defined by employee number of annual turnover; e.g. Enterprise Connect uses the loose definitions of \$2 m–\$200 m/year in manufacturing or >\$1 m/year for creative industries.



Priority 1: Public research funding supports high-quality research that addresses national challenges and opens up new opportunities.
Priority 2: Australia has a strong base of skilled researchers to support the national research effort in both the public and the private sectors.
Priority 3: The innovation system fosters industries of the future, securing value from the commercialisation of Australian research and development.
Priority 4: More effective dissemination of new technologies, processes and ideas increases innovation across the economy, with a particular focus on small and medium-sized enterprises.
Priority 5: The innovation system encourages a culture of collaboration within the research sector and between researchers and industry.
Priority 6: Australian researchers and businesses are involved in more international collaboration on research and development.
Priority 7: The public and community sectors work with others in the innovation system to improve policy development and service delivery.

**Fig. 5.1** Australia’s innovation priorities (Source: *Powering ideas: An innovation agenda for the twenty-first century*)



**Fig. 5.2** Australia’s national network of Enterprise Connect ‘regions of innovation’

research, where the high upfront cost generally outweighs the often uncertain returns’ (CoA 2010, p. 25). This is important given that government may need to correct underinvestment by the market through policy intervention. There is also ongoing debate on the appropriateness of the national publicly-funded research system, and how the innovation dividends realised as a result of federal expenditure.<sup>4</sup>

<sup>4</sup>The ‘Focusing Australia’s Publicly Funded Research’ review is currently underway by a taskforce established by the DIISR research division.

- Addressing the serious shortfalls expected in the supply of research-qualified professionals in Australia due to a combination of workforce aging, declining numbers of graduates from research higher degree programs, the pressures of the global economic environment and escalating demand (both international and domestic) for skilled Australian research workers. Largely, this is expected to occur through growing skills and capacity in the formal R&D sector (including both private and public institutions) via strengthened research training systems, higher participation in the research workforce, support for appropriate infrastructure and encouraging business investment in R&D.<sup>5</sup>
- Achieving effective support for SMEs: whilst this group is recognised as critical to the Australian economy and as key sources of innovation, the cohort is poorly understood and their expectations of the R&D process may differ dramatically to those of R&D providers.<sup>6</sup> Innovation is commonly regarded as the purview of the formal R&D sector (e.g. universities, research organisations); but this represents only a small component of knowledge creation: SMEs and industry are key innovation actors and have much to contribute to national innovation outcomes. Contemporary innovation policy is therefore increasingly about augmenting research and development activities with business entrepreneurship, education and training, venture finance, and supporting frameworks, to ensure that engagement with, and outcomes from this sector, are realised to best effect.
- Compiling a strong evidence-base to demonstrate return on innovation effort ('innovation dividend'). This is a daunting task given that innovation intervention rarely results in tangible, measurable and/or direct outcomes.

Looking towards the future, ongoing policy development for innovation initiatives in Australia is guided by a national 'Framework of Principles', which aims to improve the efficiency of national innovation through better program design, delivery and evaluation. However, a key limitation of this framework is that it does not allow innovation initiatives to be properly considered for their potential to complement other policies; such as regional development, sustainability, health, education or Indigenous programs.

Some of the key challenges confronting innovation policy in Australia include the balance of public and private investment, concerns over shortages of skilled research professionals, achieving effective SME support and compiling evidence on which to assess and inform innovation policy outcomes.

<sup>5</sup> Australian Government's Research Workforce Strategy (2011): *Research Skills for an Innovative Future A research workforce strategy to cover the decade to 2020 and beyond*.

<sup>6</sup> Please refer to the associated document—Susan Kinnear and Ian Ogden (2011a), *Partnering with SMEs for innovation: a CQUniversity discussion paper*.

### 5.1.2 *Environmental Sustainability*

Environmental policy includes a suite of mechanisms to protect, manage and enhance the condition of natural assets, through components such as education, research, public ownership strategies (e.g. national parks), and influencing private behaviour through regulations, property rights, market-based mechanisms or subsidies (CoA 2010, p. 89). National Environment Protection Measures (NEPMs)<sup>7</sup> are statutory instruments that outline agreed national objectives for protecting or managing the environment: these may relate to topics such as air quality; marine, estuarine and fresh water quality; noise, hazardous or toxic wastes, and materials re-use and recycling. However, national policies relating to ‘environment’ are housed in a number of portfolios, most notably the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC); but also including Agriculture, Fisheries and Forestry (DAFF); Climate Change and Energy Efficiency (DCCEE); Innovation, Industry, Science and Research (DIISR); and Resources, Energy and Tourism (DRET).

Given the scope and complexity of environmental challenges facing Australia, and the array of portfolios in which relevant policies are found, it is not surprising that developing a succinct list of the key national goals and priorities for ‘environmental sustainability’ is a difficult task. SEWPaC has identified performance outcomes for the 2011 financial year that focus on terrestrial and marine natural resources, population sustainability, realising value from Australia’s Antarctic regions, climate change, water security and natural heritage protection (Fig. 5.3). Meanwhile, the *Caring for Our Country* program—the centrepiece of government investment in on-ground activities for environmental outcomes—has stated five-year investment outcomes that are oriented towards achieving a healthy, better protected, well-managed, resilient environment that provides essential ecosystem services in a changing climate. Within these, the six national priority areas are:

- Natural resource management in northern and remote Australia;
- Community skills, knowledge and engagement;
- The National Reserve System;
- Biodiversity and natural icons;
- Coastal environments and critical aquatic habitats; and
- Sustainable farm practices.

Supporting these are a further seven national research priorities, established under the objective of an ‘Environmentally Sustainable Australia’. Additional research priorities have also been defined to guide 2011–2012 investment by the Rural Industries Research and Development Corporation (RIRDC),<sup>8</sup> including

<sup>7</sup> As defined in the *National Environment Protection Council (NEPC) Act* and may include goals, standards, protocols, and guidelines.

<sup>8</sup> A statutory authority with the vision to ‘increase knowledge that fosters sustainable, productive and profitable new and existing rural industries’, see <http://www.rirdc.gov.au/>

Outcome 1: The conservation and protection of Australia's terrestrial and marine biodiversity and ecosystems through supporting research, developing information, supporting natural resource management, and establishing and managing Commonwealth protected areas
Outcome 2: Improved sustainability of Australia's population, communities and environment through coordination and development of sustainable population and communities policies, supporting affordable housing and the reduction and regulation of waste, pollutants and hazardous substances
Outcome 3: Advancement of Australia's strategic, scientific, environmental and economic interests in the Antarctic by protecting, administering and researching the region
Outcome 4: Adaptation to climate change, water wise use, secure water supplies and improved health of rivers, waterways and freshwater ecosystems by supporting research, and reforming the management and use of water resources
Outcome 5: Increased protection, awareness and appreciation of Australia's environment and heritage through regulating matters of national environmental significance and the identification, conservation and celebration of natural, Indigenous and historic places of national and World Heritage significance

**Fig. 5.3** Outcomes and planned performance for the Department of Sustainability, Environment, Water, Population and Communities (Source: Portfolio Budget Statements 2011–2012 (Budget related paper no. 1.17). Sustainability, Environment, Water, Population and Communities Portfolio; available online at <http://www.environment.gov.au/about/publications/budget/2011/pubs/pbs-2011-12.pdf>)

‘improving the productivity of natural resource use and conservation’, and the goal of ‘providing the knowledge to increase the profitability, resilience and sustainability of RIRDC’s established rural industries’ (Fig. 5.4).

The scope and complexity of the environmental challenges facing Australia are profound: sustained investment and coordinated policies will be necessary to ensure that Australia protects its natural assets for their future environmental, economic, and social value.

In addition to these, yet other environmental policy areas also exist, being ‘issues’ rather than ‘portfolio’ based. For example, climate change is one of Australia’s most pressing environmental (as well as economic) challenges. The climate change response is largely being managed through the Department of Climate Change and Energy Efficiency, which is tasked with the four themes of promoting energy efficiency, reducing greenhouse gas emissions, adapting to climate change impacts and assisting the global response (Pacific Nations). The relevant targets and priorities in these areas include:

- The National Renewable Energy Target Mandate (MRET), which provides a framework for 20 % of Australia’s electricity supply to be sourced from renewable sources by 2020;

1. <i>Water – a critical resource</i> : sustainable ways of improving water productivity, using less water in agriculture and other industries, providing increased protection of rivers and groundwater and the re-use of urban and industrial waste waters.
2. <i>Transforming existing industries</i> : New technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea.
3. <i>Overcoming soil loss, salinity and acidity</i> : Identifying causes and solutions to land degradation using a multidisciplinary approach to restore land surfaces.
4. <i>Reducing and capturing emissions in transport and energy generation</i> : Alternative transport technologies and clean combustion and efficient new power generation systems and capture and sequestration of carbon dioxide.
5. <i>Sustainable use of Australia's biodiversity</i> : managing and protecting Australia's terrestrial and marine biodiversity both for its own value and to develop long term use of ecosystem goods and services ranging from fisheries to ecotourism.
6. <i>Developing deep earth resources</i> : Smart high-technology exploration methodologies, including imaging and mapping the deep earth and ocean floors, and novel efficient ways of commodity extraction and processing (examples include minerals, oil and gas) while minimising negative ecological and social impacts.
7. <i>Responding to climate change and variability</i> : Increasing our understanding of the impact of climate change and variability at the regional level across Australia and addressing the consequences of these factors on the environment and on communities.

Fig. 5.4 National research priorities under an 'Environmentally sustainable Australia'

- Reducing Australia's carbon pollution to 25 % below 2,000 levels by 2020, contingent on a global agreement to deliver atmospheric carbon dioxide levels at 450 ppm CO<sub>2</sub>-equivalent or lower<sup>9</sup>; and
- National adaptation action in coastal management; water; infrastructure; natural systems of national significance; prevention, preparedness, response and recovery with regard to natural disasters; and agriculture.<sup>10</sup>

Confusingly, with the exception of the MRET, national goals in these areas are generally pursued as components of other strategies. For example, the list above would be relevant to the DCCEE, DIISR's 'Clean 21' agenda and the work of the DSEWPaC, respectively: this means that the climate change response is embedded rather than being a standalone policy area. In a similar way, population growth is also emerging as a key national sustainability agenda with the release of the *Sustainable Population Strategy for Australia*, as already described by Jamie Quinn and Sonia Kirby in this volume.

The environmental policy challenges confronting Australia are immense. The recent national State of the Environment (2011) noted three serious concerns facing the management of Australia's natural assets:

<sup>9</sup>The goal agreed to in the Copenhagen Accord; <http://www.climatechange.gov.au/government/reduce/national-targets.aspx>

<sup>10</sup>*Adapting to Climate Change in Australia* position paper; <http://www.climatechange.gov.au/government/adapt/adapting-to-climate-change-paper.aspx>

- Climate variability and climate change;
- The pressures associated with a growing human population, and its consumptive activity; and
- The lack of accurate, nationally consistent environmental data.

These issues are likely to continue to dominate the environmental policy arena. Substantial responses are already being made for each, in the form of climate change policy (a price on carbon), the abovementioned *Sustainable Population Strategy*, and the recently-released *National Plan for Environmental Information* initiative that aims to reform Australia's environmental information base through a key role for the Bureau of Meteorology.

Overcoming sustainability challenges are extremely important to Australia: if done properly, this can result in reduced risk and avoidance of predicted consequences, recapture of lost value, as well as new productivity gains.

## 5.2 Regional Development

Regional development is concerned with the growth and management of regional areas. Often, this is discussed in the context of requiring specialized assistance and support to allow regions to overcome their distinct and localized challenges, as well as realize the unique opportunities, presented by living and working in areas of lower population (and business) base, and in places that are geographically distant from markets.

Regional areas occupy a critical role in the economic prosperity, environmental sustainability and social wellbeing of nations. Regional areas are the key building blocks of Australian society. Around one third of Australians live in regional Australia, however regional Australia provides around 60 % of the nation's export earnings.<sup>11</sup> The physical and human capital resident in these communities, together with their blend of interactions, challenges and opportunities, make regional areas uniquely well-placed to contribute significantly to national goals in each of the social, economic and environmental spheres.

In the international policy arena, regional policy has now evolved from 'a top-down, subsidy-based group of interventions designed to reduce regional disparities, into a much broader family of policies designed to improve regional competitiveness' (OECD 2009, p. 5). This signals a change in thinking from regional development as in terms of the perceived burden of service provision, to instead recognising

<sup>11</sup> Department of Regional Australia, Regional Development and Local Government (2011), submission to the House of Representatives Standing Committee on Infrastructure and Communications' Inquiry into the role and potential of the National Broadband Network, February 2011, 15 pages, available online at <http://www.aph.gov.au/house/committee/ic/NBN/subs/Sub169.pdf>

that regional areas have much to offer in competitive, comparative and constructed advantage: hence, national investment in regions can offer strong returns where support is directed at helping regions to further national goals.

Global regional development policy is a dynamic space; Australian regional innovation policy is entering a phase of renewal and refocus with new policy development likely. Policy goals are still being articulated, but key areas include issues around productivity and service delivery in regions, and how to achieve best return for federal spend.

Understanding current Australian regional development policy requires a consideration of program approaches that are designed to provide assistance either:

- ‘To’ regions: identifying the barriers and enablers to regional development that occur due to policy frameworks (for example, via planning instruments and legislation);
- ‘For’ regions: measures of governmental assistance for capacity building and stimulation of regional economies (for example, Enterprise Connect); and
- ‘With’ regions: how collaboration, co-investment and risk-taking are progressed (for example, through R&D institutional arrangement such as regional university CRC’s and CSIRO collaborations).

However, despite a vastly increased focus on regional development as a result of the political milieu created by the 2010 federal election, specific policy goals targeted at regional Australia have not yet been articulated: most continue to sit within existing portfolios.<sup>12</sup> Annex B in the *Commitment to Regional Australia*<sup>13</sup> agreement carried regional commitments in the areas of infrastructure, telecommunications, local government, agriculture, water, health and education; and a commitment to funding a ‘regionally-based think tank’ (at time of writing, this was soon to be launched as the Regional Australia Institute).

The five key objectives of the newly-established Department of Regional Australia, Regional Development and Local Government (DORA) have been articulated as follows:

1. To increase productivity, economic development and diversification in regional Australia;
2. To support leadership and representation in local communities;
3. To improve service delivery in regional Australia;

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<sup>12</sup> For example, agriculture, fisheries and forestry; broadband, communications and the digital economy; education, employment and workplace relations; families, housing, community services and indigenous affairs; resources, energy and tourism, and sustainability, environment, water, population and communities.

<sup>13</sup> The Australian Labor Party and the Independent Member’s agreement, [http://www.minister.regional.gov.au/files/Regional\\_Agreement.pdf](http://www.minister.regional.gov.au/files/Regional_Agreement.pdf)

4. To improve outcomes from the Commonwealth's investment in regional Australia; and
5. To improve the coordination of functions across government and different tiers of government.<sup>14</sup>

However, the logistics of how each of these might be achieved, and measured, remain unclear. Agreements between State and Federal agencies are still being refined, and programs such as Regional Development Australia have only relatively recently been introduced within regions.

The ongoing policy challenges for Australian regional development revolve around the key areas of:

- Ensuring a balance in support for different regions: for example, this requires policymakers to be cognisant of the context in which different programs may be received by different audiences—to have a deep understanding of the 'patch-work' of regions and their strengths and weaknesses;
- Adequate metrics by which regional development goals might be measured: the field of regional development is now moving towards more evidence-based policy development and evaluation, and this will require new, rigorous and meaningful tools to assessing social, economic and environmental outcomes in a truly multi-disciplinary format; and
- Enabling collaboration, coordination, cooperation and leadership: avoiding 'wish lists' created by regional stakeholders working in isolation, rather than towards a strategic, whole-of-region direction.

Building strong regional collaboration is challenged by incongruent jurisdictional boundaries, competition for investment, and the need for different regional stakeholders to demonstrate value.

In managing regional relationships, it is important to note the tensions that may arise between groups, brought about by the differences in organisational footprints, jurisdictional boundaries, as well as cultural rivalries. For example:

- The regional boundaries of the three tiers of government do not necessarily align with the economic zones, administrative, functional, or natural resource catchment areas;
- Multiple stakeholders can vie for same investment pool (when available at either state or federal level); and

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<sup>14</sup>Department of Regional Australia, Regional Development and Local Government (2011), submission to the House of Representatives Standing Committee on Infrastructure and Communications' Inquiry into the role and potential of the National Broadband Network, February 2011, 15 pages, available online at <http://www.aph.gov.au/house/committee/ic/NBN/subs/Sub169.pdf>



- Whilst there may be a genuine interest in joint projects, there is always a need for individual organisations/departments to be able to maintain some sense of ownership, and to be able to demonstrate their value and success of their entity (that is, to satisfy key performance indicators). Operating in unstructured collaborative groups can therefore pose the risk of anonymity.

Thus, a key challenge is to identify and establish appropriate mediums by which regional imperatives and agendas can be distilled; by which regional intelligence regarding strategic opportunities beyond traditional ‘business as usual’ can be collected and leveraged, and by which resources can be strategically allocated to empower regions to develop the necessary structures to capitalise on their existing and emerging asset and market strengths.

## 5.3 Thematic Overlaps

### 5.3.1 *Regional Innovation Systems and Innovation in Regional Development*

Innovation has a lot to offer regions—and they can give equally as much back to innovation, with regional areas being especially well placed to deliver and inform national innovation policy.

Innovation has a fundamentally important role to play in contributing to the prosperity of regional areas of Australia. The OECD (2011, p. 16) has noted that innovation policy is increasingly being used as an instrument for regional growth—to ‘help technologically leading regions to remain ahead and peripheral regions to catch up’. Innovation can also be used to simultaneously resolve a range of regional pressures; with the multiple challenges around environmental sustainability being one good example.

However, it is equally important to note that the reverse is also true: regional areas can play a key role in driving national innovation (Potts 2010; Isaksen and Onsager 2010). According to the OECD (2011), the rise of regions in implementing and driving innovation policy has resulted from two key trends: one, because innovation has been brought to the core of regional development agendas based on the mobilisation of regional assets for growth; and two, the recognition that networks and connectivity are critical to innovation systems—and that regional areas have a distinct advantage in this space. For the latter, the tight networks of individuals and organisations that exist in regional areas can represent an important way to drive innovation, by facilitating rapid information transfer (Cantner et al. 2010).

Regional areas also have other qualities and features that are advantageous for pursuing innovation, including (but not limited to):

- Regions must be already agile and resourceful to survive; given that they face a host of challenges in their development, such as low population base, wide geographic areas and distance from markets; and
- Locally-based responses will be quicker at responding to emerging opportunities and challenges.

Supporting and enabling innovation via policy intervention is especially important (and particularly challenging) in regional areas challenged by low population densities and long distances. For example, these regions may lack innovation because of low market demand, but innovation policy to create new value can help to introduce regions to national or globalised market places, and so assist economic and social development (Courvisanos 2009). Similarly, regional micro-economic policies can help foster business entrepreneurship (Mukkala 2010). National regional policy frameworks are therefore critically important in facilitating, or hindering the capacity for, and speed of, brought about by innovation in Australia. However, the proper measurement of regional innovation remains a key challenge for policy integration (and policy cohesion): investment in regional innovation ought not to be measured against the ‘business as usual’ benchmark, as—increasingly—business as usual in regional areas can actually mean no business at all, since this is a natural consequence of strong competition and the inability to adapt quickly. It is therefore vital that return on national innovation investment is measured against the reality of dynamic and variable region futures. However, this first requires regional communities to build capacity in order to identify, extend and defend their comparative, competitive and constructed advantage.

### 5.3.2 *(Environmentally) Sustainable Regional Development*

The importance of regions in delivering on sustainability policy has already been recognised. Regional areas are natural and logical ‘entities’ by which environmental issues can be tackled. Many of the increasingly ‘valued’ innovations on a global scale are those which interface sustainability with regional development agendas—Australia is uniquely placed to make a major contribution in this area.

Australia’s regions are vital in helping to deliver national goals in environmental issues. There is a critically important role for regions to contribute to national water and food security, targets for renewable energy, biodiversity and biosecurity, and in leading the transition to a lower-carbon economy. For example, regional areas are already dealing with the most confronting of our environmental challenges—climate change, land use conflict, water management, energy

efficiencies—and are doing so with less funding and support (on a unit basis<sup>15</sup>) than many of their metropolitan counterparts. Regional areas also typically cover vast geographic areas, thus housing the potential to develop renewable energies in solar, wind, geothermal; and manage large tracts of lands for biodiversity outcomes; and regional areas are homes to much of Australia's significant natural endowments—national icons and assets with high ecological, social, cultural and/or recreational values. Regions are already providing an increasingly wider array of ecological goods and services (Marsden 2010), and regional areas have strong drivers to be sustainable: they represent a nexus between climate change, population growth, regionalisation, NRM, liveability and land use conflicts. Furthermore, using regional-level approaches to tackle issues of sustainability is often logical, since many environmental problems manifest at that scale: consider, for example, issues of water quality (e.g. via basin or catchment management) and climate change (where effects and appropriate adaptation strategies can be highly variable between geographical locations). The use of a regional approach to natural asset management also brings environmental gains almost by default: for example, regional-scale recovery, reuse and/or substitution of raw input materials with locally sourced alternatives will reduce transport emissions and encourage recycling (van Berkel 2007). Finally, regional communities are also physically closer to ecosystems with which they interact (Courvisanos 2009). In contrast to the built environs with which metropolitan communities interact, regional living can bring advantages because of the heightened awareness of, and positive attitudes to, sustainability issues. This provides a strong human capital base on which environmental initiatives can be built, despite low population numbers: examples of this already exist in several regional population centres (e.g. Bergmann et al. 2008).

The Australian Government's *Caring for Our Country* 5-year investment outcomes are already built around many thematic areas in which regional areas have considerable management capacity as well as responsibility. The 2011 review of *Caring for our Country* has already asked questions about how national priorities and local action could be better linked and aligned to achieve national goals. Unsurprisingly, making best use of regional (local) knowledge, and the use of regionally-based management strategies are being called for. The roles of regional NRM plans is also being increasingly recognised for their importance in linking local, regional, state and national NRM goals and aspirations.

The 2010 PMSEIC report noted that 'regional Australia currently produces 93 % of our nation's daily food supply while exporting enough food to feed nearly 40 million others'.<sup>16</sup> Furthermore, given that urban sprawl decreases the availability of arable land for food production close to metropolitan centres, it is reasonable to expect that the importance of regional Australia's contribution to food and water security will only be magnified in future years. The overall productivity of the

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<sup>15</sup> e.g. per km/per capita.

<sup>16</sup> *Australia and Food Security in a Changing World: Preparing for the Future with Foresight*, Report to the Prime Minister's Science, Engineering and Innovation Council (2010).

Australian agricultural sector is declining, with less exports and more imports resulting from a combination of challenges including a rapidly diminishing investment in R&D, land use tensions, an ageing and poorly skilled rural workforce, the scarcity and rising costs of fertiliser and water, and the necessary adaptations to climate change (PMSEIC 2010). However, a number of strengths have been identified in achieving food security in Australia, and regional communities will be essential in bringing to fruition the goals identified by the PMSEIC report. For example, these include:

- Securing food supply and reducing wastage;
- Developing and transforming low-input farming systems that are adaptable and resilient; and
- Exporting our expertise to the world.

Similarly, with respect to water resources, the key issues identified for the Australian water sector for 2010–2015 include sustainability, security, scarcity and planning; ageing infrastructure, adapting to climate change; regulation and reforms; and water allocations, market development and water pricing (AWA and Deloitte 2010).

A number of regionally-relevant population growth issues have been recognised under the *Sustainable Australia, Sustainable Communities* strategy, including:

- The need to address sustainability planning in high-growth regions, delivered via a \$29.2 million ‘Sustainable Regional Development program’ that will provide strategic assessments under national environmental law in up to seven additional regional and coastal growth areas; and
- The growth pressures on major capital cities, which will be addressed by building more affordable homes in regional cities and promoting the lifestyle and business opportunities in regional areas under a \$11.5 billion ‘Promoting Regional Living Program’.

Finally, the *Commitment to Regional Australia* agreement carried an agreement to establish a National Food Plan, which will examine the role of regions in growing more food, more sustainably, and the impacts of development on a regional agricultural land and water availability as the critical assets for delivering domestic and international food security.<sup>17</sup> A renewed role for agricultural innovation in regional areas—largely through research and development efforts—was recognised.

The use of collaboration and connectedness (the key drivers for innovation) to tackle environmental challenges also offers benefits: for example, recent community forums with Rockhampton Regional Council have highlighted a number of key planning issues at the local government level, including better communication and linkages with regional environmental groups. There was also a recognised need to

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<sup>17</sup> The Australian Labour Party and the Independent Member’s agreement, [http://www.minister.regional.gov.au/files/Regional\\_Agreement.pdf](http://www.minister.regional.gov.au/files/Regional_Agreement.pdf)

undertake ‘state of the environment’ type monitoring and benchmarking: again, this is best done in cooperation with a range of regional stakeholders in order to combine resources and expertise.

Behavioural and technological innovation are critical tools in tackling issues of environmental sustainability—known as ‘eco-innovation’. The multidisciplinary nature of eco-innovation is an advantage, but also a policy challenge, with cluttering and contradictory regulatory landscapes confusing industry.

## 5.4 Eco-innovation

Innovative products and processes that relate to tackling environmental challenges are commonly referred to as eco-innovation. At the national level, eco-innovation is an important driver of renewal in the innovation system. Low-carbon and renewable-energy innovation received 32 % (some \$1.05 billion) of the grant funding allocated for science and innovation programs in the 2009–2010 Commonwealth Budget, an increase of 290 % from the previous year.<sup>18</sup> Case study examples of eco-innovation in Australia now abound (e.g. Khoo 2007).

Eco-innovation is an interesting but challenging policy area: both environmental and innovation policy increasingly cut across multiple domains of government intervention and with a similarly complex remit and difficulty of assessment (Bahkshi et al. 2011). Introducing a ‘sustainability’ focus into innovation can help bridge the abstract nature of this agenda, and encourage stakeholders to look for tangible eco-innovation outcomes. However, Fukasaku (2005) has noted that whilst innovation policies are relatively easily linked with environmental outcomes (particularly if the innovation is a technological one), environmental policies tend to need careful design to stimulate innovation. Green (2005) also pointed out that eco-innovation policy must recognise that changes in product design, whilst helpful, are not at the level of innovation that will be required to achieve ‘sustainability’. Rather, the innovations need to be at the higher level—around systems of provision and consumption patterns—and that it makes sense (both in innovation system terms, and in environmental terms, and in geographic proximity and shared resources) that this be done at the regional level.

There are a number of challenges around eco-innovation. For example, in Central Queensland, one barrier to good eco-innovation is the cluttered regulatory landscape (e.g. environmental legislation, major projects status, local land use provisions) that may impose real or perceived restrictions on certain new projects or new business approaches; combined with inequity between different sectors (e.g.

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<sup>18</sup> Australian Innovation System Report 2010, DIISR—The total of \$1.05 billion includes all programs related to low-carbon and renewable-energy innovation listed in Table 3 of the *Australian Government’s 2009–10 Science and Innovation Budget tables*.

compare fast-tracked approvals for LNG/CNG with tourism projects). This could act as a disincentive for risk-taking and new business.

Environmental innovations often need a multidisciplinary approach across multiple firms (Fukasaku 2005), so asking SMEs to work in this sphere could provide the entrée to ‘collaboration and connectedness’ that is necessary for success across all innovation types. Lastly, the current paradigm in the research landscape of Australian universities is to focus on access to nationally competitive grants for research funding. However, this may lead to the pursuit of more pure and theoretical research outcomes, rather than the applied and translational work that is typically done under industry sponsorship. If this kind of model is continued for eco-innovation R&D, there may be a risk that research outcomes are not strongly adopted or embedded in business.

## 5.5 Combining Innovation, Sustainability and Regional Development: Overcoming Barriers to Achieve Value-Add

Integrated policy approaches are an underdeveloped area of research practice, both in Australia and overseas. The field is not crisply defined theoretically, nor are there many well developed, well-documented, standard methods. Most of the successful integrative experiences to date have been due to learning-by-doing and much of the practice is informal.

One of the key constraints of regional innovation policy frameworks is the tendency for governments to try and ‘pick winners’ (often meaning technologically proven), based on current market realities and anticipated future circumstances. This is understandable: it reduces perceived financial and political risks, builds upon growing sectors and supports entrenched participants that have demonstrable value adding history. However there is another perspective that suggests innovation is perhaps best accelerated when the regional *issues*, not necessarily the defined pathway, are explored in an open innovation model. If governments are able to define the big challenges and provide appropriate incentives, logic suggests the innovators, and the innovations will often emerge.

According to the Institute of Public Affairs (Nahan and Quirk 2006), ‘the tendency of governments, state and federal, to focus funding on a limited set of technological drivers such as biotechnology, ICT and advanced materials not only directs funding to a minor input in the innovation process but tends to limit choice in a ‘picking winners’ manner’. Despite the rise of the knowledge economy and the global marketplace, agriculture and extractive resource development remain at the core of much economic growth in regional Australia (Courvisanos 2009). This is a serious issue: if regional growth relies solely on finite resources, a region’s economic position can only decline as those resources are extracted (Clement 2000). Unfortunately, as regional communities are home to just one-third of the Australian population (ABS 2010), their low population bases limit the potential for regional

areas to trade in other non-resource areas, such as the education, skilling and services sectors. The population base also creates difficulties in resourcing and managing regional environmental problems, since these typically manifest on large geographic scales (e.g. issues of weed and pest management across large land tenures). It is for this reason that a merger of policy support and interventions in the areas of innovation, sustainability and regional development (ISRDR) has so much to offer regions, and well as the nation more broadly.

There are numerous thematic and policy overlaps between innovation, regional development and sustainability. Merging policy in the areas of innovation, sustainability and regional development (ISRDR) has much to offer regions and well as the nation more broadly. However, explicit 'ISRDR' policy has rarely been explored in Australia.

The use of sustainable innovation explicitly as a tool for regional development has been explored before (e.g. UNDESA 2008; Ordonez de Pablos et al. 2011); and it has already been recognized that combining sustainability and innovation together creates a 'natural advantage' for regional areas. For example, regions that use innovation to resolve environmental challenges are characterized by cleaner production, modernisation, enhanced regional identity, the linking of environmental and economic planning, strong and innovative businesses and a reduced regional footprint for pollution, waste, carbon and energy (Potts 2010, p. 715). However, despite the evidence available from the literature, and the appearance of case studies demonstrating how successful the merger of the three themes could be (e.g. Kinnear and Ogden 2011b and others), 'ISRDR' has rarely been explored in the Australian context, and there are currently no clear policy platforms that look to combine and synergise these themes, despite the range of overlapping national research and policy priorities that this would address (Table 5.1).

No Australian policy platform currently exists that deliberately combines ISRDR. The existing Australian policy barriers to integration of ISRDR are information gaps around the value proposition of doing so (resulting from the 'intangible' nature of many outcomes linked to innovation intervention programs); the lack of an appropriate funding vehicle by which ISRDR can be supported, and the absence of regional leadership in driving this agenda.

Regional areas are under increasing pressure to contribute to the long-term carrying capacity of Australia. However, ecological concerns and issues of resource depletion have been largely absent from the management of regional economic development in Australia (Courvisanos 2009, p. 256). There is now a need to change this trajectory, and establish new regional economies around ecosystem

**Table 5.1** National research priorities relevant to innovation, sustainability and regional development

Innovation	Sustainability	Regional development
Frontier technologies for building and transforming Australian industries: stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research	An environmentally sustainable Australia: transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies	Promoting and maintaining good health: Strengthening Australia's social and economic fabric
Promoting an innovation culture and economy: maximising Australia's creative and technological capability by understanding the factors conducive to innovation and its acceptance	Safeguarding Australia: protecting Australia from invasive diseases and pests	Safeguarding Australia: understanding our region and the world

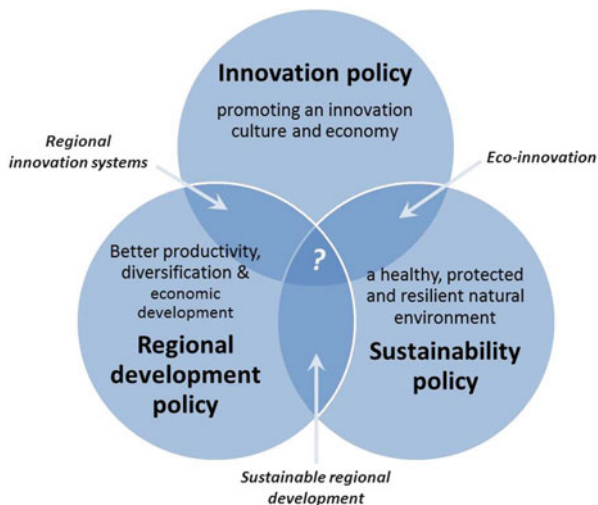
services which enable regional areas to recapture value and create market and consumption niches (Marsden 2010). Ultimately, Australia's regional areas need to use innovation: to capitalise on the interconnectedness of their communities, and on the complementarity of their businesses and industries, to action a wide range of sustainability issues.

Regional wealth cannot be not driven solely by physical capital or resources; nor by human and intellectual capital, but instead the dynamic interaction between them—regional innovation. There is a need to explore ventures that simultaneously address these pressures if regional areas are to flourish and contribute to national targets in social, environmental and economic areas. One way to achieve this is to exploit the natural advantage that regional areas may have for innovation; given that innovation is essential in achieving socio-economic and environmental gains. Potts (2010) has already described how innovation and sustainability are complementary drivers, and how can they can be used in synergy to progress regional economic development. *Powering Ideas* also advocates investing in science and research to discover new ways of addressing environmental challenges without compromising liveability (DIISR, 2009). This will allow regional areas to move past reactive and defensive strategies, and instead pursue triple bottom line outcomes though regional growth (Clement 2000, p. 20). It will also ensure that regions play a key role in addressing Australia's uneven performance in innovation (DIISR 2009).

According to Bakhshi et al. (2011, p.5) 'an effective innovation policy should work by fostering entrepreneurship in the discovery and exploitation of opportunities...[and] the main barriers here relate to uncertainties surrounding opportunities and constraints'. However, when innovation policy is teamed with an agenda that is very much a 'tangible'—such as setting sustainability targets for



**Fig. 5.5** A conceptualisation of the policy overlaps between innovation, regional development and sustainability



land, water and other ecological resources—then the opportunities and constraints become ‘visible’, although they may simultaneously become more complex. The OECD (2011, p. 20) has called for a ‘smart policy mix’ to help drive innovation outcomes; noting that ‘a smart policy mix aligned with the regional strategy would integrate several policy fields, vertically and horizontally. . . many regional and national governments are using the “same” types of instruments, signalling the need to strengthen synergies across levels of government for increasing policy impact’ in science, technology and innovation policy’. According to the European Commission (EC) (2007), “the role of Cohesion policy in promoting innovation has clear advantages. In addition to the financial resources available to support innovation, cohesion policy promotes an integrated approach to development and partnership amongst different actors (national and regional/local authorities, business, universities, etc.) which is a key element in fostering innovation”. Cohesion policy is most advanced in Europe: in this context, it is usually aimed at funding and fostering innovation in poorer regions. By contrast, in Australia, this could be adjusted to funding regions that have been identified as having significant potential to combine innovation, sustainability and regional development for nationally beneficial outcomes; as well as areas where there is a demonstrated ability and coordination to do so.

A conceptualisation of the policy overlaps between innovation, regional development and sustainability is provided in Fig. 5.5. The model illustrates that the thematic areas have areas of shared interest, but that in the current policy environment, the focus on these overlaps is minimal. There are few—if any—examples of policy or programming that appear at the point of convergence across ISRD: the rest of this chapter is thus focussed on developing a policy mechanism for precisely this area of policy integration.

### 5.5.1 *How Might Integration Happen?*

“Why are some regions more successful than others in global competition? While it is doubtlessly true that some regions are better endowed than others to compete in the global knowledge economy, the problem is rarely that the less successful regions lack sufficient assets. Instead, these regions seem to lack the ability to think, plan and act regionally” (CoC 2010, p. 6).

## 5.6 **Research Platforms and Collaboration Models: Transitioning to a Knowledge-led Economy**

The 2008 Cutler review acknowledged a pivotal role in the development of research capability and platforms to support the national innovation system. Australia currently hosts a number of research partnership entities, including the national Cooperative Research Centres (CRCs) program and Centres of Excellence (CoEs), as well as numerous research and development corporations (RDCs), and more recently, Collaborative Research Networks (CRNS). Science and technology parks, or innovation centres, have also featured strongly in research-industry relationships.

The national Cooperative Research Centre (CRC) programme aims to foster industry-university cooperation via co-investment across the public and private sector, and fusing the ‘push’ (knowledge creation) and ‘pull’ (industry demand) drivers of innovation. CRCs provide ‘medium to long-term funding to build critical mass in research ventures between end-users and researchers, for Centres which tackle clearly-articulated, major challenges for the end-users’; and use ‘innovative research that relies on cross-disciplinary and collaborative approaches to pursue solutions that are of high impact and capable of being effectively taken up by the end-users’.<sup>19</sup> The ability to create public good outcomes, such as social and environmental benefits, has been recently re-introduced as a key objective of the CRC Programme. The importance of ISRD as focus areas to guide investment is clear: the 13th CRC round opened in 2010 with the key priority areas of ‘manufacturing innovation’ and ‘social innovation’; and the 14th and 15th rounds (2011, 2012) focus on regional development and the Clean21 (sustainability) agendas.

The CRC programme has undergone several reviews in its lifetime, the most recent being in 2008.<sup>20</sup> These have identified various shortcomings in the programme; particularly the failure to truly involve SMEs (often, the financial

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<sup>19</sup> DIISR Cooperative Research Centres website (<https://www.crc.gov.au/Information/default.aspx>).

<sup>20</sup> *Collaborating to a Purpose* review of the Cooperative Research Centres Program, July 2008 (<https://www.crc.gov.au/HTMLDocuments/Documents/PDF/CRCReviewReport.pdf>). See also DIISR (2011).

Undertake highly innovative and potentially transformational research that aims to achieve international standing in the fields of research envisaged and leads to a significant advancement of capabilities and knowledge;
Link existing Australian research strengths and build critical mass with new capacity for interdisciplinary, collaborative approaches to address the most challenging and significant research problems;
Develop relationships and build new networks with major national and international centres and research programs to help strengthen research, achieve global competitiveness and gain recognition for Australian research;
Build Australia's human capacity in a range of research areas by attracting and retaining, from within Australia and abroad, researchers of high international standing as well as the most promising research students;
Provide high-quality postgraduate and postdoctoral training environments for the next generation of researchers;
Offer Australian researchers opportunities to work on large-scale problems over longer periods of time; and
Establish Centres of such repute in the wider community that they will serve as points of interaction among higher education institutions, governments, industry and the private sector generally.

**Fig. 5.6** Objectives of ARC centres of excellence (Source: Reproduced from ARC (2011))

commitment required to be essential or project participants prices SMEs out of participation); and constraints on supporting radical (as opposed to incremental) innovation, as a result of perceived risks by business and industry (Howard Partners 2003). From the perspective of regional universities, areas in which the CRC programme might attract criticism include:

- Encouraging collaborations between (geographically) distant university partners, which increases the transaction costs of research and can override the importance of local knowledge and capacity building; and
- Perpetuating imbalances across university funding: whilst regional universities are represented in existing CRCs, and benefit from the category four research income it attracts, there is a risk that regional institutions become default 'junior partners', reflecting their lack of critical research mass.

The 2008 review highlighted several areas of improvement for the programme, including encouraged participation of SMEs, the ability to address areas where there is scant history of existing collaborative research, and appropriate metrics by which to measure performance. However, recent federal spending cuts to the CRC programme (\$33.4 million in funding to be redirected) has now led to suggestions 'that the program is being wound down over time, despite favourable past results'.<sup>21</sup>

In contrast, Centres of Excellence are research models that are applied at both the national (Australian Research Council) and state-based levels. ARC Centres of Excellence are funded as hubs through which 'high-quality researchers maintain and develop Australia's international standing in research areas of national

<sup>21</sup> Universities Australia, 2011–2012 Federal Budget Analysis, May 2011.

priority'; and which encourage 'a high level of collaboration between universities and other organisations in Australia and overseas' (ARC 2011). Many of the objectives of ARC Centres of Excellence are consistent with achieving a collaborative approach to innovation (Fig. 5.6). However, most of the existing CoEs focus on narrow and specific challenges, often with a strong theoretical flavour (consider, for example, the 2011 funded CoEs in the 'history of emotions' and 'engineered quantum systems').

Other Centres of (or 'for') Excellence may also be funded through investment at the state government level. These are often based on a hosting arrangement within one or more universities, in some cases, partnering with schools or teaching hospitals, such as in New South Wales. Housing within key government departments also occurs (for example, the Queensland Climate Change Centre of Excellence). Again, these CoEs tend to be targeted towards quite specific research challenges; and whilst collaboration between universities and end users may be encouraged, the involvement of business, industry and community groups is not embedded.

Quite separately to the above entities, 'precincts', science and technology parks, and/or innovation centres are an important element of researcher-industry interactions. Here, dedicated and well serviced infrastructure is attractive to end users as it can improve proximity to customers, suppliers and knowledge creation and transfer sources. Secondly, such precincts are a way of agglomerating industry density, both in supply and demand which in turn leads to the kind of attributes familiar to 'cluster' theorists. These include providing critical mass of complementary (knowledge-based or knowledge-led) industries along with opportunities for collaboration, competition and interaction that in turn stimulate innovation and increase collective industry profile and presence. Such centres have also been utilised as 'business incubators' with varying degrees of success and are often underpinned by involvement of regional universities. The larger technology parks are invariably commercial precincts in their own right (e.g. Brisbane Technology Park); however, in regions, it is often the collaboration of public and private sector stimulus that makes such ventures possible. For universities the benefits can be manifest in deeper and more productive relationships with the private sector (particularly SMEs) and by virtue of such alliances, universities can identify and embark on research agendas that have potential to generate significant intellectual and commercially valuable capital.

## 5.7 Regional Governance and Leadership Models

Governance plays a critical role in the establishment—and sustainability—of regional innovation systems (Ordonez de Pablos et al. 2011).

According to EURADA (the European Association of Regional Development Agencies), governance can be defined as the ability of key private and public actors to:

- Build an organisational consensus in order to define common objectives in the field of regional economic development;
- Agree a common vision for the future of their territory; and
- Agree on the means to be contributed by each partner in order to reach the defined objectives together.

Governance is a far more complicated process than the pursuit of populist, short term objectives and it is not enough to simply decentralise responsibility for economic development. Given the growing awareness of the need to recognise and acknowledge specific regional attributes that influence economic standardisation and globalisation, governance will become an increasingly important and powerful component of regional economic development. Governance can also be an interesting concept to use when it comes to defining a vision for a geographical area that does not overlap a region's administrative boundaries. For example, traditional entities such as state endorsed statutory authorities (e.g. Central Queensland A New Millennium) are not able address issues outside their jurisdiction, therefore, there is a window for alternative governance structures to take leadership roles, such as consortia of private companies, membership based organisations, not-for-profit groups or regional advisory boards acting via memoranda of understanding or heads of agreement instruments.

Mechanisms for shared regional governance in Australia have been thoroughly well explored at the local government level (e.g. Dollery et al. 2009; Dollery and Johnson 2007, and others by the same author). These may include local government associations, regional organisations of councils and others. However, Dollery's work also shows that the benefits and limitations of such approach must be carefully considered, with the potential for cost-savings through shared services provision being balanced against the risk of diminished participation and representation.

The Geelong21 Region Alliance is nationally recognised as a leading example of a successful regional coalition. The G21 alliance works collaboratively to identify, develop and deliver major regional projects that address the objectives of the Geelong Region Plan (G21, 2005). In this model, all major regional institutions are closely networked using a *company limited by guarantee structure*: the group is a 'formal alliance of business, government and community organisations working together' (G21, 2005). However, G21 is largely about coordinating regional planning through membership of 'Pillar Groups': whilst a key objective is to influence funding support, there is no suggestion of pre-arranged group investment or pursuit of activities, though these are often done (individually or collaboratively) by member organisations.

The quantity and quality of specialized skills, infrastructure, and technology, and the presence of clusters vary markedly across regions (Harvard Business School 2001). Consequently, finding an effective governance structure that allows for national policy integration across innovation, sustainability and regional development, whilst also being flexible enough to accommodate the different needs of different regions, is likely

to be a considerable challenge. However, based on the existing management and governance structures that have been described above (and considering their relative success and failures), it appears that the minimum criteria by which any new style of regional association/group should be formed would include:

- The ability to provide evidence of value, or return on investment (though this should not deter an element of risk essential to innovation);
- The ability to provide for auditing requirements for receipt of federal funding;
- The ability to not only scope and ‘projectise’ responses to key regional issues, but also to draw funds in their own right to begin exploring solutions;
- The ability for shared regional leadership—a transparent and equitable management structure that provides for a collective voice without losing autonomy; and an appropriate framework by which a range of regional leaders can operate to best effect;
- The ability to provide a platform for a critical mass of small, medium and large industries to collaborate around central themes, with close access to relevant expertise and research capabilities;
- The ability to capitalise on local interest and expertise to promote innovation and entrepreneurship;
- The ability to contribute to regional planning and development through intensive and coordinated information sharing, capture and dissemination;
- Allowing stakeholders to move beyond ‘local’ debates—to embrace and address a broader suite of issues in order to realise economic opportunities, build regional capacity, and contribute to national goals; and
- Attracting significant national and international interest and investment through the appropriate capture and dissemination of the strategic opportunities held by the region.

The issues of equity, communication, collaboration, leadership are all critically important in conceptualising a new model for regional partnerships in innovation, sustainability and regional development. There is an array of existing models from which a new regional structure to explore innovation, sustainability and regional development could be developed or adapted. A new model should be developed on the basis of a negotiated and agreed preferred future in which strategic pathways are identified and the appropriate mechanism(s) are able to be developed and resourced collaboratively for regional benefit.

The Council on Competitiveness (2010) has recognised the absolutely critical role of having strong regional leadership in order to realise regional advantage, and has noted that regional level leadership structures offer many advantages over smaller, less collaborative groups. Unfortunately, fragmented and parochial regional leadership is already evident in Australian regional communities, such as Central

Queensland, where for example no truly regional level responses are being considered to manage the massive impacts of a booming resources sector with critical issues of skills shortages, housing and infrastructure still being largely (and inadequately) responded to on a case by case basis.

Collaboration and leadership arrangements are particularly important—issues of access, equity/inclusiveness, autonomy and independence must be properly considered. Furthermore, in a model where industry and business are brought into partnerships with wider regional representative organisations and governments, great care must be taken to ensure an appropriate balance of outcomes across the quadruple bottom line. In a free market economy, there is always a need for strong industry advocacy—but social license can and should only be granted where the commercial needs and aspirations of business can be balanced against the benefits of a particular regional future.

## **5.8 A New Model: Regional Collaboratives**

Australia has the need to explore a model that simultaneously provides for knowledge creation, dissemination and application (research and commercialisation); business intervention, support and training; and regional connectivity, collaboration and leadership development across regions. Such investments are particularly valuable where the R&D and on-ground activities are directed at realising the pre-existing resources and strategic advantages of regions, as well as addressing their weaknesses. For this reason, activities that focus on innovative and effective use of natural resources, and enhanced environmental performance, are often useful.

A key question going forward is whether an appropriate model can be built onto existing innovation, research-funding and regional development frameworks, or whether an entirely new design of innovation architecture is warranted (Kilian Perrem, personal communication). However, if it is accepted that there are opportunities for policy integration and cohesion across innovation, sustainability and regional development, then building a model that echoes the success of previous entities may represent a good starting point for an architecture that allows blending of ISRD.

Regional collaboratives may offer a mechanism to deliver on multiple goals across the innovation, sustainability and regional development portfolios. The use of regional collaboratives is an innovative approach that offers multiple benefits: shared leadership, close SME involvement, the ability to gauge success, stemmed economic leakage, more, commercially disciplined risk-taking (innovation) and better environmental outcomes in regions.

### 5.8.1 *Joint and Leveraged Regional Investment*

Successful innovative regions have a number of prerequisites:

- A critical mass of people and organisations to create leading edge knowledge transfer;
- The presence of people and organisations who set the standard for industry; and
- The existence of an extensive set of pilot/demonstration projects—that is, the use of experimentation to develop real-world improvements.

Often, these coalesce in geographically bounded areas—regions where like-minded individuals and organisations share a similar resource base, climate, markets, and drivers and barriers for business growth. International examples of these types of successful, regionally-based clusters and networks are plentiful.

The OECD (2011, p. 267) have already noted that “a greater role for regions in innovation policy has increased the emphasis on regional considerations in the location of public research infrastructure”. Although this is the European experience, it suggests that federal spending on support and infrastructure in regional Australia will capture the most benefits. Fortunately, this links with existing budget direction: for example, universities with campuses in rural and regional areas received funding boosts in the recent federal budget, through a \$500 million allocation in the next Education Investment Fund (EIF) round (amongst other initiatives).

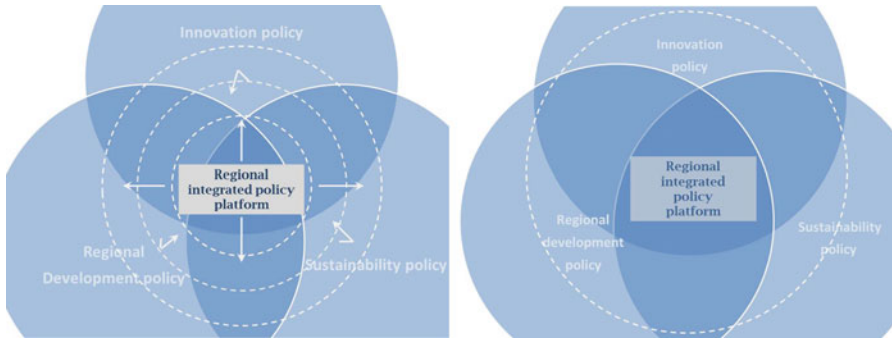
The OECD (2009) also made the following suggestions for effective regional policy:

- Provide infrastructure as part of a regional approach, but only where this is integrated with human capital and innovation;
- Invest in human capital;
- Emphasise innovation and regional development as longer-term and highly localised processes; and
- Integrate regional policies to allow innovation actions to communicate easily with each other.

A possible, workable model for achieving the multiple benefits of innovation, sustainability and regional development could be an integrated policy platform, that works to bring these themes closer together (Fig. 5.7). Within this, the policy platform would operate analogous to a stone being thrown into water—the basic principles being:

- The creation of ‘ripples’; would be created by centralised and deliberate delivery of support and resources at the point of ISRD convergence. These ripples help to further gel the existing areas of ISRD policy overlaps; and
- ‘Rebound’ effects: synergies can be brought about by using successes in existing policy to inform the development of those in the other thematic areas (e.g. adapting research collaboration models used for regional development governance).





**Fig. 5.7** A conceptualisation of the role of an integrated policy platform in enlarging the overlaps and benefits across ISRD policy. *Red concentric circles* represent ‘ripples’ of policy intervention

Ultimately, integration of policy goals and outcomes would occur by enlarging the pre-existing overlaps through cooperative research, engagement, and implementation on regional issues and activities, and then capturing these through a sustainable governance mechanism.

In practice, this could be achieved through Regional Collaboratives comprised of a number of regional stakeholders. These would be drawn together to agree on strategic directions and activities across a region; to scope and implement joint projects through co-funding arrangements; provide a unified voice for regional needs assessments, to share information and intellectual property (under appropriate arrangements) and in some cases, even allow for co-location and economies of scale.

The strength of the Regional Collaborative model is thus not only in its ability to drive ‘collaboration and connectedness’ (the key enablers of innovation), but also to allow for each group to contribute in a way that best suits their organisational goals and strengths. For example, this may involve a project whereby regional universities work to create knowledge (using their existing academic base), regional economic development organisations and RDA acts to disseminate it (utilising existing networks and pathways of influence) and implementation is achieved by business and industry—the key place whereby commercial value from innovation is realised. Furthermore, a key point of difference for regional collaboratives would be the use the overarching ‘blanket’ nature of the innovation agenda as an umbrella to draw together multiple stakeholders, blend multiple regional agendas, better integrate regional planning instruments and improve regional decision-making. This is possible because innovation is the one agenda that bridges social, economic, environmental and governance issues; because it is relevant to all types of organisational structures and all operational footprints, and because it can be embedded in every regional project, strategy, investment, culture and leadership agenda.

The funding and governance arrangements of such regional collaboratives could be based on a revisited model of the functioning of CRCs, adapted for regional

application. For example, the research training element currently embedded in CRCs could transit into being business-based research positions<sup>22</sup> and/or business and industry skilling packages. Instead of using a CRC approach—whereby often geographically distant partners work on a ‘national challenge’, a regional collaborative would exploit close regional partnerships to address the ways in which innovation can be used to realise regional advantages to deliver on national goals.

### ***5.8.2 Roles and Objectives of ‘Regional Collaboratives’***

The key roles of regional collaborative would be scope and pursue research, engagement and capacity-building activities relevant to their regional strengths and opportunities. These roles would be supportive and complementary (rather than duplicative) to the activities of RDA committees and other existing entities. In addition, governments at all levels will require better and continually updated data to make the appropriate choices on what needs to be done to improve regional competitiveness—and hence national productivity. Thus, regional collaboratives could assist this through information collection and management, especially:

- Provision of case study data (and pilot study locations) to inform policy development;
- Contributing up-to-date regional information, e.g. to the new ‘MyRegion’ websites that are due for launch in July 2011<sup>23</sup> and to add significant value to RDA’s; and
- Informing and collating research reports/data housing.<sup>24</sup>

### ***5.8.3 Expected and Potential Benefits***

Ideally, the value of regional collaboratives would not simply be in addressing policy overlaps, but also in forging new ways of fostering regional leadership and strong advocacy and information flows in and out of regions.

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<sup>22</sup> Like the current RIB ‘Researcher in Business’ Program offered through Enterprise Connect; and the forthcoming ‘Students in Business’.

<sup>23</sup> As noted in ‘Investing in Regional Australia’ 2011 budget commitment.

<sup>24</sup> For example, the draft Geelong Innovation Plan (by Innovative Regions Facilitator Mark Kelley) has suggested the development of a Regional Research Information Centre.

An approach based on ‘regional collaboratives’ would work because:

- It brings together all regional stakeholders by highlighted the aligned interests across ISRD;
- It would facilitate (in fact, almost regulate) collaboration and connectedness;
- There should be no lead entity—but instead a truly partnership approach, with leadership shared across the stakeholders. This will allow decision making (and ultimately, investment) based on ‘consensus, not hierarchy’ (CoC 2010); and
- Regional collaboratives would offer flexibility such that participants can develop and manage projects according to regional need.

Furthermore, there are a number of elements of innovation (new value) that regional collaboratives can offer, over existing models. For example, existing CRCs are focussed on end-users, but this typically means large industry, with SMEs being too small to purchase R&D services: regional collaboratives would overcome this because the structure is actually the pathway by which they can identify and access government support. This is critically important in realising the true value and potential of innovation outside of pure R&D processes: ‘research’ is a formalised process of discovery undertaken usually by universities and public sector institutions. However, it is not the dominant source of innovation in the economic landscape, with census data indicating that institutions represent less than 5 % of the sources for ideas and innovation in Australian businesses.<sup>25</sup> Given that market failures continue to hinder progress on regional innovation, a key strength of regional collaboratives would therefore be the explicit involvement of SMEs.

In terms of research projects, overall success can be assessed in relatively easy ways—describing what was spent, by whom, and what outcomes lead from this. However, with innovation, much of the work is in a support function—innovation is an enabler, not an end result; so end-of-period reporting makes for a difficult challenge, and requirements for this are often not clear.

With respect to innovation policy, the commercialisation value that is linked with product and process development in regional areas may often be realised out of the region—particularly where larger industry are involved (for example, head branches in metropolitan centres). Integrating innovation with regional development policy may therefore allow for options to be developed to help to stem this kind of economic leakage.

Regional collaboratives could allow a model that can accommodate some higher-risk taking activities to be undertaken by regional communities—thus extending them beyond their current paradigms through truly innovative solution-seeking. However, this would be coupled with more low-risk, but moderate or high return, activities.

Improved environmental outcomes in regional Australia should also lead to improved liveability and social returns, as well as economic prosperity, as sustainability is linked both directly and indirectly to wellbeing benefits (CoA 2010, p. 88).

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<sup>25</sup> Australian Bureau of Statistics, Category 8158.0—*Innovation in Australian Business* (Innovating businesses, Sources of ideas and information).

### 5.8.3.1 Local Advantages

There is need to make sure that the national wealth and benefits created by regional Australia also result in benefits and wealth for the regional communities themselves. At the local level, successful regional collaboratives will deliver at the strategic (whole-of region) level through planning, leadership and knowledge creation activities; as well as at the business-focussed, action-oriented level, through facilitation and implementation of targeted industry projects. Through partnerships between regional organisations and the business and industry base, regional collaboratives will result in beneficiaries investing in their own research, thus helping to provide access to information, resources, and key regional contacts for innovation, sustainability, and regional development, with respect to both existing and emerging technologies and behavioural practices. A locally integrated team of regional stakeholders would also introduce extra opportunities in terms of value-add and continuity, that would not be present if regional organisations continue to work in silos and/or at the individual or sectoral level.

Regional collaboratives would also help to relieve the existing tensions experience between regional stakeholders; with parties instead able to jointly develop ideas in a respectful, non-threatening environment, and then to take high-quality concepts to pilot stage with pooled resources. The collaboratives would achieve a stronger and longer-term commitment across the region and reduce fragmented and ad hoc responses (without squashing creative processes and the ability to take advantage of emerging opportunities). Finally, a whole-of-region approach may help to circumvent the existing difficulties whereby different regulations are in operation for different councils and different industries.

In terms of innovation goals, regional collaboratives would allow Australian regional communities to apply strong levers to attract more investment—both public and private—in pure research, development and demonstration, until appropriate scale and deployment success is reached and private markets can take over. However, the collaborative model would also go beyond this to include ‘empowering people to innovate; changing processes and methods; and developing new business practices and new collaborations’ (DCCEE 2010). Even where projects are not successfully funded through the Collaborative, the process of developing and refining project ideas and applications would set regions on a pathway of understanding their strengths and what is needed to deliver them, and crystallizing regional commitment and effort to do so.

Where collaboratives grow and are successful, they can become forceful entities for regional advocacy: helping to attract further residents and industry, improving liveability and resolving environmental issues (depending on the thematic focus). For example, this may include boosting of local labour markets and alleviating skills shortages by attracting and training critical mass in specialty areas; and diversification of region economies by new industry development. Individual businesses and industry can benefit from cross-fertilisation and collaboration, and (again depending on thematic focus), ‘greener’ business cultures can be developed

to achieve profitability (e.g. reduced fees for water and energy inputs and waste disposal). Creating this kind of regional culture will also help indirectly in achieving regional resource condition targets for water quality and biodiversity, addressing climate change (both adaptation and mitigation) and ameliorating the adverse effects of rapid regional growth (for example, the cumulative effects of heavy industrial development in mining regions). The latter would occur particularly when existing regional economies can be shifted to become not only more environmentally efficient, but also to a services- and information-base, thus further reducing natural resource consumption (Polimeni et al. 2008).

### 5.8.3.2 State and National Returns

The architecture of regional collaboratives could be specifically designed to tackle the current federal emphasis areas for regional development. Establishing an interface between policy and practice would help both government and end-users to understand each other better.

At the state level, regional collaboratives could help to establish particular regions as portals and/or pilot regions for advancing specific and strategically important industries (for example, clean technology), therefore delivering strong returns on investment. The model would also help support federal investment to regions, which would complement state-based regional strategies<sup>26</sup> that aim to support business and share economic growth with regional areas whilst alleviating growth pressures in metropolitan centres. At the national level, establishing Regional Collaboratives that focus on the challenges of policy integration across innovation, sustainability and regional development will acknowledge, advance and augment many of the principles on which the current federal budget was delivered. For example, some of the leading statements on regional development strategy<sup>27</sup> were:

- That driving growth, liveability and sustainability across regional Australia is one of the highest priorities at the national level;
- That the people who live and work in regional Australia know their patch best: they're aware of their unique strengths, landscape, people and industry mix; and are best placed to identify the drivers for change and the potential for partnerships and new markets; and

<sup>26</sup> For example, *Tomorrows Regions: The Queensland Government's Partnership with Regional Communities and the New South Wales Regional Innovation Strategy*.

<sup>27</sup> *Ministerial Statement 2011–12: Investing in Regional Australia*, Department of Regional Australia, Regional Development and Local Government, [http://cache.treasury.gov.au/budget/2011-12/content/download/ms\\_rural\\_and\\_regional.pdf](http://cache.treasury.gov.au/budget/2011-12/content/download/ms_rural_and_regional.pdf)

- That regional communities should be proactive and empowered to take ownership of their future.

Other relevant points in the Budget also included:

- That regional economies underpin a strong national economy;
- That different regions are facing different pressures and opportunities;
- That each region—each part of the patchwork—can reach its full potential;
- That if communities are stronger and more connected at the local level, overall productivity rises at the national level;
- That regions should broaden their traditional economic base—through new partnerships, new skills and new technologies; and
- That regionalism should be irreversibly embedded into the Australian governing system.

Regional collaboratives could also help to establish a direct interface between policy and practice—as innovation activities would be end-user driven (as promulgated in the existing CRC model), then uptake and adoption rates should be maximised. This would help to remove the existing burden of innovation ‘extension’ currently placed on state and federal government. Allowing federal funding to be ‘distributed’ through a regional collaborative model that includes participation not only by research and development entities, but also business and industry, may also allow for the sharing of risk with the private sector, given that the pursuit for innovation is an inherently risk laden activity. The model would also help relieve tensions triggered by the difference in top-down (federally-driven) and bottom-up (local aspirations): this is very important in preventing the dysfunctioning of regional innovation clusters that has been noted in the United States and elsewhere (Junbo and Jackson 2011).

The ‘return on investment’ for regional collaboratives could be measured based on an adaptation of the existing CRC model—which accounts for both private and public good outcomes.

#### **5.8.4 Gaps, Challenges and Opportunities**

‘Regional collaboratives’ could help to advance regional areas, as well as national goals, through a model that involves participation from multiple regional stakeholder groups, each working cooperatively and collaboratively to address the challenges of innovation, regional development and sustainability. However, specific foci area will vary across regions dependent on their natural advantages. Clearly, not every region is suited to ISRD, because specific resource endowment, social capital and innovation are each important in providing energy for regional eco-economies to grow (Marsden 2010).

Clement (2000) has suggested that regions can assess their suitability for different kinds of environmental and regional co-development by examining their spatial,

sectoral and thematic attributes. This will include considering geographical and social boundaries and the natural assets contained within them, business and industry profiles, and fitting these with different types of R&D projects, communication and engagement activities and funding and investment initiatives. However, a number of other inter-linked policy themes could easily and logically be introduced into the model (e.g. innovation and regional development based on health, education or manufacturing).

Regional collaboratives are currently an embryonic concept; there are many important elements that need further articulation and exploration. These may include:

- The appropriate level and balance of private and public investment; how this is split across the different activities of research, engagement, and implementation; and which government portfolio(s) might take the lead role in administering the programme: given the recommendation of the Cutler review that Innovation Australia be the single major agency delivering innovation support, DIISR is a prime candidate for this; but there is clearly also a role for the newly established DORA, and possibly for joint arrangements with the DEWSPaC;
- Which regions might be supported as part of a national, strategic rollout: the existing Enterprise Connect regions of innovation offer one option, but not all of these are ‘regional’;
- The length of funding to be offered (e.g. compare with the current CRC model for new and continuing funding) and the specific roles for different regional stakeholders, and how these might duplicate, complement or otherwise interact with existing research collaboration and regional governance structures; and
- How progress and return on investment might be properly tracked and measured with respect to delivering on the component ISRD policy priorities.

It should be noted that this discussion has been focussed on the use of regional collaboratives to address environmental and natural resource management challenges as a case in point. In this context, implementing regional collaboratives would simultaneously advance the Commonwealth government’s stated objectives, not only in innovation and regional development, but also environmental sustainability. This is relevant given the global imperatives of climate change and a low carbon future, as well as concerns around future water, food and energy and biodiversity protection; it also captures the emerging Clean 21 and clean technology agendas. However, regional collaboratives could easily and logically be expanded to health, education, manufacturing or other focus areas: these would further extend the ability to realise maximum return on innovation investment (social, economic and environmental).

## 5.9 Conclusion

The policy areas of innovation, sustainability and regional development are each complex and challenging. Existing literature indicates that policy integration across these themes could offer multiple benefits, given the strong interest and

performance of regions pursuing the cross-thematic areas of regional innovation systems, sustainable regional development and eco-innovation.

This chapter has explored the considerable potential in realising shared value between innovation, sustainability and regional development; and considered how this might be achieved by focussing policy and strategy on growing those areas of conceptual and practical overlap, and especially so in the themes of sustainable regional development, regional innovation systems, and eco-innovation. Policy integration across innovation for sustainable regional development could offer the benefits of better returns on investment at all levels of support and funding. Policy makers and practitioners alike could explore this through regional collaboratives.

Two key areas have emerged as being particularly important to enabling improvements in innovation and regional development policy: firstly, there is a need for government to coordinate the agendas across innovation, sustainability and regional development; as well as to develop policy that is focused on cross-disciplinary innovation and interventions as the enablers for regional areas to contribute as fully as possible to national goals. Secondly, there is a need for government to develop evaluation processes that clearly identify and measure the benefit and trade-offs in policy integration across innovation, sustainability and regional development, as this is critical to informed decision-making about the structure of future public policy. This ideally would include the development of innovative and sophisticated methods to capture, aggregate and analyse data that bridge the social, economic and environmental spheres.

Combining innovation, sustainability and regional advantage through the use of ‘regional collaboratives’ could offer significant benefit to all Australians. A compelling case could be developed for strategic funding to be directed to regions, based on their specific strengths in areas of national priorities for innovation, sustainability and regional development; particularly where this involves leveraged funding from regional stakeholders working cooperatively and collaboratively.

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# Chapter 6

## Smart Companies, Smart Regions—The Innovation Challenge for Regional Business

Rowan Gilmore

**Abstract** This chapter explores the drivers and barriers for small-to-medium enterprises (SMEs) from the perspective of a past CEO who previously led the Australian Institute of for Commercialisation and now leads a high technology manufacturer. The paper examines the critical importance of leadership and collaboration for innovation; as well as the importance of regional Australia in seeking ‘radical’ innovation. Case study examples of the Australian wine industry and eco-innovation for renewable energy solutions are provided to demonstrate the potential advantages for innovation in regions.

### 6.1 Introduction

Australia has produced some great ideas in its history. From the early days when necessity really was the ‘mother of invention’ and Australians excelled at improvisation, through to the present digital age, Australians have prided themselves on being an inventive nation. However, whilst Australians may well have been inventive, is Australia truly innovative as a nation? If not, why not? And if not, is there anything we can do about it?

Turning to the first question: is Australia as innovative as we’d like to think?—I suspect not. This is not simply because of the absence of an Australian Google, Nokia or e-Bay (despite Australia certainly having its chances), or because our business investment in R&D lies in the bottom half of developed countries (Australian Parliament 2010). Rather, a better rationale is the innovation surveys performed by the ABS, which reveal that two-thirds of Australian companies report *no* innovation activity at all. This is alarming: the evidence is overwhelmingly that firms that innovate enjoy substantially higher profit margins than those that do not.

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For example, recent surveys by the Boston Consulting Group and Arthur D. Little both indicate that profit margins can be as much as four percentage points higher for innovative firms.

I believe the fundamental answer to the second question of why Australia is not as innovative as we might be is that, as a culture, we haven't been hungry since the first days of settlement and the war periods—not that I'm suggesting hunger is something we should strive for! However, it is “hunger” that drives innovation, and crises that stimulate change. A full stomach can breed contentment, even sloth. That's not conducive to innovation, because innovation requires risk-taking, and the motivation to take risks appears when you are truly hungry. Innovation is a call for action, one that requires both invention and commercialisation.

It is “hunger” that drives innovation; and crises that stimulate change.

How does a lack of hunger play out in practice? Case studies from around the world convincingly show that the steps to creating value in a novel product or service, and especially the commercialisation components, are highly uncertain, and entail taking technical, market, financial and IP risks. Most companies do not manage these well. In particular, many company leaders face great difficulty in understanding both their markets and their technological road map. I believe this is endemic in the Australian economy and is one of the principal reasons why so many companies fail to even consider innovation. Perhaps they are just too comfortable with the status quo.

I also believe that one of the impediments is documented in corporate governance, as we see in too many company reports. If the boards of emerging companies are populated with directors experienced only in governance, that will ensure those companies will pass audit and are adept at recognising financial risk, but may be a warning that they are unable or unwilling to manage market or technical risk.

We should not be surprised that so many Australian companies focus on compliance, rather than invention. A simple head count of the professional backgrounds of Australian directors can give a good insight into their natural preferences.

Accounting and law are professions that rarely focus on markets, and almost never on technology! Far too many companies do not recognise the urgency to innovate, let alone how to innovate. The first step for any firm wishing to become more profitable should be to ensure innovation is discussed regularly at board level, so that innovation becomes embedded in firm strategy. Perhaps that also requires their boards to be appropriately structured with directors who have both technical and market experience as well. Innovation requires leadership first and foremost, for only the leadership of a company can create a climate in which it is safe for employees to take the risks associated with commercialisation.

Innovation requires leadership, first and foremost.

The question of which comes first, the technology or the market, is an age-old one that bedevils every budding entrepreneur. There are countless examples of firms that have created a new market from scratch: Internet firms such as You Tube or Facebook are current examples. However, it is much harder to create a product with a view to creating a market, than it is to innovate to meet a pre-existing market need. For example, the pre-internet era of the early 1990s is littered with many telecommunication firms that failed to find the ‘killer’ application that would drive uptake of their product. ISDN was the technology that for more than a decade preceded what we now call ‘broadband’. The joke used to be that ISDN stood for “I still don’t know”! Market adoption was indeed just around the corner, but it was not those ISDN companies that stood to benefit from the broadband markets that did emerge. As proof that history does repeat itself, just listen to any supporter of the NBN (National Broadband Network) tell you why the network is needed!

New Australian companies offering innovative solutions to the problems created by climate change will face similar challenges. Such firms will face both market uncertainty (especially around the pricing of carbon) and technical uncertainty. Their value proposition is still unclear, and the value chains do not even exist yet. Numerous end-to-end value chains still need to be assembled, possibly with the assistance of governments, who could play a systemic, coordinating role.

Imagine a jigsaw puzzle of thousands of pieces, each piece representing an emerging company, each needing to find its neighbour in order to build a coherent picture of its own service offering. Then, it must determine how it should integrate with partner services in order to present value to the consumer. For instance, solar panels require more than panels to be useful: they require building approval, installation, connection to the grid, monitoring, maintenance, control, and metering; they also might qualify for rebates and renewable energy certificates. In other words, a bundled service has to be created. The classic industry development pathway is that the stronger players consume the weaker ones, and take the lead. Whether this works out in the national interest is a debate for the politicians, but I believe that in today’s global world (and one in which the Australian finance industry prefers to invest in property and mining leases rather than start-up companies), it will be difficult to build a strong, local industry around clean energy or water that has significant value-add or import replacement, other than one that offers relatively low value, locally provided services.

The Australian biotechnology industry provides a historic parallel. After taking root in the 1980s and receiving much attention from both governments and investors, only now is a mid-tier company (CSL) starting to emerge that might play a pivotal, catalytic role in Australian industry development. The sector is mature enough that the value chains are better understood, but the small, undercapitalised, single-product companies in the biotechnology sector continue to struggle while the world moves on. How it might have been different! The problem is exacerbated by the small size of the Australian market, as most successful start-up companies need to be born global, but locally proven first. This issue is compounded by the challenges of an operating base in regional Australia.

The third and final question relates to what can be done to remedy the situation.

First, Government agencies tasked with economic development should continue to create programs intended to help assemble the value chains, and strengthen the emerging companies that seek to play a role in them. For example, the Australian Institute for Commercialisation (AIC) runs programs to increase the commercialisation of Australian research. Research organisations—the suppliers of intellectual property (IP)—are faced with both technical and market risk when they create new start-up companies from their research. Accordingly, the AIC has designed its programs to seek new ways to de-risk the research commercialisation process. One way is by identifying collaboration partners that have the correct mix of experience.

Government agencies... should continue to create programs [that] help assemble the value chains, and strengthen emerging companies.

Historically, companies attempting to commercialise research have operated by pushing their IP out to new markets. Revolutionary innovation often requires that, since by its very definition, new markets must be created. However, for most innovation, it is far better to adopt a demand-pull model for commercialisation so that market risk is reduced. Existing firms that understand their markets and which have proven ability to execute in those markets can withstand market risk because of their superior access and awareness of it; they are also better placed to absorb technological innovation from the research sector than start-up firms. As a result of this insight, demand-pull programs such as TechFast, which attempt to increase the technological absorptive capacity of *existing* firms, have had great success. Such programs assist a firm to innovate by seeking IP and establishing collaborative capacity with the research sector.

Second, companies should be encouraged to pursue open innovation. Embracing collaboration as both a source of new technology and conduit to new markets, is becoming globally established, and will increasingly be the avenue through which Australian companies are able to participate in global value chains. Unfortunately, Australian industry collaborates poorly. Levels of collaboration between innovating businesses and the research sector in Australia are only 2 %, compared with 6–7 % in similar economies like Ireland, Germany, and Denmark, and a phenomenal 26 % in Sweden. Levels of collaboration with customers are no better in Australia and stand at only 12 %, compared with typical values of 25–28 % for similar economies. Collaboration with suppliers is equally poor. Greater collaboration can not only provide new sources of ideas, and new routes to market, it can also spread the risk. It is more than outsourcing and supply chain management, which are typically transaction oriented. True collaborations are more intensive, and improve the success rates of firms because of the diversity of management, cultures, and reduction of risk that it can bring. Australian firms, particularly smaller firms, need to learn more

about how to innovate in general, and how to collaborate in particular, rather than fret about how to compete with each other.

Embracing collaboration will be the avenue through which Australian companies can participate in global value chains.

## 6.2 The Importance of Regions

If hunger and collaboration are important drivers of innovation, it would seem that regions have a particular opportunity to show the way, developing cooperative alliances that are driven by hunger and the need to build scale. Regions with clusters of local firms that are strongly focused on innovation can expect long-term economic growth, reinvestment in the community, high value job creation, and a vibrant, entrepreneurial culture. Clusters of local industry possessing unique capacity tend to attract both talent and capital, and can be exciting places to live: Austin Texas, San Diego California, and Cambridge UK are well known examples. In a global world, size *is* important, and building scale can help add sustainability and vitality.

The widely respected innovation and management guru, Michael Porter (of Harvard University) was one of the first to comment on regional clusters. He outlined four interacting microeconomic factors that he considered necessary for their development:

- Factor, or input conditions such as basic research infrastructure, availability of risk capital, strong human resources, and good information infrastructure;
- A competitive climate for innovation, including vigorous local competition conducive to business investment;
- Related supporting industries, such as competent local suppliers and complementary institutions; and
- Demand conditions, including sophisticated local customers with needs likely to reflect those of other global customers.

Unfortunately, there are many regions around the world with these conditions in place, but where this has still not translated into development of effective industry clusters. There is no silver bullet. Clusters cannot be created, they emerge. Some are developed around pre-existing local advantage, while others emerge from coincidence, perhaps from a chance meeting of one or two key people.

All Australian states, to varying degrees, have policies in place that seek to develop global market leadership in local industry sectors. What tends to be lacking—and impossible to mandate—is radical innovation, the component that is essential for such world-beating leadership. Silicon Valley (electronics, IT) and Israel (defence) are all characterised by both creation of, and adoption of, leading-edge products and processes. A strong research base is an essential component of

this, for both the innovative human capital as well as the pool of knowledge that it creates. In Australia, public funding of the research base is much greater in regions that do have strong industry clusters, where industry itself will fund research to augment the public investment. However, adoption of research by industry requires investment, patience, and a hunger that perhaps we as a nation are lacking.

In Australia, public funding of the research base is much greater in regions that have strong industry clusters.

The Australian wine industry provides some salutary lessons:

- **Understand and build on existing local strengths.** Grape varieties and agricultural techniques developed over many years are all ideally suited to the soil geography, and climate, which were also conducive to the growers.
- **Innovate and experiment.** New types of yeast, use of refrigeration, and new fermentation processes are examples of innovative products or processes that have been created here or adapted from elsewhere.
- **Collaborate.** Working with universities and research institutions has been vital for the industry, and new techniques and processes have then been freely shared between the producers, and celebrated at industry events.
- **Organise.** Industry bodies such as the Winemaker's Federation, the Export Council, the Wine Industry Information Service and others provide shared support and help build scale.
- **Package.** Building 'iconic' status for the region is as important as having a good product. Strong regional brands and 'packaging' innovation can entrench competitive advantage. Coonawarra is a great example, and the EU's disallowing names like 'claret' was a blessing in disguise!
- **Go global.** Local markets were the beginning, but global markets have become the endpoint.
- **Understand the supply chain.** While some winemakers are multinational and vertically integrated, small winemakers coexist by understanding where they fit in the supply chain. Given the dominance of multinationals in Australia, leveraging their supply chain and distribution channels can be a prime strategy for cluster development.

Successful clusters are characterised by innovation, collaboration, quality of life, new entrepreneurs, investment, and risk taking. While Silicon Valley has achieved iconic status as a cluster, Australia should look to its own Barossa Valley as a good model for its other industries.

Successful clusters are characterised by innovation, collaboration, quality of life, new entrepreneurs, investment, and risk taking.



One emerging trend is a growing focus on Porter’s fourth condition—that of demand. Australian industry demand for radical innovation is not strong, because our industry structure is characterised by businesses with relatively short supply chains (for instance, finance, tourism, and retail). Mining is an exception, because it has to be. Many countries have abundant resources, but innovative technology allows us to be the lowest cost producer for many of them. Government procurement policy, a key component of demand, is also inevitably oriented more towards lowering risk and cost than on fostering innovation among local providers. However, demand-side initiatives such as the AIC’s TechFast program helping Australian SMEs commercialise local research, or government IT procurement policies more favourable to SMEs, showing that some policy makers are recognising that local success—in addition to radical innovation—is a prerequisite for global leadership.

### 6.3 Entrepreneurs Seizing Opportunities

Innovation initiatives require people with high energy levels, a propensity for risk, and the ability to withstand failure—the classic entrepreneur. When I have met with entrepreneurs seeking help in taking their inventions to market, it’s sometimes hard to keep up a brave face, especially when they come with models of wind turbines, wave generators, or other ideas to create renewable energy. Their chances are slim.

It’s a shame, because the sustainability sector might not only help solve global environmental challenges, it could spawn regional advantage. Funding for new ventures in clean energy also seems to be an order of magnitude higher in the renewables sector than in any other sector. Here, regions have a particular role to play, because renewables are often easier to justify in remote regions as well, especially those currently reliant on diesel generators or that are not connected to the grid.

The sustainability sector might not only help solve global environmental challenges, it could spawn regional advantage.

The global market for environmental goods and services was recently valued at over \$US 548 billion. Yet I stifle a smile as entrepreneurs tell me “one percent of that is still a large number!”. The fact is the so-called ‘cleantech’ sector is not unlike the biotech industry in the early 1980s: a number of undercapitalised, single-product companies operating in an isolated context. One venture capitalist familiar with the sector has used the label ‘cottage industry’ to characterise it. However, while the development of the biotech industry continues to be stymied by its very

long supply chains, and the lack of a major global pharmaceutical company headquartered in Australia, the cleantech sector in Australia has arguably a greater opportunity. Where they exist, supply chains are shorter, and there are no multinational companies that demonstrably dominate the sector. In addition, there are much stronger and more urgent government responses globally to the immediate challenge, as well as a growing recognition of the role of government procurement in building a new industry. The carbon tax was intended to provide pricing and market certainty, thereby reducing development risk, but that is now debatable. The sector should also, in time, be able to look to the mining and infrastructure industries as sizable immediate clients.

Shi Zheng-Rong did it. A Ph.D. student at the University of NSW in the 1990s, he used his skills and research there to start up Suntech Power, a company that produces solar panels and that is now the size of Qantas. The problem was, he had to do it in China. Just in case you think we wouldn't let such an opportunity slip through in today's 'more enlightened' environment, the AIC was unable to find an industry partner a few years ago willing to work with the University of Sydney on a million-dollar linkage grant into biomimetic photovoltaic systems. This next-generation solar technology mimics nature and generates electricity with a process similar to artificial photosynthesis, highly useful in overcast conditions and tropical climates, or in smoggy cities. The grant lapsed.

The majority of corporate purchasers of environmental products still view environmental issues as a liability and therefore seek the lowest cost solution to solve the problem that is constraining their main business. Without demonising the industry as a whole, there are mines where environmental outcomes are a constraint in optimising output and that need to resolve these production constraints as quickly as possible for the lowest cost. This is not a positive environment for the adoption of innovation.

It is tempting for innovative entrepreneurs to follow the big money. But the rush to build new dams, recycle water, or desalinate water, is no different. These projects are dominated by large civil infrastructure builds requiring the movement of large volumes of earth and the pouring of massive amounts of concrete because the conventional wisdom is that water processing is batch-based. The race against time, election commitments, and government restraints on risk does not create an environment for innovation, where smaller systems and distributed processing might provide better long-term outcomes.

The missing prelude to such sales and procurement can be demonstration projects. That feasibility stage, or commercialisation chasm, can only be bridged by collaborative partnerships between the research, industry, and government. No single entity can do it alone. Collaborations are needed, to share the risk and to build scale. The US defence industry was built on government procurement creating clusters of small suppliers around the major systems integrators, resulting in new supply chains to beat a pressing challenge—the Cold War. A very different war is going on now, but our response needs to be similar.

## 6.4 The Importance of Regional Leadership

Regional leadership is an essential ingredient to convert enthusiasm into execution and results.

A region can be blessed with entrepreneurs, demanding customers, and collaborative firms, but still fail to generate economic development. Regional leadership is an essential ingredient to convert enthusiasm into execution and results. Ideas can be plentiful, but unless they are acted upon and used to create value in the market, they remain worthless.

In fact, people often ask: “what’s the one thing they can do to help their company grow over the long term?” The idle answers are easy to imagine. “Oh, expand into new markets” or “Offshore your manufacturing to China or India” or “Follow the money, seek investment, and invest it wisely”. In fact, the evidence points overwhelmingly to a much more profound answer, which can be summed up in one word: Innovate. Yes, innovate. To innovate is to convert an idea into something of value in the market.

The evidence is indeed compelling and comes from many sources. The IP Research Institute of Australia has conducted an annual survey of company innovation activity every year for the past decade. They found that of the top 50 R&D spenders for whom 5-year data was available, their spend on R&D per revenue was four times the national average. Most compellingly though, their return on shareholders funds was 17.1 % compared with 7.7 % for Australia’s top 1,000 enterprises.

There are further Australian data. For example, the Productivity Commission in its report into Public Support for Science and Innovation surveyed the entire global literature on the business investment and return from research and development. Their evidence over numerous studies revealed that the gross returns to R&D (including ‘spillovers’) averaged 165 %, much higher than for other forms of private investment, including capital investment in physical plant and equipment. The story is the same globally. The Boston Consulting Group 2007 Innovation Survey found that the 25 most innovative companies surveyed had a median annualised return of 14.3 % from 1996 to 2005, a full 300 basis points better than that of the S&P Global 1,200 median. In the same vein, innovators increased median profit margins by 3.4 % per year over 10 years, compared with 0.4 % for the median. The Arthur D. Little innovation excellence study found a similar boost in profit margins, and that top innovators had 2.5 times higher sales of new products. The IBM Global CEO survey shows a similar trend, with a historical excess in operating margin of 1.2 % for product innovators and nearly 1.0 % for business model innovators compared with their peers.

But if it's so simple, why do only one-third of Australian businesses report any innovation activity? Perhaps the others are secretly innovating without realising it or knowing what innovation is. Perhaps they don't like reporting. Or perhaps they just have a death wish! Innovation is the flip side of risk. Innovation is inherently risky; and many projects aimed at creating innovation will fail. Innovation needs to be balanced across the entire corporate spectrum, just as risk is. Like ying and yang, one is the counterpoint of the other. One creates growth, the other can stifle it. Both need to take their place at the top of the tree, and leaders need to champion both. It is no longer sufficient to assume that because an organisation has ongoing product development reviewed by the Board, that an organisation has embraced innovation. Just as risk management should never be quarantined to a single project, nor should innovation be similarly constrained.

Looked at systematically, innovation involves collaborations, both within the organisation and without. Organisations serious about innovation should ask themselves if they perform the following functions:

- Is innovation part of our business strategy?
- Is there a culture where ideas are accepted and listened to?
- Are ideas from customers, staff, suppliers, and partners recorded and considered?
- Is there a systematic approach to screen, evaluate, fund, and develop the best ideas?
- Is there a “not invented here” culture that prevents collaboration and the diffusion of good ideas?
- Do we recognise and manage our intellectual property?
- Has our business ever worked with a research organisation?
- Are there KPIs around the number of high quality ideas generated, selected, funded, and released to market?

If not, perhaps you should demand more from your Board.

## 6.5 Conclusion: The Brutal Truth about Innovation

There is indeed a real problem with stalling productivity and innovation drivers in Australia.

Every now and then during our working lives we reach a point of despair where the time comes to say “cut the nonsense” (or usually, something stronger) and we realise that the trappings of nicety and competing stakeholder agendas have for too long prevented us solving the big challenges we face. Such is the case with talk about powering innovation in Australia, and perhaps more so in regional Australia.

There is indeed a real problem with stalling productivity and innovation drivers in Australia. The brutal truth is that, as a nation, we are just not hungry enough to do much else about it.

It is said that necessity is the mother of innovation. San Diego was hungry in the mid-1980s, when the defence industry left town and threw much of its population into the unemployment lines. The city embraced new industries, centred around its university. Today, San Diego is a global centre for the wireless industry and the birthplace and playground of much of America's biotechnology industry. It's known for much more than its zoo. Finland was also a hungry country, in the early 1990s, when its traditional Soviet markets disappeared almost overnight. Like San Diego, its population too faced high unemployment. Government and industry leadership decided to pursue a strategy based on technological growth, and the story of Nokia is history. Finland today is characterised by the highest levels of education, research, and collaboration in the world—and has become arguably the most robust economy in Europe.

Of course, having a full stomach and money to spend is not something any of us should seek to reverse. But it does make the life of innovators difficult, because prosperous times can mask underlying structural problems that only emerge when times become tough. We don't like to think about Plan B (innovating) when Plan A (commodity boom) is working so nicely.

It's not that we don't know what to do. The irony is that no one disagrees much on what needs to be done, the problem is we're just not hungry enough to do the hard yards and change what we're all comfortable doing. For example, government procurement is a classic driver that could be used to revitalise innovation in Australian industry. If we were Japan, Korea, or China, a \$40 billion government procurement program would surely establish a "born-global" company on the back of such a capital investment (for instance, think Samsung or Huawei). In Australia, the NBN Co will instead only enrich construction companies that are able to dig trenches efficiently, while the value-added work is sent offshore to large multinational corporates. Governments are just not hungry enough to take the risk.

But innovation should not just be about government. Take research organisations: with a few notable exceptions, their collaboration with industry ranks them at the bottom of the OECD tables. Measuring impact is such a scary concept that all talk of it was banished from the ERA (Excellence in Research Australia) initiative. Invention disclosures as a percentage of research expenditure in Australia only just exceeds one-half that in the US and Europe. Why? Our system, in the main, continues to reward those academics who publish in the most prestigious journals and win the most research grants. What business would dare ask its peers to assess the quality of its output, instead of its customers? Universities do. Researchers are still not hungry enough, either.

Lack of finance is one of the most critical barriers to innovation. Yet our financial institutions benefit from a government stipulation that nine (and rising) percent of our income is invested into their superannuation industry, which you and

I have done to the tune of well over one trillion dollars. Is there a reciprocal obligation on that industry for enlightened self-interest, to invest in new industries where our children might one day work? Should there be strings attached to the proposals to increase compulsory contributions from 9 to 12 %? Of course not (they say), it would violate their “fiduciary duty to their investors”! Indeed, there is today almost no institutional investment of any fund into pre-seed or venture capital. Most of us would suspect that our bankers have never known hunger at all.

The good news is business expenditure on R&D continues to rise. . . more companies are ‘getting it’.

And what of industry itself? The good news is business expenditure on R&D continues to rise. More companies are “getting it”, and understanding the importance of technological innovation. Many of our service industries are innovating, particularly on the back of mining. Yet most big Australian companies seem happy as innovation followers rather than leaders, for example innovating by procuring new IT systems. Is that sustainable for Australia as a nation? Where are our new “Cochlears” coming from? My observation of the middle tier, of small and medium size enterprises, is that many are indeed hungry, but perhaps too famished to help themselves. It’s back to government and the finance sector once again.

In March 2011, I was the invited Australian representative at the inaugural meeting of the International Commercialisation Alliance in Ottawa. Eighteen countries were present, and some of the AIC’s initiatives to foster innovation were seized upon with interest. For example, both Canada and the UK leaders present were fascinated by AIC programs to build demand-led collaboration between SMEs and the research sector, or TechClinics to help firms assemble new value chains. Yet at home we still suffer from cultural cringe, too timid to scale up what we know needs to be done, reliant upon international experts to do the diagnosis for us.

The brutal truth about radical innovation in Australia is that most of us are just not hungry enough. We all lack the political will to do what we know needs to be done.

A recent TechClinic I facilitated was with the water industry, looking at assembling value chains to help improve the efficiency of water treatment and reap value from “waste” water. It was ironic that the recent rains had taken the pressure off industry to conserve water and make better use of its waste stream. It seems that now we’re just not thirsty enough, either.

If we’re not hungry, we should be exercising, building muscle and using our brains to put our brawn to work. Let’s summon the political will! Perhaps regional areas that are all too often ignored by those in power and have known—and in many regions, still do know—hunger will show the rest of Australia the way. Just as before, as they always have.

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# Chapter 7

## Regions and Innovation: A Reflection

Geoff Edwards

**Abstract** After reflecting on the worthy contributions in this volume, this chapter poses a challenge to the regional development sector: to create a new theory of sustainable regional prosperity that will explain how to scale up innovative local initiatives and apply their principles nationally, so that effective regional development becomes routine.

In Australia, ‘economic rationalism’ (neoliberalism) is the pre-eminent conceptual framework within which regional policy is crafted. After identifying four inherent shortcomings of this ideology – based upon mainstream economics – four related obstacles to regional prosperity are explained. First, the concentrated sources of energy needed for transport fuel are limited. Second, growth in throughput of energy and materials cannot continue indefinitely in a finite planet. These two limitations can be side-stepped in part by re-localising population and economic activity into regions. However, regional vitality is drained away by two other impediments – free trade in goods, services and investment; and budget cuts that starve the public preconditions for economic activity.

Policy-making in this field is compromised by the shortcomings of gross domestic product, the mainstream headline measure of growth. It is a flow account and is blind to the depletion of natural, manufactured and human capital.

Innovation is simply a label for the creative spirit of a free community. Innovation is intangible. It cannot substitute for the physical energy and materials that drive an industrial economy and it is easily dissipated when its tangible expressions such as intellectual property flow outwards. It is essential to sustain a prosperous community, but it is not sufficient.

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## 7.1 Introduction

Innovation is a label for the creative spirit of a free community. It is essential to sustain a prosperous community, but to give it effect it requires supportive policy settings.

The essays presented in this book portray innovation as a key driver of regional prosperity. Is the success demonstrated in numerous local initiatives merely opportunistic, or is there a general principle at work?

The sponsors of many of the case studies reported here have learnt by trial and error – in the “school of hard knocks”. Local champions, mentors, business networks and savvy use of technology feature prominently in the reports. By these methods, previous experience can form the foundation of subsequent successful practice.

Yet case studies and descriptions of best practice do not constitute a model of sustainable regional prosperity. What remains elusive is a theory that can allow local initiatives to be scaled up and their learnings applied nationally through policy settings and institutional arrangements, so that regions develop as a matter of course.

Why is a theory important? A theory links causes and effects and explains the forces at work. It builds upon insights from scholars and practitioners who are expert in the field. A robust theory will have strong explanatory and predictive power: it should explain why the previous policy settings worked or didn't work and can impart confidence that if identified preconditions are put in place, they will lead to identified outcomes. In the absence of a serviceable theory, reports tend to proclaim desirable outcomes, but with no feasible pathway to link causes with cures, problems with remedies, ideas with tools for implementation. Of course, a robust theory is not sufficient – innovative ideas may also fall by the wayside because of fragmented or under-resourced implementation (Edwards 2010) – but it is necessary for enduring success.

After reflecting on the worthy and interesting contributions in this volume, this chapter addresses the question, where to from here? It throws down to scholars and practitioners a challenge to develop from this rich source material a new general theory to guide policy towards sustainable regional prosperity.

A new, coherent theory explaining regional prosperity is required to generalise from case study experience and to guide policy and practice in regional development.

## 7.2 Innovation: Four Relevant Terms

To propose innovation as a driver of prosperity is appealing as this explanation finds a home within mainstream economics. However, mainstream economics suffers from a number of theoretical flaws relevant to regional policy and four will be mentioned in section 3. These are the source of some policy settings that place stumbling blocks to successful regional development, outlined in section 4.

The purpose of this chapter is not to critique economics, as many comprehensive and persuasive critiques are already in print (e.g. Stretton 1999; Keen 2001; Stiglitz 2002). Rather the chapter aims to explain to policy officers and practitioners in regional development why, despite their best efforts, many of the economic and other indicators of regional vigour continue to trend downwards. The notional readership is the fraternity of scholars and practitioners engaged in regional affairs. The study area is Australia, at the national scale, but the analysis can be applied to any country that has embraced neoliberal ideology.

To establish a common language, four terms are defined. *Gross Domestic Product (GDP)* measures the net value of goods and services traded in recorded markets within a given period (usually quarterly and annually), within a given region (in Australia, usually each State or the nation). It is a flow account, not an asset account, so does not track depletion: the more consumption, the higher (better) the figure.

GDP is a flow account, not a balance sheet.

Economic growth is an increase in inflation-adjusted GDP per capita per period (correcting for inflation and population growth). Virtually all governments proclaim economic growth as the key to prosperity and as a primary aim of policy. By contrast, *prosperity* is a sustainable condition of material sufficiency, distributed equitably and suitable for supporting development (which is a qualitative condition connoting achievement of potential). However, 'growth' is an ambiguous term in regions discourse, sometimes meaning increase in population. In this chapter, the term is confined to economic growth.

'Economic growth' and 'prosperity' are used interchangeably in public debate, and indeed by some authors in this book. However, growth is an *exponential* or *accelerating* not a *linear* progression, and connotes continuous expansion. Prosperity on the other hand can be conceived as a steady-state condition. Although the term 'sustainable growth' is widely used in public commentary, this is an oxymoron.

Economic growth is an accelerating progression, not an arithmetic one; regional prosperity is a more appropriate term as an objective of regional development.

Lastly, *economic rationalism* (the Australian variant of international neoliberalism) is a policy framework derived from mainstream economics, pro-business political philosophy and managerialist theories of public administration. Since the 1970s ‘mainstream economics’ in the Anglo-Saxon countries has been dominated by the neoclassical interpretation, although some features of mainstream economics critiqued below (for example reliance on GDP as a measure of an economy and comparative advantage as a foundation for trade policy) are not unique to the neoclassical interpretation. Economics is neither monolithic nor necessarily purist and the terms ‘economic rationalism’ and ‘mainstream economics’ are used somewhat flexibly. Since the Hawke government took office in 1983, both major political parties in all States and the Commonwealth have applied economic rationalist ideology systematically in their policy formulation.

In Australia, economic rationalism is the mainstream conceptual framework within which regional policy is structured.

### 7.3 Four Flaws in Mainstream Models of Economics

This section examines four inherent features of the economic rationalist conceptual framework relevant to regional policy.

#### 7.3.1 *GDP is Flawed as a Measure of Economic Growth or Prosperity*

At the heart of the difficulty in developing a theory of prosperity is the absence of a good measure of prosperity. GDP will not do, as it is a backward-looking tally of traded goods and services and is not even good at signposting preconditions for future *growth*, let alone *sustainable prosperity*.

GDP is a flow account, not an asset account. Conversion of a natural resource into raw materials and then eventually into waste shows up as an increase in transactions rather than a depletion of a capital asset. GDP can be rising and financial pundits can be praising those responsible, all while an economy is deteriorating through loss of non-renewable resources, fire sale of productive assets to foreign investors, speculation on prices for real estate or equities, the accumulation of government or private debt obligations and economically terminal diversion of savings into consumption rather than asset regeneration or infrastructure (Edwards 2004). A society can be squandering its inheritance of natural, manufactured or human capital – and GDP does not notice.

GDP matters. It not only measures the economy, it defines it. For example, a recession is defined as two successive quarters with negative growth in GDP. GDP

shapes macro-economic policy. The release of the quarterly accounts is awaited eagerly, and immediately becomes a subject for governmental pride if GDP is rising, or for opposition ridicule if it is falling.

GDP is worse than useless as an indicator of regional ‘prosperity’. Regional development practitioners should develop a suite of indicators that properly reflect environmental, social and economic conditions and trends.

### ***7.3.2 The Promotion of Innovation as a ‘Discrete’ Factor to Explain Growth Is Flawed***

In classical economics, the three inputs to production were considered to be land, labour and capital. ‘Land’ represents what we now call natural resources. When U.S. economist Robert Solow in the late 1950s formulated neoclassical equations to explain economic growth, he ignored land and modelled just capital and labour. These equations were unable to explain observed growth, so in an influential paper (1957) he inserted a factor to make the equations fit, although he cautioned that this “residual” – some 70 % or more of observed growth (!) – was an empirical observation without theoretical justification.

A large literature arose ascribing to ‘technological innovation’ the unexplained gap between observed growth and growth generated by capital and labour. Innovation came to be regarded as the primary driver of growth. But unlike capital and labour, innovation is intangible, not easily expressed quantitatively. It is a short step from explaining away any amount of growth as deriving from ‘innovation’ to asserting that any amount of innovation will allow growth to rise indefinitely. That arguably is what mainstream economics has done, ignoring Solow’s warning.

Studies have shown that measured economic growth is poorly correlated with proxy measures for innovation such as expenditure on research and development. Growth is plateauing in the West even though technological knowledge is expanding exponentially, a finding that alone should caution economists against regarding innovation as the primary driver of growth.

On the other hand, studies have also shown that the size of the Solow residual correlates nicely with observed rates of consumption of energy (Beaudreau 2005). This makes sense, as energy is the means of wresting more productivity out of raw materials and labour. Technological progress (innovation) in the past has tended to result in replacement of human muscle power with energy-consuming mechanical power. This would restore the missing ‘land’ to the neoclassical equations (although a factor also needs to be inserted to account for rising energy efficiency in industrial processes).

Solow later opined that given substitutability between forms of capital, “The world can, in effect, get along without natural resources. . .” (Daly 1997). This assertion is plain wrong. Real people, even the most cerebrally inclined, require

food, water, housing and transport if they are to innovate. Neoclassical models of an economy built upon Solow's a-theoretical residual cannot adequately explain or predict growth.

Solow's legacy endures. The Productivity Commission, one of the Australian Government's primary sources of policy advice, wrote in 2011:

Growth in productivity is a key determinant of long-term economic growth and hence income growth. As such, Australia's prospective productivity performance will affect its future prosperity. . . Multifactor productivity (MFP), in particular, is a measure of the amount of output obtained from a combined unit of labour and capital. In principle, it reflects the part of economic growth over and above that resulting from growth in hours worked and growth in capital employed, and is frequently taken to be an indicator of technological progress. . . As MFP growth is measured as a residual (that is, growth in output less growth in combined inputs of capital and labour). . . The approach to measuring productivity adopted by the ABS [Australian Bureau of Statistics, the source of the data] is founded on a neo-classical production framework. . . (Barnes 2011 pp. 1,3).

These snippets hold that prosperity depends on growth and that energy is irrelevant (the terms energy, oil, petroleum and raw materials are absent from the report). They confirm that technological progress or innovation needs a proxy and is outside the model as it is inserted only as a residual. These are evidence that mainstream economics has no analytically satisfying theory to explain innovation, growth or prosperity.

Equations that do not factor in energy and raw materials are inadequate to explain growth. Furthermore, innovation, being intangible, cannot simply be inputted into equations to adequately describe regional growth dynamics.

### **7.3.3 *Comparative Advantage is Flawed as a Foundation for Trade Policy***

A set of invalid assumptions cripples the intellectual case for free trade, which traces its origins to the theory of 'comparative advantage', expounded by classical economist David Ricardo in 1817. Ricardo's comparative advantage remains at the centre of modern theories of trade. Ricardo claimed that *if certain pre-conditions are satisfied*, two countries can both benefit from trade if they specialise in manufacturing or growing those goods which they can produce most cheaply. Gains arise mathematically from the differing opportunity costs of capital.

Two of its pre-conditions additional to those common to mainstream economics are particularly relevant in the context of this book. First, the theory assumes that capital is not mobile across international borders: an assumption that is rendered comprehensively invalid by globalisation of financial capital which, disconnected from the flow of physical goods and services, can be shifted around the globe almost instantaneously. Second, the theory assumes that countries do not run persistent

trade deficits. In reality producer countries with high production costs such as Australia tend to suffer enduring trade deficits funded by inflows of capital.

The assumption of ‘comparative advantage’ as a foundation for trade policy is invalidated by international mobility of capital. A valid theory to explain how to achieve local prosperity in a free-trade environment does not exist.

### ***7.3.4 Mainstream Economics’ Portrayal of Government Is Flawed***

The founders of modern economics in the eighteenth and early nineteenth centuries built their models of supply and demand from studies of exchange transactions in village economies. Transnational corporations did not exist and government was limited. As cities grew in size and complexity and labour became more specialised, corporations grew in power and governments grew in size to regulate private power and to deliver community services that required economies of scale. But mainstream economics has retained its confidence in the ability of individuals and markets to manage themselves without ‘government intervention’.

This world view is abetted by another regressive feature of GDP: GDP measures the value added by commercial enterprise because this appears in taxed and recorded markets, but ignores most household, non-profit and government activity which is not traded. In other words, the labour of factory workers producing trinkets is considered to add value to an economy but the labour of innovators within government is not. Government (except for public business enterprises) appears as a cost.

This feature of GDP fuels anti-government rhetoric – for example, that the private sector is the engine of progress and growth, while government is parasitic. GDP is a decidedly political index. It neglects the stimulatory effect of targeted investment in public infrastructure and civic institutions, an effect stronger than the private consumption which it is alleged to ‘crowd out’. It also leads cost-cutting treasuries at budget time to count only sums saved and not value-creation foregone.

The antipathy of mainstream economics to involvement of government in managing an economy can be traced to its foundations in craft economies prior to the evolution of democratic, representative government as custodian of the public interest delivering a range of community services.

Growth itself as an objective of policy has a political origin (Arndt 1978). National accounts were compiled at the request of Depression-era and wartime leaders who wanted to understand the bottlenecks within their economies; and publication of these statistics fed comparisons between countries. After World

War II, Cold War rivalry between the United States and the USSR made superior industrial capacity a political goal and growth then appeared in public discourse. In 1961 the 20 industrialised countries of the OECD formally adopted 50 % growth in national product as a target for that decade. It is not surprising that a concept such as ‘growth’ with connotations in English of vigour and dynamism took hold of the popular imagination. The favourable connotations are strengthened by comparison with the evocative converse terms: ‘stagnation’ and ‘laggardly’.

## **7.4 Four Stumbling Blocks to Regional Prosperity**

This section explores four obstacles to regional prosperity. They arise from mainstream economic theory and correspond roughly to the four defects identified above. The first two of these impediments are potentially favourable for reinvigoration of Australia’s regions, but require a fresh conceptualisation of the regional problem; and the third and fourth are recurrent problems that relentlessly neutralise regional potential – akin to colonies of termites continually eating away at the foundations.

### ***7.4.1 Concentrated Sources of Energy are Limited by Geology***

Analysts differ widely on their estimates as to when global production of conventional petroleum will peak. Estimates range from 2005 to after 2030. At the date of writing, monthly figures since 2005 are consistent with an interpretation that the rate of production has plateaued and is poised to enter terminal decline. The global financial crisis in 2008–2009 interrupted growth in demand thus masking the onset of geological decline, but by the publisher’s deadline, the mini-peak in January 2011 of 75,285 million barrels per day had not been exceeded.

As with financial booms, plague epidemics and gold rushes, it will not be possible to pinpoint the precise date of the peak until after it has passed. Besides, the advent of peak oil does not mean that the “the oil is about to run out”. Large quantities of oil remain, for example in deep water fields, but is more difficult to extract and is produced more slowly at greater expense. It is the gap between declining supply and rising demand that shapes the economic impact; a tiny shortfall in supply can be magnified by the global financial system. At this point, prices can spike. In economic terms, society experiences declining marginal returns for the effort expended in extracting the resource.

The implications of peak oil for regional development under current policy settings are profound (Gutteridge 2007a). For example, most inland communities truck their food supplies and consumer goods weekly or daily from the coast. As the price of fuel rises these long supply lines will become unsustainable. (Carbon charges may eventually bring about a similar result, though for different reasons.)

Mineral resources are not elastic, being a non-replenishable gift of nature. Although 'peak production' can be prolonged or elevated, up to a point, by removing obstacles one-by-one as each becomes limiting, there is a financial and opportunity cost to doing so; and furthermore, a higher peak extraction of a finite resource must result in a subsequent steeper decline.

Although many analysts continue to forecast a post-2030 peak, or ridicule the concept that there can even be an absolute limit, the evidence arriving in the form of production figures is falsifying optimism. More and more exporting countries are reporting post-peak declines in production: the United States, Mexico, Venezuela, Nigeria, the United Kingdom, Indonesia, Kuwait and Australia to mention just a few. Australia's production of conventional oil peaked in 2000. By 2011 its self-sufficiency in petroleum fuels was about 50 % and still on average declining. No alternative liquid fuel – ethanol, liquefied natural gas, coal-to-liquids – appears ready to be scaled up quickly to meet Australia's demand, all have a large carbon footprint and all have a poorer energy return for energy invested.

Despite the technological optimism by some analysts that exploration and new technology (equals innovation) will bring forward a more-or-less unlimited supply of affordable energy, the legacy of fossil fuels now being exploited has been bequeathed over untold millennia and cannot be recovered from the form (waste heat) in which it is being dissipated into the atmosphere and then into space. The laws of thermodynamics prevail over all social and economic constructs.

Australia has a current and looming problem of significant magnitude. In 2008/09 Australia's petroleum trade deficit rose to a record \$15.73 billion (ABARES 2011) because of falling local production and record high prices for imported product – \$43 million a calendar day. Australia's dependence upon imports of petrol and oil from other countries is unsustainable, on grounds of national indebtedness and fiscal exposure alone. Furthermore, the nation remains vulnerable to a supply disruption, whether caused by geopolitical discontinuities, high market prices or the limitations of geological engineering.

Given these statistics, prudent public policy would require Australia to take steps without delay to reduce its fuel consumption. Homer-Dixon (2006) and Tainter et al. (2006) paint two optional global scenarios for coping with depletion of conventional petroleum and rising greenhouse gases. One is to burn down supplies of coal in order to establish the infrastructure, equipment and institutions needed to operate from renewable sources of energy. The other requires decentralisation of human settlement. "The dispersed settlement system that an information economy allows would mesh with the dispersed production that low-quality renewable energy requires. The diffuse information system would keep human activity integrated while enabling decentralization." (Tainter et al. 2006:55). Herein lies a possible framework for a theory of regional prosperity in an age of expensive oil.

Given that a transition to alternative and renewable fuels is immature in Australia, new policies for decentralising population (= regionalisation) will be important in insulating the nation from the economic impacts of peak oil.



### 7.4.2 *Growth Cannot Continue Without Limits*

Petroleum is just one special case of the limits to supply of raw materials. Despite mainstream talk of 200 years of coal supply, the best quality and most accessible coal is limited and global production could peak before 2025 if current trends in extraction continue (Mohr 2010; Zittel and Schindler 2007). Rich uranium ore is rare and production is likely to peak around 2030. Industrialised agriculture cannot operate without applied phosphorus, yet rock phosphate is non-renewable and production is modelled to peak within the planning horizon of governments (Cordell et al. 2009). As Africa digs deeper to keep its platinum mines operational, it seems that an economy powered by platinum-catalysed fuel cells is out of the question. The richness of gold ores in South Africa is slipping below 1 wedding ring per 2 t of rock.

The 1972 work *The Limits to Growth* (Meadows et al. 1972) was the first prominent study of global consumption of resources. It applied a dynamic systems model to the trends in consumption of resources, growth of population and the effects of the human footprint on the natural systems of the planet. Its ‘predictions’ were very moderate: the key finding was that, assuming exponential increases (growth) of both global population and of industrial production “the great majority of the currently important non-renewable resources will be extremely costly 100 years from now”, that is, by 2070.

The work was vehemently attacked by economists and politicians, primarily on the grounds that the models ignored human ingenuity. Critics argued that technological innovation would discover new materials and more efficient processes; and that the price mechanism would ensure that scarce resources would be automatically husbanded whilst more abundant resources were substituted. These arguments are still advanced to this day (e.g. Warburton 2009). However, *Limits’* findings have been validated: the unanimity of hostile economic opinion (Simmons 2000) is matched by the unanimity of supportive scientific opinion, which is that changes in industrial production, food production and pollution are in line with the book’s warnings of economic and societal collapse in the twenty-first century (Turner 2008). The 2005 update by three of the original authors (Meadows et al. 2005) soberly observes that human society is now more than 30 years advanced towards 2070 and very little notice globally has been taken of the warnings.

Textbooks in economics commonly open with a description of the discipline as the study of how scarce resources are allocated. However, mainstream economics assumes that resources are not absolutely scarce and are always available from outside the arena of exchange, at a price. This is problematic when they are absolutely not always available from somewhere else.

In short, the biophysical resources of the earth are finite. There is no prospect of ‘sustainable’ growth. Furthermore, there is no painless path known for migrating the world’s growth-orientated economies to a different, more sustainable configuration. The roadblocks are conceptual (cornucopian world views), institutional (established roles), infrastructural (sunk plant and equipment) and technological

(feasible innovative solutions). These obstacles are mutually reinforcing and constitute a formidable barrier to incremental adjustment.

Re-localising the modern industrial society could reduce throughput of raw materials and energy. Recycling, re-use and repair of tools, materials and equipment is easier when managed locally. However, there are such things as economies of scale; and high-technology innovation requires a nurturing environment that is more cosmopolitan than the local town. Scholars of regional development should examine these conflicting interpretations to develop a new theory of regionalisation sensitive to throughput of materials and energy.

Re-localisation of economic activity to regions potentially could reduce consumption of raw materials and energy. However, high-technology innovation needs economies of scale and will require active public sponsorship on a broader canvas.

### ***7.4.3 Free Trade: In Goods, in Services and in Investment – Drains Lifeblood from an Economy***

Despite the lack of a theoretical basis for a policy of free trade (Batra 1993; Chang 2003), since 1983, governments of both major persuasions have committed Australia to unilateral, bilateral and multilateral liberalisation of trade. Initially, this agenda was advanced by reducing tariffs on imported goods and manufacturing moved offshore. Now, the agenda embraces free trade in services and investment, with international diplomacy being invoked to dismantle remaining trade barriers. Services have been outsourced to countries with currency of lower value and foreign firms have been invited to purchase Australian businesses including key sources of production such as farmland, mines and infrastructure. Australia's trade performance is deteriorating as the outflow of dividends and profits is adding to the deficit in manufacturing, though at this writing it is being masked by once-off exports of stocks of irreplaceable coal and minerals.

Under current policy settings, almost any Australian company can be purchased by a foreign company or government, with some thresholds and conditions. In 2008–2009 the Foreign Investment Review Board passed 5,477 applications and rejected just three on national interest grounds. Even geographically anchored enterprises such as in tourism can be taken offshore via purchase of the holding company, franchising or sale of the real estate in resorts. This degree of liberalisation is unmatched by any other country except New Zealand. The net effect is that an entire supply chain – from a farm or mine to elaborately transformed products – can be controlled by foreign businesses or governments who can then extract a rent or dividends at each step. While a wheat farmer innovating in the cabin of his tractor might remain an Australian, it is entirely possible that the tractor may be imported, the farm owned by a South African

agribusiness, the grain trader owned by our Canadian competitors, the truckie working for an international logistics company, the software tracking the product written in India and the food manufacturer sold to our Asian customers.

The net effect of Australia's free trade policies is that an entire supply chain – from a farm or mine to elaborate end-products – can be controlled by foreign businesses or governments who can extract a rent or dividends at each step. Regions can only be impoverished by this loss of economic sovereignty.

The common argument that Australia can trade successfully by outsourcing production of low-order goods and services while it maintains itself as a centre of excellence in high-value services is appealing to advocates of the information economy, but is illogical. High-order manufacturing and services require low-order manufacturing and services to build expertise and to create a pool of talent from which the most able innovators can arise. In aviation for example, a sufficient number of school leavers need to enter apprenticeship in a range of trades, else there will not be sufficient licensed aircraft maintenance engineers to maintain Australia's fleet a decade or two later.

Innovation in the 'knowledge economy' evolves from lower-order manufacturing and services that build expertise and create pools of talent. Native intelligence requires a nursery if it is to mature.

How is all this relevant to regional prosperity? First, the free trade model assumes that transaction costs are small and do not affect the overall flow of goods. However, transaction costs include the cost of transport. It is true that the cost of shipping containers around the world is low as a proportion of the sale price of goods, and certainly much lower than in the days of manually handled cargo. But the energy and carbon costs are not negligible and will grow rapidly as the supply of oil plateaus and then declines.

The benefits of free trade will be less appealing when reliance on carbon-intensive forms of transport is properly factored in.

Second, the pernicious effect of closing down manufacturing is magnified by also liberalising trade in services. As soon as innovation moves from the brain of the innovator and is given substance in the form of products, patents, business enterprises, software or services, it can be purchased by a foreign investor who recognises its potential. This practice is denying to our own citizens the intellectual property and other vehicles for innovation which could otherwise be carried

through the domestic economy. For a short period, hopes were high in regional Australia that jobs in call centres could be performed by station wives using just a telephone and home computer. This potential source of steady income has largely been snuffed out as call centres relocated to Bangalore. The risk accompanying the rollout of the National Broadband Network, then, is that rather than facilitate innovative professional business in the inland, it will enable foreign contractors to offer cut-priced divorce settlements, conveyancing, home tutoring, report-writing, policy analysis, even building certification for local governments – any service that can be contracted and communicated by e-mail.

Markets do not allocate resources equitably – they deliver goods and services to those with greatest purchasing power, so they inevitably bleed resources and economic activity away from the periphery to the centre – from a town to a regional centre, from there to the State capital, to overseas centres. As soon as that happens, economic vigour drains out of the region or the nation.

Buying products cheaply in one market and selling them for a larger profit in another is a commercially cunning strategy with an ancient parentage – but it is not clear how this advantage to trading firms will enhance Australia's capacity to capitalise on innovation and so ultimately serve the national interest.

National free trade orthodoxy is cosmopolitan in outlook – indifferent to the well-being of geographically-anchored producers (regions), and hostile to special incentives of the kind required to foster re-localisation.

#### ***7.4.4 Budget Cuts Starve Public Services and Institutions, but These are Foundational for Regional Innovation and Prosperity***

Given faith in innovation, if we simply nourish the roots, people will develop enterprises that suit local circumstances. What are the preconditions for innovation, and then for converting innovation into prosperity? Foremost are the public services and institutions. Without being exhaustive, they include:

- Effective administrative procedures to extract raw natural materials and energy and deliver them in a reliable stream to industry without wasting the sources;
- Taxation and fiscal measures to ensure equality so that those in the worst socio-economic cohorts have sufficient discretionary income to enter the marketplace;
- Skilled blue and white-collar operatives roughly in the proportions needed for the various sectors of the economy, and with packages of skills that match the emerging challenges;
- Public sources of reliable information including public broadcasters, libraries, research organisations and government custodians of technical excellence;
- Physical infrastructure such as transport and communications on which innovators can build logistical supply chains;

- Statutory and administrative regimes to ensure fair play, security and trust in every corner of the economy and to create spaces where people can live, work and take leisure in peace.

Services covered by this last item include prudential regulation, a competently operated land titles office, contract law, a corruption-free police force, clean piped drinking water, a timely postal service, health care, parks and gardens, pollution controls on factories, weights and measures, workplace health and safety, motor vehicle registration and so on. The list is endless. They tend to be invisible to commentators because most of the time they work reliably, and one needs only to live in a country where they do not to understand how essential they are to an industrial economy.

In a mixed economy like Australia's, sustainable prosperity depends on deeply inter-dependent private enterprise and public institutions. Public institutions share the costs and benefits across the population. In most cases, the public institutions come first – infrastructure comes before transport. Every private capacity has roots in public institutions. Scaling upwards from local enterprise to the State and national arenas, the need for collective action is even stronger (because of economies of scale). Yet within the Australian Public Service, line departments are repeatedly subjected to an annual 'performance dividend' which amounts to a budget cut of typically 1.5 % per annum. This amount does not sound like much, but it is extracted from the discretionary funds available to each portfolio, which is a small subset of the total budget. If repeated year after year, it squelches any prospect of innovation in policy. In an economic rationalist public service, innovation – especially if it lies outside the prevailing departmental mindset – can become just too hard.

"The efficiency dividend is a mechanism to drive greater efficiencies in how government does its business," Finance Minister Senator Penny Wong told reporters in April 2011. (Wong 2011) This reflects the economic rationalist mindset, that departments are naturally profligate while innovation is the province of the entrepreneurial private sector. Yet if policy is to meet emerging challenges, innovation within the ranks of government is crucial. Budget cuts destroy departments' capacity to innovate in policy. Wouldn't innovation be given wings if instead of a 1.5 % cut, every department were to be allocated a 1.5 % "Innovation incentive" to operationalise bright ideas from its staff?

At present, headline commentary in Australia assesses the performance of a government on the basis of GDP, public debt and budget balance. Instead, commentators should be concerned about the strength of the public institutions named above and the morale of the functionaries who make them work. It is arguable that the nation is not nourishing the above precursors. In education, as but one example, the vocational education sector is being methodically starved of funds and denied vigour or security by partial privatisation; the university sector is forced to balance its budget by training the elites of other countries; and the main funder of tertiary research, the Australian Research Council, imposes a year-long application process which exhausts academic applicants and admits to a rejection rate of as much as 75 %.

Innovation can be nourished only by feeding the public institutions that provide its habitat.

## 7.5 Synthesis

Let me summarise the above analysis.

The view that productivity is the key to growth is widespread in the business community and economic policy elites. However, 'productivity' under its usual definition focuses on squeezing more output from labour and freeing up capital, ignoring the input of natural resources as the first factor of production. The view that innovation is the key to productivity is also widespread, and this limb of the conventional wisdom has been echoed by many authors in this collection.

Innovation is a generic name for the outcome when entrepreneurial and creative minds advance knowledge, especially in commerce, applied disciplines and technology. Innovation is not an economic 'factor of production' as it is an intangible. Rather, it is a *catalyst* for production. Catalysts, in scientific jargon, facilitate a process but are not consumed by it.

The limits to an economy based upon extraction and consumption of raw materials and energy are now in sight. Innovation cannot substitute for energy and raw materials but is pivotal to discovering sustainable substitutes. It is doubtful that there is enough time for a smooth transition to a new international order. This raises the importance of innovation by an order of magnitude. As a society we must be prepared to fund the innovators and to especially fund the public good research that is their source material.

Under current policy settings, branded regional innovation proceeds by way of stop-start projects involving grants and subsidies which will make a local difference in certain places but do not set in motion the sustainable self-managing drivers for regional prosperity.

However, the current policy settings cannot endure, because of the build-up of public and private debt and the looming rise in the price of fuel. Both of these parameters suggest that there will be increasing resort to localisation of the economy, to reduce supply lines and so the consumption of fuel and to minimise the exposure of individuals to international financial disorder.

In other words, a re-localisation of economic activity in Australia is inevitable. This process is likely to be least disruptive if our nation's leadership chooses to manage it, by actively nourishing the roots of local sustainable economic activity and by protecting local enterprise from ruthless international forces.

Australia can choose to support and manage re-localisation, by actively nourishing the roots of local sustainable economic activity and by protecting local enterprise from ruthless international forces.

## 7.6 Conclusions

Reflecting on the essays in this compilation, I would like to present four findings, addressed primarily to scholars and practitioners involved in or able to influence public policy.

First, the national government must craft a nuanced energy policy that commences with an understanding of the geological and thermodynamic situation. Oil is the most versatile, concentrated and inexpensive source of energy known. Renewable sources are diffuse and require energy to aggregate them. It is not proven that a centralised modern economy can operate with diffuse sources of energy. Australia's energy security is vulnerable, from its declining indigenous production of petroleum, the sales of energy producing companies overseas, its dependence for electricity on carbon-polluting coal and the continuing massive subsidies for the burning of coal and diesel (Riedy 2007).

Second, if Australia is to manage the unsettling times ahead competently, its governments must fill their ranks with elected members and officials exposed to the disciplines of science, social science, economic history, futures studies, systems dynamics and the other disciplines necessary to understand and manage complexity. In particular, advisors who understand the planetary limits to economic growth and the flaws of a narrowly conceived mechanistic model of economic activity are urgently required.

Third, the national government must craft a more nuanced policy on trade than its present indiscriminate liberalisation. The community has elected it to secure the national interest against foreign opportunists, profit-takers and pirates. The sale of income-producing productive assets is plain foolish. Free trade is now crippling and will continue to cripple regional entrepreneurs attempting to stand on the basis of their initiative.

Fourth, while commercially nurtured entrepreneurial innovation is an effective *proximate* generator of economic activity, in a modern society all economic enterprise rests upon foundations of public institutions such as prudential regulation, titles registries, public education – and innovative policy-making. All of these functions are public goods and all require funding from general taxation if a society is to flourish. User pays will not do, as it restricts the supply to those with sufficient wealth to pay for them, which is a recipe for stifling innovation. The fiscal sentinels who measure the success of an economy by GDP are being misled by GDP's blindness to the value added by government.

Unfortunately, none of these four remedies aligns with the prevailing policy orthodoxy. If innovation is the creative spirit of a free community, the bucket into which it is being poured has a large hole at the bottom, being a narrow rationalist economic mindset, through which its lifeblood is haemorrhaging away.

**Acknowledgements** I acknowledge intellectual inspiration from Richard Sanders, ecological economist and Hugh Stretton, public intellectual. I thank my father Eric Edwards for raising an awareness of public interest and my wife Wallis for making space for me to write.

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**Part III**  
**Praxis Case Studies**

## Chapter 8

# Harnessing the People Factor for Regional Development: The Central Queensland Innovation Accord

Ian Ogden

**Abstract** The chapter takes a decidedly non-traditional view of how innovation might be best developed and nurtured in regional centres. It argues that, historically, since the emergence of sustainable regional development as a professional practice in Australia, the focus has largely been about economic development (prosperity). Indeed, economic development, if undertaken in isolation, can therefore be grossly simplified as “the identification and exploitation of a locational advantage for financial gain”. However, there is now ample evidence to show that many of Australia’s regions are actually suffering from a development mentality based entirely on economic growth indicators. This is particularly the case for resource-rich regions that are experiencing massive expansion in the mining, minerals and energy sectors. Here, it appears that responses to the broader needs of communities (liveability) and the overall balance of human-environment interactions (sustainability) have been largely “follower” activities and reactionary in nature. Liveability and true “sustainability” have thus often been poorly integrated into strategic regional development plans, agendas and projects. Consequently, within these regions, it is now being recognised that unless “development” is undertaken within a deep contextual understanding of the importance of people and place, then it is unlikely to catalyse truly valuable outcomes for the region. In highlighting this situation, this chapter explores a case study of Central Queensland, during the period in which the Central Queensland Innovation Accord was developed and launched. In responding to the dilemma of economically-led regional development, this chapter attempts to explore three questions: what does the pursuit of innovation mean in the context of regions and regional development; what are the critical human interactions that underpin regional innovation; and what lessons

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might be learned from the recent establishment of the Central Queensland “Region of Innovation” agenda?

## 8.1 Observations on the Regional Development Landscape in Central Queensland

A dichotomy exists within regions that is subtle, yet powerful. It relates to the power of place in particular, the “regional” versus “local” identity. The challenge to think regionally is very great. When travelling overseas we are Australian; when interstate, we identify with our state and region; when in our region, we identify with our town; and when in our town, we identify with a specific location. The cultural shift necessary to ensure communities truly complement each other in terms of regional identity and opportunity is at the heart of regional innovation. Much of the influence to promote this regional mind-set is necessarily held by governance bodies such as local and state government, industry peak bodies and other institutions, all of which have a critical role in the regional development landscape.

A cultural shift in regional identities and opportunities is at the heart of regional innovation.

Central Queensland (CQ) is the setting for this chapter. It has always been a fairly prosperous region, quite economically and politically stable, homogenous in makeup and conservative in outlook. In recent times, there have been growing signs that the region’s overall sustainability, so long taken for granted, is becoming increasingly fragile. This is because development in the region is largely concentrating on the rapid acceleration of “old” products and services and a reliance on activity that is non-renewable. Still, the impetus for change isn’t strong, because in many ways the region would appear to be playing to its strengths (as currently understood and accepted). The logic and political imperative of the day is to exploit the most obvious regional assets in the most economically advantageous manner.

However, CQ it is not a static region. CQ is also experiencing natural disasters and climate fluctuations with what could be increasing frequency and fury. Its people are noticing that the environment is under stress from industry and are demonstrating increased concern in this regard. With a net loss of young professionals, CQ is also losing many of its talented people. Most of the sub-regions are highly aware of the downsides of rapid growth, particularly if this growth is mono-industry focussed. Whilst the region receives enormous project investment from outside, it rarely seems to find a comfortable balance between its people, its industries and its environment.

Whilst the Central Queensland region receives enormous project investment from outside, it rarely seems to find a comfortable balance between its people, its industries and its environment.

The region has several population centres and each one has multiple dedicated regional development agencies and practitioners. They are skilled people, well-versed in all the theories of the importance of collaboration and innovation. They are also committed to planning. In fact, a great deal of regional effort is put to planning for a brighter more prosperous future. So much planning occurs that planning itself has become something that has to be planned for: a never-ending cycle of data collection, consultation and looking at the past for clues to managing and influencing the future.

In excess of 50 local and regional plans are now in play within the CQ region. In many instances, these plans were formulated primarily by passionate individuals or teams on behalf of communities of interest. Almost all have had various levels of consultation, however, they are rarely integrated or linked. Meanwhile, the assumptions that those plans were (and are) based on continue to change. Shifts in politics, global economics, booms and busts in industry, emerging social issues, changes in demographics and community expectations, and environmental dilemmas all continue on blissfully unaware of the vision and direction contained in somebody's plan. If economics is the dismal science, then regional planning is surely the masochist's hobby.

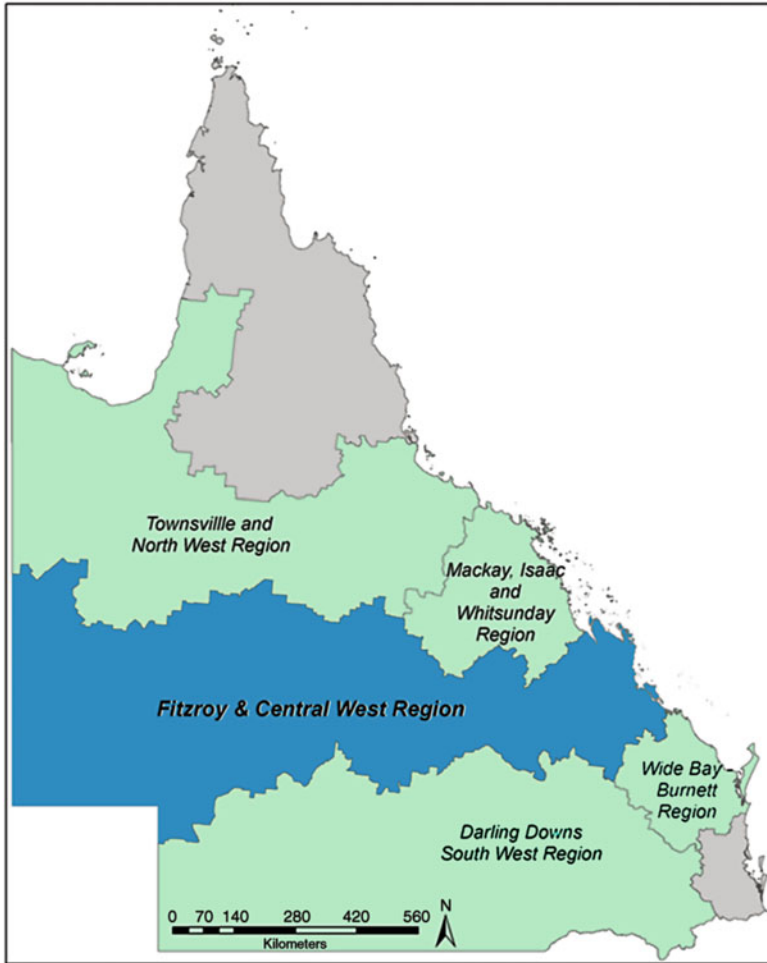
Regional development agencies have another problem. Whilst they understand the importance of cooperative and complementary agendas between sub-regions; they often find that they are being required to work in silos of geography and local-level economic and environmental flows. This is due to two main factors – one, they are funded to concentrate effort locally and produce results attributable to intervention, regardless that these might be competitive or duplicative within the region; and two, they do not have any meaningful cultural structure to work beyond political cycles and sub-regional boundaries. This situation remains despite all the plans articulating collaboration and whole of region interests.

Simply put, regional priorities are often different from local priorities, and gathering local priorities into bundles does not mean we are addressing regional issues effectively or approaching our regional opportunities in an innovative fashion. The CQ Innovation Accord was an attempt to bring a common theme to the core goals of Regional Development.

Just gathering local priorities into bundles does not mean we are addressing whole-of-regional issues effectively.

## 8.2 Setting the Context: A Central Queensland Regional Profile

Central Queensland (CQ) incorporates both the Fitzroy and Central West statistical divisions, a massive of some 500,000 km<sup>2</sup>, encompassing 11 local government areas (Fig. 8.1). The region embraces the Rockhampton and Capricorn Coast and Gladstone communities, west to Emerald and the Central Highlands and finally,



**Fig. 8.1** Map of the central Queensland region, comprising the Fitzroy and Central West statistical divisions

to the expansive and remote Longreach, Diamantina and Boulia Shires bordering the Northern Territory and South Australia. By some standards, the region is sparsely populated, with 220,000 people scattered around anthills, smokestacks and mining spoil piles across a dynamic economically, ecologically and socially diverse landscape. As the heartland of a multibillion dollar coal and LNG mining boom, the CQ region faces some of the nation's most pressing sustainability issues and challenges.

As the time of the 2006 census, CQ was home to some 218,739 people; and almost half of these lived within the Rockhampton Regional Council area. The latest population predictions indicate that the Fitzroy region is expected to grow slightly faster than the state average, adding almost 139,000 extra people to the

region: this will result in Fitzroy representing a total of 5.23 % of the Queensland population by 2031. Meanwhile, the Central West is expected to slowly decline from its current contribution to 0.31 % of the population, to 0.21 % of the population by 2031 – an increase of just 1,279 people. However, the resources “boom” of recent years means these population figures are likely to be significantly underestimated. In considering regional development needs, is not the quantum of demographic growth that is relevant, but its uneven nature.

In considering regional development needs, is not the quantum of demographic growth that is relevant, but its uneven nature.

CQ faces myriad of pressures, not least its ability to manage a multi-speed economy. As a whole, CQ is a productive region, and one with a diverse industry base; however, there is a clear difference in the relative contributions of the Fitzroy and Central West statistical divisions to the regional economic status. For example, OESR data indicate that growth in the gross value added across all sectors has been generally positive in the Fitzroy SD, but negative in the Central West. In the Fitzroy SD, the mining, construction, and property and business services were amongst the strongest contributing sectors to regional economic growth, whilst the construction and agricultural sectors were generally recording a decline in the Central West. On a per capita basis, the Fitzroy SD is the third greatest contributor to GRP in the state, behind the south-east corner, Darling Downs, and Mackay regions. However, the Central West is the worst performing region in the state, behind even the sparsely-populated far north and south-west areas (OSER 2006). Again, these figures reflect the fatal flaw of statistics - that of the dynamism of regions and the lag in currency and accuracy of data sets. Even more concerning is the propensity for state and federal regional funding to be allocated on the basis of unreliable data. For the regional development practitioner, this is an ongoing dilemma, especially in regions of high dynamism.

In CQ the resource sector continues to be a major driver of growth. A wide range of large-scale industry projects have been planned for the region, ranging from the opening of new coal mines, or expansion of existing ones, to upgraded rail and ports facilities and major gas pipeline works. For example, the emerging LNG sector in Gladstone has \$30 billion in committed or under-construction projects, and this clearly has important ramifications for the development of the CQ region in the coming years. Already, some sections of the community are priced out of housing markets, skills shortages are critical, environmental issues are snowballing, and infrastructure is strained, amongst a host of other issues.

### 8.3 Why Innovation?

Simply put, all innovation starts with an idea – something new. This can be a product, a process, an intellectual breakthrough, a connection or a relationship. It can occur in any part of the economy or society. The inventive process is intrinsically linked to the creative ability of people. However, unless any idea is transformed through action, it is impotent. The entrepreneurial process transforms new ideas into new value. This process is highly reliant on the “habitat of innovation” such as supporting infrastructure, skilled people, connections, inputs of capital, and more, to be successful. The checkpoint of innovation is the extent to which it brings new value for defined stakeholders – in this case, the CQ region. Innovation is truly a cross-sectoral, whole of community agenda. Innovation is everyone’s business.

Innovation is truly a cross-sectoral, whole of community agenda. Innovation is everyone’s business.

Innovation is also globally recognized as a key pathway to regional prosperity and the dynamism of innovative activity within regions and is proving to be a major determinant in economic, social and environmental health. Innovation can be a disruptive and chaotic concept. The challenge to move from “business as usual” to new, more dynamic and higher value activities is one that confronts many area of contemporary Australia - including of course Central Queensland.

The Australian Government has outlined the fundamental importance of innovation to sustain economic development in its policy document *Powering Ideas – An Innovation Agenda for the 21st Century* (DIISR, 2009). The Department of Innovation, Industry Science and Research provides a range of innovation-led programs including its Enterprise Connect Innovative Regions Centre. Central Queensland is one of the ten national “Innovative Regions” under this program. Each of these regions has a facilitator to promote the understanding and uptake of innovative practice in these regions, particularly for small-to-medium enterprises (SMEs).

Meanwhile, in Queensland, the State Department of Employment, Economic Development and Innovation is actively supportive of innovation growth development and implementation. At the regional level, CQUniversity Australia, the regional tertiary presence, is positioning itself to become a leader in regional engagement and is actively pursuing ways to bring its R&D and engagement outputs closer to regional industries for the benefit of the wider community. The Central Queensland Local Government Association also has an established track record in innovative collaborative practice (e.g. waste management, regional roads partnership); Regional Development Australia has been established in the region and its roadmap shares many complementary aspirations to this agenda. Within the region there are also several Regional Economic Development Organisations



(REDOs) and multiple other examples of established public and private sector collaborations that embrace the innovation agenda.

Whilst there was (and is) significant potential in the innovation space in CQ, there existed both a need and an opportunity to further infuse the regional culture with respect to its understanding and uptake of innovative practices and to promote collaboration and connectivity as the regional pathway to this end.

Collaboration and connections are powerful enablers of innovation, particularly for regional areas that are challenged by lower population densities and geographical placement. Regional areas often lack critical mass, particularly in human resources and specialist skills. At times, infrastructure and investment capacity is a barrier, whilst in other settings the difficulties of navigating policy and bureaucracy can quickly kill off regional projects that may be valuable in activating latent potential.

The development of functional, industry-focused (and led) initiatives is of particular strategic value in these regions, especially where this strengthens existing relationships and interests, whilst stimulating new possibilities for whole of region benefit.

## 8.4 The Central Queensland Innovation Accord

The “CQ Innovation Accord” was an attempt to some find common ground in motivation towards a more innovative future. In this context, the banner was “Central Queensland – a Region of Innovation”; with innovation defined as “an ideation process plus an entrepreneurial process that creates new value”.

For the purposes of the Accord, innovation was defined as an ideation process plus an entrepreneurial process that creates new value.

The Accord was conceived as a response to three major challenges:

1. Geographical distance and regional complexity – how does a newly implemented program such as the Innovative Region Centre (within Enterprise Connect), with a single government operative (one regional facilitator) influence a large and diverse region amidst multiple pressures and agendas?
2. Cultural connectivity – what messages can bridge colloquial, sector-based mindsets and offer a value proposition to all interests to encourage greater collaboration?
3. How best to foster and empower local level leadership towards embracing innovation?

It is clear that the innovation agenda is primarily about building and leveraging relationships. For regional development practitioners, this is not a new field: here,

cultivation and maintenance of relationships is core business. They must continually walk a fine line between the leadership needed to inspire, introduce and negotiate change, whilst balancing this with the need to hear, respect, harness and reflect the aspirations of those with whom they interact. The Innovation Accord thus sought to highlight the importance of local level leadership to Regional Development. Regions that foster productive, cross-border relations will inevitably be more productive and resilient than those who adopt insular, uncooperative attitudes and actions. Without fail, the capacity to do this well is underpinned by the willingness, awareness and ability of those involved to communicate meaningfully. Regardless of ideas, opportunity and regional plans, progress towards regional aspirations is largely influenced by the status of relations between people (leaders) within and outside of the region.

It is clear that the innovation agenda is primarily about building and leveraging relationships. . . a field that is familiar ground for regional development practitioners.

## 8.5 The Proposal

This project revolved around the development of a Regional Innovation Accord between leading innovation stakeholders in the Central Queensland Region. Its intention was to:

- Demonstrate a regional commitment to collaboration at a level and depth that will place Central Queensland as a national leader in collaborative innovation;
- Provide the platform for region wide policy, strategy and action for innovation;
- Integrate and connect, without duplication, the many strategic activities that support the emergence of an innovative region;
- Coalesce the community goodwill and further infuse the regional culture with regards to its understanding, uptake and implementation of innovation; and
- Utilise the benefits of the collaborative approach as the basis of “community renewal” for the region with an emphasis on economic, educational, environmental and liveability outcomes.

## 8.6 Why Use an Accord?

Treatise, charters, agreements and accords are as old as written civilisation. They have been a feature of negotiations between diverse and competing interests since people began interacting across boundaries and borders. They are a cornerstone of inter-regional politics.

Broadly speaking, an accord represents a concurrence of purpose –an agreement. The opportunity to negotiate with key sector interests around the central theme of

innovation is one that is itself motivated by innovative thinking. The Accord was designed to deliver:

- An accord document that recognizes innovation as a central plank of regional prosperity and which outlines in broad terms the commitment of organizations to pursue collaborative innovation;
- The stimulus for the development of a regional innovation plan based on current and future innovation agendas and action for the region; and
- Increased innovation recognition, uptake and action across the economic, social and environmental landscape of the region;

A list of the involvement of key sectors (not prescriptive or exclusive), is provided in Table 8.1, and the Accord document itself, in Fig. 8.2. Together these organizations, and many more, negotiated a unique accord around their commitment to innovation principles as a mechanism to drive regional prosperity. The accord was intended to be outcomes focused through the many practical planning, project and coordination activities it would underpin. It was also be symbolic in that it was a flagship commitment to the region, articulated through collaborative leadership.

The people factor was a major consideration of this strategy; the accord framework was palatable to people because it deliberately set out to play to people’s strengths. It did not mandate a significant change in direction for participants. Rather, it asked people to consider how they might achieve their individual and collective aspirations and targets by thinking about new ways to operate that were

**Table 8.1** Key actors and stakeholders in the “region of innovation” agenda in Central Queensland

CQUniversity Australia	The regional leader in educational services and research capacity to provide the linkages to regional education, industry and community engagement. Education Qld also has a significant role
Regional Economic Development Organisations	To provide regional leadership and coordination across their multi-tiered and diverse industry membership bases
Regional Corporations, industry, NGOs, and SMEs	Industry is the “doer” and they need greater voice and participation in regional agendas
Central Queensland Local Government Association	The peak body for the regions councils to provide innovative “place management”
Regional Development Australia (Fitzroy and Central West)	The Federally endorsed committee to advise on innovative strategic regional investment
Queensland (State) Government – Department of Employment, Economic Development and Innovation, Queensland Health and others	To provide innovative service delivery, policy and strategic management
Innovative Regions Centre (CQ) Department of Innovation, Industry science and Research	To coordinate the overall approach and broker the relationships necessary for its enduring value

**CQ Innovation Accord**

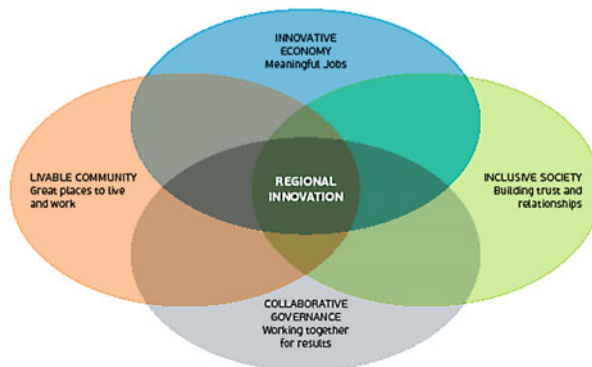


**We, the people and organisations party to this Accord hereby record our commitment to striving towards ensuring Central Queensland is known and recognised as Australia's premier "Region of Innovation".**

We recognise that innovation can and should occur in all parts of our society and our economy and we believe that collaboration and connectivity are powerful enablers of innovation. By applying innovative thinking to all that we do, we will make CQ more vibrant and sustainable and better able to contribute to the future of Australia.

We commit to work with the people of Central Queensland to enable them to fulfil the vision to become a truly Innovative Region underpinned by;

- \* **Innovative Regional Culture-** delivering strong regional self- belief, global confidence and raised expectations
- \* **Innovative Regional Investment-** bringing new economic, social, intellectual and environmental benefits for our region
- \* **Innovative Regional Education and Research-** developing people in the region to become innovative thinkers and doers. Undertaking innovative research that changes people's lives for the better
- \* **Innovative Regional Leadership-** creating and fostering the habitat for innovation through collaborative solution seeking and knowledge creation and transfer
- \* **Innovative Regional Strategies-** ensuring innovation is applied to augment broader regional goals
- \* **Innovative Regional Projects-** a commitment to innovation within our portfolio of strategic regional activities



**Fig. 8.2** The central Queensland Innovation Accord. The venn diagram at the bottom of the Accord is drawn from the Collaborative Economics’s report to the Bay Area Council Economic Institute (Collaborative Econoimes, 2008)

achievable within their particular context and to broaden their sphere of influence to do so. From incremental innovation in a business, to systemic innovation in policy and program setting, the participants committed to a widening of possibilities and a collaborative approach to discovering what these possibilities might include.

## 8.7 Lessons Learnt from the Accord

What could have been done better? The main lesson from the Accord process is in preparedness. In the case of the CQ example, the process was definitely rushed. Although some 40 individual and group briefings were conducted with stakeholders, the focus was on the Accord signing rather than what happens afterwards. This arose from the time constraints driven by the need to align the signing of the Accord with a regional leadership forum being held by a key development organisation. The fact that follow up activity was not always clearly identified (or resourced) left gaps in action and some perception of an ad-hoc approach that possibly led to some cooling off of original enthusiasm. This was not assisted by a summer of extreme weather which impacted on many parts of the region in the form of severe flooding. As an example, the CQ Local Government Association had intended to theme its conference as a follow up to the innovative region agenda however the urgency and disruption of the flood response (described in a later chapter in this book) made this impractical.

The second part of the compromise of the potential of this approach was due to resources. In some sense, the Accord process reinforced the very thing it was trying to overcome – the limitations of coordinating and facilitating cohesive activity across a wide and diverse region. Whilst there was significant buy in and goodwill, it proved very difficult to re-align on-ground activity or introduce new activity within industry, local government and regional bodies. This was due to a range of factors including the major constraint of traditional work plans which dictate areas of action and commitment well ahead. In addition, many regional activities were supported by funding programs that have little flexibility in terms of their timing and expected deliverables. Market fluctuations, significant new project announcements, skills shortages and other agendas all compete for scarce business attention and collaborative activity can quickly lose impetus. The importance of champions, continuous encouragement and positive (even if small) results cannot be overstated.

It is crucial that a mechanism for ongoing commitment and progress is activated in tandem with any regional agreement. Simple strategies such as an innovation champions e-mailing list took too long to develop and industry facilitation was not as active as it should have been.

“It is crucial that a mechanism for ongoing commitment and progress is activated in tandem with any regional agreement”.

So what did work well? The Accord drew together over 100 regional leaders and made a significant contribution to the understanding of the importance of innovation for the region. The list has now grown to over 150. For the CQ region, such a cross sector and multi-disciplinary focus was unique and has contributed in some part to a broad renewal agenda for the region. Several key organizations have adopted the Region of Innovation branding and many new programs and activities were generated under this theme. These included workshops, information sessions and conference planning in the region. CQUniversity adopted the theme strongly and innovation, along with engagement, became a catch cry in many of its strategic documents and activities.

It is significant that the Accord also included signatories from all levels of government; this is rare in a regional setting and demonstrates that once momentum is achieved, people (even those cautious by nature or position) tend to be more amenable to active participation. In all the negotiations, there was not a single instance of negativity towards the concept. It was purposely drafted to allow participation according to the capacity and parameters of each group or individual who signed up; in short, it struck a balance between being none threatening and being a call to action.

The Accord was a strong catalyst for DIISR to fund a follow on research and engagement project with CQUniversity. Some other outcomes are less direct, such as the permeation of innovation into almost all of the regions strategic planning documents, the formation of several new alliances and networking bodies that have potential to develop into “clusters” over time, and a generally more positive image for the region.

## **8.8 Summary: The Importance of the “People Factor”**

None of the Accord process would have been possible without the leveraging of individual networks and relationships. In this case, early partnerships with Capricorn Enterprise, the CQ Local Government Association and CQUniversity were crucial. This is certainly true - but not completely accurate: it is the relationships with *individuals* within these organizations that were the key enablers. A crucial leverage point was direct access to the Vice-Chancellor and CEOs of all regional organizations. Their relationships with others and their ability to communicate the merits of this approach ultimately decided whether it would succeed or not.

This returns us to the key theme of this chapter: the realization that it is the ability to forge and maintain professional relationships and networks that makes all else possible for regional development practitioners. Without that, every proposal for change will wither and die, either through misunderstanding, reticence, perception of risk, passive blockage or the eventual burn out of the single champion. We simply need each other to get things done.

It is the ability to forge and maintain professional relationships and networks that makes all else possible for regional development practitioners.

In lay terms, the CQ experience suggests six steps to forging a regional consensus or agreement on innovation and sustainable regional development:

1. Develop and negotiate a clear vision through collaboration and pursue it with passion
2. Ensure the value proposition is visible and accessible to all
3. Identify, organize and mobilize champions – support them relentlessly
4. Have “next steps” conceptualized and resourced at every level so success can be replicated and continued – but retain flexibility to respond to new initiatives
5. Spread any benefit, credit or success and broadcast it!
6. Market and promote your regional aspirations and embed them in regional investment strategies – bring them to life!

And, perhaps most importantly, remember the value of people. Nothing, big or small, succeeds without an element of trust or goodwill of the people of a region.

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## Chapter 9

# The Advantage of Social Indicators in Strengthening Rural Communities: Lessons from Mildura, Victoria

Martin Hawson

**Abstract** This chapter explores how Mildura Rural City Council has used its rural advantage to build community capacity, through the development of an innovative, evidence-based social planning framework that addresses the by-products of Mildura's social, economic and environmental realities. In Mildura, the advantage of being an aspirational and self-determining rural community has enabled the development of the Community Engagement Framework (CEF), which is now recognised as an important determinant of community wellbeing. It provides 'food for thought' when a rural community commits itself to becoming 'the most liveable, people-friendly community in Australia'; and then remains steadfast in that resolve in the face of livelihood-threatening water shortages, drought and floods. In this context, it is important that the main theme of this chapter – the development of a planning tool based in social indicators – is considered amongst several other influences. This chapter thus summarises the background of some important historical/cultural, individual and organisational agents, and even fortuitous drivers of efforts to strengthen rural community life. The key message is that to address social disadvantage, the community must work consistently at all levels on the underlying root causes of regional problems. Furthermore, to increase a community's sphere of influence, it must be able to convince government and funding bodies to address key priorities within the community, rather than responding to broad, generic government objectives and approaches. Mildura's innovative approach to rural advantage enables a focus, a determination and a will to ensure that the regional will continually strive together to achieve improved outcomes, for Mildura as well as for the nation.

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## 9.1 Introduction: Mildura History and Culture

Mildura Council has formally adopted the goal of making its region ‘Australia’s most liveable, people friendly community.’

Mildura is a regional city established in 1887, sitting on the northernmost tip of Victoria on the Murray River. With a current population of 50,979 (ABS Census 2012), Mildura Council has formally adopted the goal of making its region ‘Australia’s most liveable, people friendly community.’ The area’s first inhabitants included the Latje Latje and Barkindjji people. European settlers followed Charles Sturt’s explorations of the region in the 1830s. However, a sustained drought in the 1870s and 1880s prompted Alfred Deakin to visit the Californian irrigation areas, where an encounter with Canadian-born brothers George and William Chaffey was to have major consequences for what is now known as Mildura. The Chaffey brothers subsequently signed an indenture with the colony of Victoria promising permanent improvements to the town over a 20-year period, in exchange for a land allocation and the opportunity to exercise their water engineering ingenuity. Much wrangling followed, but the brothers’ concern to ensure a good start for Mildura can still be seen today, with its orderly street plan and ornamental trees “planted lavishly in the style of the American Chaffey settlements” (Westcott 1979). Also evident today are the Chaffey brothers’ pioneering irrigation developments that enable year-round food production in an otherwise arid landscape. From these beginnings, societal norms have created the community we have today.

In addition to these initial environmental endowments, Mildura city stands by the side of the Murray River and enjoys a substantial and financially rewarding tourism industry. The region’s diverse and high-quality horticultural industries, including table grapes, wine, dry fruits, citrus fruits, asparagus, nuts, olives, honey, vegetables and horticultural nurseries, have attracted the title of being the ‘food bowl of Victoria.’ However, not everyone has prospered equally from this bounty. In recent times, expanding wine exports have seen a limited number of vignerons receive substantial harvest cheques, while others having small land holdings or experiencing the circumstances of a wine glut are falling short of an adequate income. Overall, Mildura’s regional incomes resemble the patterns seen throughout regional Victoria, excepting Mildura having a slightly greater representation in the middle ranges of \$300–\$999 per week, and a slightly smaller proportion at both the upper and lower ends of this scale (ABS 2006).

Although harder times are threatening as Mildura’s growers face prolonged, even permanent water shortages, the collective outlook of residents has been conditioned by:

- A story of the region’s entrepreneurial origins;
- Its scenic environment;

- The visible scale and value of its produce;
- The tangible symbols of material prosperity; generally adequate levels of income;
- Widespread mixing of people in sporting and recreational activities; and
- A philanthropic tradition of caring for those who would otherwise miss out on life's opportunities.

Resilience, innovation, interdependence and a self determining pragmatic approach to problem solving ethos are prevalent values within our community. To take advantage of these norms, it is important to align local plans and governance models of intervention to address community issues.

## 9.2 Agents and Fortuitous Circumstances

It was around a decade ago that Vernon Knight, Chief Executive Officer of Mallee Family Care (Mildura's major community service agency), advocated the need for what he termed a *Community Scorecard*. In the background was a conviction, entertained over several decades, that whilst individual agencies hosted a range of specialist skills and services, more effective responses to many human needs were dependent on 'whole-of-community' collaborations. These would necessarily embrace organisations, groups and individual people. His approach emphasised the relevance of systematic data collecting prior to establishing shared community priorities and, equally important, taking repeated measures of the same kinds to see what progress was being achieved. Given Vernon's key position in the community and wide respect for his opinions, the message about the need for a 'scorecard' received strong public attention, which helped secure access to pertinent data and the research tools necessary to benchmark Mildura's priority needs.

More effective responses to human needs depend on whole-of-community collaborations.

In late 2002, Vernon Knight's election to Mildura Council revived his interest in community strengthening strategies as part of the wider role for contemporary local government. He spoke of Council's need to be better informed about the 'health' of the municipality, particularly indications of 'un-wellness' in identifiable sub-parts of the community. Again, personal interest was shown by a number of fellow councillors, but the challenge remained one of expressing this interest in tangible form.

Interest was shown . . . but the challenge remained as to how to express this interest in a tangible form.

In 2003, that possibility was greatly enhanced by the appointment of Phil Pearce, a person of broad professional and educational background, as Council's Chief Executive Officer. Phil Pearce's experience in two other councils had cultivated ideas about local development that resonated with those entertained by Vernon Knight. This meeting of the minds provided the platform for a number of initiatives to get off the ground. Lead by the General Manager (Community), Martin Hawson, these ranged from sponsorship of community education forums and the progressive exposure of Council staff working in varied portfolios; to community development thinking; the design of structures to facilitate community participation in local planning (discussed below); the linking of Mildura's endeavours to state level initiatives and sources of funding; and the commissioning of a report on baseline social, economic and cultural data for Mildura. These undertakings were supported structurally in 2005 by separating out a Community Development Branch from the previous and more generalised Leisure Services Branch.

Helpful to the development of the initial set of Mildura indicators were the publication by Jesuit Social Services in 1999 and 2004, which presented two related bodies of information covering Victorian postcodes. However, these were not as comprehensive nor as focused as the information sought for Mildura. The author of the earlier two Social Indicator reports, Professor Tony Vinson, found himself progressively more engaged in Mildura Council's endeavours, to the point of assuming responsibility for the *Mildura Social Indicators 2006* report (Vinson 2006).

A mixture of despondency and defiance prevailed during the next 2 years (2005–2006), during which Mildura faced the prospect of a toxic waste dump being created within its 'food bowl' region. Given this, it may seem paradoxical to include this event under *fortuitous circumstances*. However, external threats, although distressing at the time, can sometimes heighten a community's sense of solidarity and unified purpose. That appears to have happened in Mildura with the passing of the 'waste dump' threat. The decision not to locate a toxic waste dump was influenced by the strong community leaders who took a stand against the dump. Of particular importance was the use of the social indicators data to illustrate the significant negative impact such a facility would have upon the community.

External threats, although distressing at the time, can sometimes heighten a community's sense of solidarity and unified purpose.

### 9.3 Local Government Context

Mildura Council's investment in a systematic and evidence-based approach to establishing priorities and measuring achievements is uncommon, particularly at a *local* level: this is the main focus of the remainder of this chapter. The recency of Mildura's initiatives inevitably results in the highlighting of process rather than outcomes, the latter necessarily requiring time to achieve and be assessed.

Local government, like other levels of government in Australia, has undergone nearly two decades of reform (Aulich 1999; Wallis and Dollery 2002). Influenced by international trends, reforms have focused on accountability, transparency, efficiency and new managerial approaches to public sector provision (Aulich 1999). In a review of Australian local government, Aulich (1999) distinguishes between reform outcomes that have focused on ‘structural efficiency’ (emphasising the importance of efficient distribution of services to local communities) and ‘local democracy’ (which emphasise democratic and locality values). Clearly, the approach adopted in Mildura is intended to include the latter goals but without foregoing the former. The approach reflects global interest in reforming government relations with the ‘community’. It is a radical departure from a more traditional (or minimalist) local government role of being responsible for ‘rates’ and ‘rubbish’ (Wallis and Dollery 2002: 78–79). Instead it “gives voice to local aspirations for decentralised government. . . and embodies values such as representativeness and advocacy of local interests, responsiveness and access” (Aulich 1999: 19). This abundance approach draws on a local community’s aspirations and “can do” attitude rather than the traditional ‘stopologists’ that tend to find local government as a safe haven.

The ‘community’ approach for local government is innovative: an radical departure from the traditional ‘roads, rates and rubbish’ model.

Such initiatives signal a desire to re-position ‘community’ as central to the policy-making process, in an effort to counter the increasing cynicism and perceived irrelevance of ‘governments’ (Shaw and Martine 2000). ‘Community engagement’ is championed by the OECD, which views citizen participation as a key element of ‘good governance’ and crucial to renewing the legitimacy of public policies (OECD 2001). Some commentators see the renewed interest in communities as providing opportunities to revitalise civil society, energizing citizens to action and participation in social and political life through local organization and state action (Reddel 2004).

In good measure, local government’s capacity to ‘play a catalytic role in the formation of multi-organisational partnerships and. . . promote community development’ (Wallis and Dollery 2002: 77) depends on existing social capital in an area, as well as its ability to *enable* the growth of social capital through appropriate strategies. In this context, social capital includes networks of civic engagement, norms of generalised reciprocity and relations of social trust. It is regarded as a protective ingredient of community wellbeing, referring to those features of social life that enable participants to act together more effectively to pursue shared objectives.

Mildura Council’s investment in the production of local data to inform policy decisions also reflects Australian and international trends. Interest in evidence-based policy has resurfaced over the past decade, particularly championed by the

Labor Government in the United Kingdom. In 1999, a new section of the Cabinet Office was created called the Centre for Management and Policy Studies. A key objective of this Centre has been to promote evidence-based policy making by providing access to research evidence and other resources to support better policy-making. This approach to policy-making has also been highly influential in Australia at both the Federal and State levels. The Australian Government has sought to use evidence-based policy in social programs such as the Strengthening Families and Communities Programs. In New South Wales, the Department of Community Services has adopted this concept to underpin new investments in early childhood services. The Department for Victorian Communities is also basing a number of interventions aimed at strengthening regional social capital on systematic data collections.

Interest in research and evidence-based policy has resurfaced over the past decade . . . in 2006, Mildura took the first steps to initiate an innovative planning process informed by local social indicators.

Against this background, in 2006, Mildura Council took the first practical steps to initiate a planning process grounded in a commitment to community governance informed by the analysis of local social indicators. The Council established a Community Engagement Governance Group with wide community and organisational representation that stands at the centre of what Council terms its 'Community Engagement Framework' (CEF). The CEF involves the development of integrated community planning, where there is a whole of government approach to improving and measuring social, environmental and economic standards. The CEF aims to utilise the latent potentials or strengths within the community, drawing on Mildura's rich vein of social capital. The Governance Team is the point of reference for advisory groups, operational and project teams, media commentary and research and monitoring data.

## 9.4 The Community Engagement Framework

Community service systems often work at their full capacity in isolation, however to meet today's challenges, organisations are required to work collaboratively towards achieving community priorities. The CEF provides a platform for this to occur. The CEF is a community-owned and driven model that seeks to understand and address social issues within the Mildura community (Fig. 9.1). It aims to address issues in a holistic way and create shared community priorities. The objective of the CEF is to create a structure and process that allows an integrated Governance Group to obtain a clear picture of community well-being that leads to co-ordinated responses to shared community priorities; and an objective well-being

COMMUNITY ENGAGEMENT FRAMEWORK

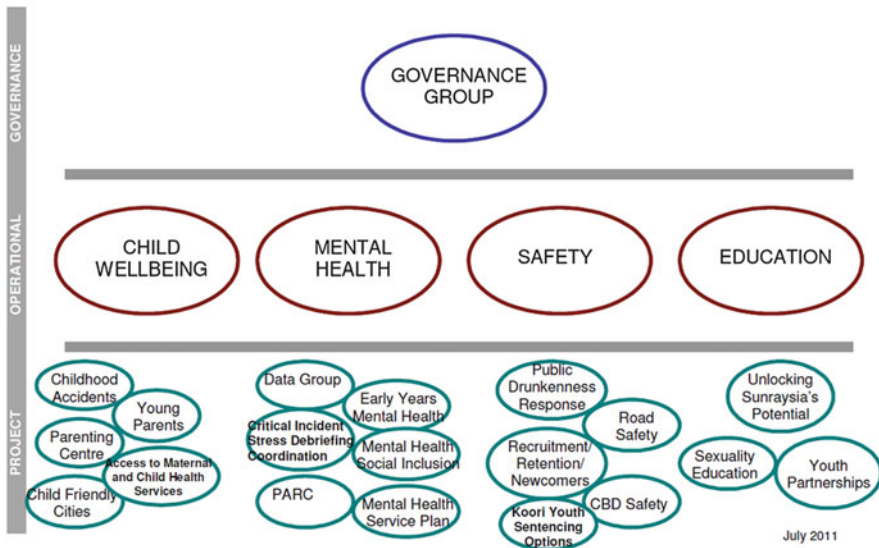


Fig. 9.1 The Mildura community engagement framework

monitor that feeds local priorities and determines on-going collaborative action plans. Mildura Council employs an officer to facilitate the CEF, but the actions and outcomes are driven by the Operational Groups and the broad representation of representatives on these groups. For sustainability purposes, this is essential.

The objective of the CEF is to create a structure and process that creates a clear picture of community well-being ... that leads to co-ordinated responses to priorities ... and on-going collaborative action plans.

**9.5 Social Indicators**

There is always a danger with broad declarations like ‘Our Municipality will be the most liveable, people-friendly community in Australia’ (Mildura Rural City Council Plan, 2009–2013): these can remain merely well-intentioned but idealistic decrees. The question is: how can such broad and longer term ambitions be expressed in sufficiently concrete terms to enable intermediate steps to be planned and taken and tangible progress monitored? To Council’s credit, it has – after extensive consultations – formulated a number of *Key Result Areas* and *Strategic Outcome Measures*. On Council’s initiative, a compendium of relevant indicators relating to these measures has now been published on two separate occasions (Vinson 2006; Aarons 2008). The Social Indicator report will be updated every 4

**Table 9.1** List of indicators as described in the social indicators report second edition

Overview of region	Community safety
Age/gender profile	Child maltreatment
An aging population	Crimes against the person
Background of arrivals	Crimes against the property
Family structures	Road Trauma
Country of birth	
Stability of population	ECONOMIC
	Occupations
SOCIAL DISTRESS	Occupational categories
Family income	Types of businesses
Rental stress	Employment within business categories
Home purchase stress	Unemployment
Lone person households	Long term unemployment
	Taxable income
HEALTH	Tourism
Childhood accidents	Internet connection/access
Immunisation cover	
Disability/sickness payment	COMMUNITY ENGAGEMENT
Occupational accidents	Individuals isolated by language
Psychiatric hospital admissions	Profile of group
	Education
EDUCATION	Social cohesion
Attendance at preschool	
Incomplete education/training (17–24 year olds)	CULTURAL INDICATORS
Overall education of population	Art gallery attendance
Post-school qualifications	Library visits and membership
	ENVIRONMENTAL INDICATORS
	Annual targets

years in line with the Australian Bureau of Statistics Census data. In order to provide guidance, indicator data needs to be analysed at several levels, including individuals, families and households, organisations, and the overall community and its major divisions, as well as regional and metropolitan levels. In the case of Mildura, postcodes, which are the smallest geographic area for which much of the relevant information is available, were aligned with sub-regional boundaries like Merbein, Mildura Central and Irymple. To facilitate comparisons, the data is usually expressed in the form of a rate per 1,000 of the relevant section of the population (such as the number of children under 15 years or people in the workforce). The current indicator series has almost 40 elements (see Table 9.1). Obviously it is intended that the statistics be updated at regular intervals and modified where experience shows the need to alter, extend or delete them. One indicator cannot be considered in isolation as the indicators are interconnected and have correlations with each other.

Through analysing the two Mildura Social Indicators Reports, the CEF Governance Group chose four priority areas that stood out as being those that required focus within the community, they include:

- Mental Health Operational Group;
- Education Operational Group;
- Child Wellbeing and Safety Operational Group; and
- Safety Operational Group.

The aim of the Operational Groups is to work on issues in a holistic manner as a community. Each group has representation from a vast range of sectors that are related to each Operational Group issue.

When combined with the Social Indicators reports, the CEF provides both the mechanism and the tool for identifying opportunities to work collaboratively. It is envisaged that by approaching community issues in this way and identifying issues as ‘everybody’s responsibility’ and not just belonging to a particular organisation, that stakeholders will be able to complement one another’s programs and initiatives, strengthen relationships between organisations and collectively utilise resources in an innovative and outcome-focused way.

## 9.6 Operational Structure of the CEF

The CEF enables a platform for an evidence based approach to focus ambitions and drive local solutions.

The following is an outline of the operational structure of the CEF:

- Issues are brought to the attention of the CEF Governance Group through various social indicator reports, media, satellite advisory groups, operational groups and project teams;
- The Governance Group considers the cause and effect of the issue i.e. what is the ignition or ‘root underlying cause’;
- The Governance Group then refers the issue to the appropriate Operational Group to address; and
- The Operational Group researches and develops theories for improvement around the issue.
  - Operational Groups also develop an action plan to create focus for the year. They may determine specific issues that need addressing and seek approval from the CEF Governance Group to investigate them further;
  - Operational Groups then create Project Groups to focus upon specific issues that fall out of the theories of improvement they develop;



- The Project Groups research previous project successes and failures, identify what could be done differently and any new initiatives or funding opportunities;
- Project groups can then implement actions where appropriate; and
- Information and progress is reported to the Governance Group and relevant Operational Group who provide guidance and feedback.

Below are two selected examples are used to examine the role that indicators can play in supporting community planning.

### ***9.6.1 Safety Operational Group***

#### **9.6.1.1 Social Indicator Focus: Crimes Against the Person and Crimes Against the Property**

The Safety Operational Group uses the social indicators ‘Crimes against the person’ and ‘Crimes against property’ as measures of community safety. The most recent Social Indicators report identifies that from 2002/2003 the majority of the region’s localities recorded lower rates for crimes against property than for Regional Victoria and Melbourne. A general pattern for all localities studied is a decreasing rate of recorded crimes against property for 2002–2007, with the exception for Merbein, where rates have remained steady over the 5 year period (Fig. 9.2). Greater Mildura (equated to Mildura Central) has the highest rate of crimes against property for the region, throughout the time-frame analysed (Aarons 2008).

Developing effective crime prevention measures, particularly in Central Mildura, is one of the key challenges facing the CEF Governance Group and Safety Operational Group. A key learning from this process is that strategies need to incorporate physical place design as well as community participation as the standard elements of contemporary crime prevention. However, even in the initial stage of the Operational Group’s process, it was evident that the inter-connectedness of general disadvantage can override any well-meaning intervention. That is, if the root underlying cause of disadvantage is not addressed it makes any intervention somewhat less effective. It is therefore vital to have a holistic approach to mobilise “on-the-ground” interventions (e.g. lighting, physical design, policing and transport), together with a concerted effort to address the correlating levels of disadvantage (e.g. education, social cohesion and cultural inclusion).

If the root underlying cause of disadvantage is not addressed, it makes any intervention less effective.

A series of task groups combining local government, police, professional and community representatives are now working in ‘backwards’ from community problems: for example, with crime, the focus is on ‘up-stream’ opportunities to

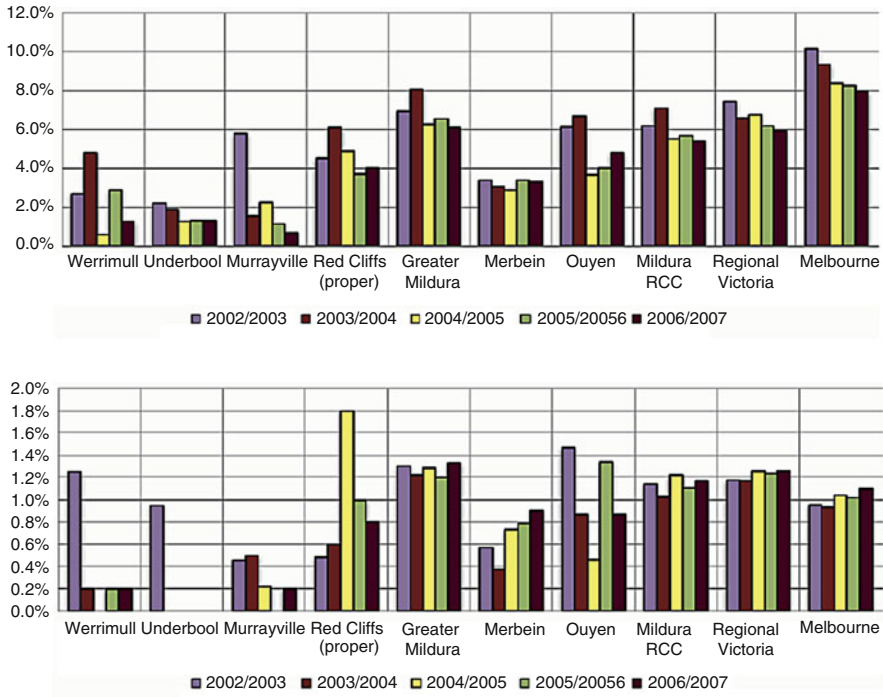
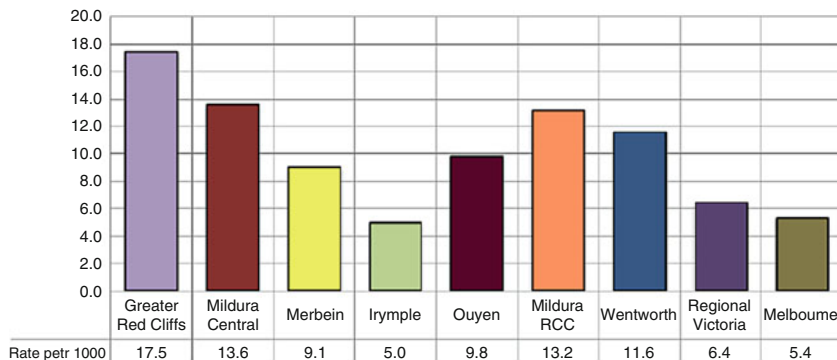


Fig. 9.2 Crimes against property (top) and the person (bottom) in regional Victoria and Melbourne (Source: Corrections Victoria, Special tabulation (Aarons 2008))

strengthen individual and neighbourhood capacities and thus avoid crime manifesting. Here, there is evidence to show that unemployment and crime correlate with limited education and work skills: consequently, practical crime prevention in Mildura needs to begin with initiatives aimed at supporting children in the earliest stages of their development – during their pre- and early-schooling – and by sustaining their effective participation in education and training to provide a platform for a satisfying adult life.

Through the CEF Safety Operational Group, a number of Project Groups have been established around the issue of safety within the community. There are a number of areas that might be improved if solutions are approached from a whole-of-community perspective, such as Koori youth sentencing options, public drunkenness, road safety and retention of skilled professionals

In relation to Koori youth sentencing options, the Operational Group identified that the area’s Indigenous youth crime rates were currently high. A Project Group has therefore been established with members from a wide range of service sectors to explore various models of alternative residential centres. The centres would provide a place for young people stay and focus on a range of lifestyle factors, including cultural, personal development, education, employment and healthy life style choices. The Project Group is currently developing a case for the provision of a



**Fig. 9.3** Psychiatric admissions, rate per 1,000, across Mildura's sub-regions (2006–07) (Source: Department of Human Services, 2006–2007)

facility like this in the Mildura area. If successful, the project could dramatically impact the rates of crime for this area.

As one example, crime prevention could be achieved through establishment of alternative residential centres, with a focus on lifestyle factors such as cultural, personal development, education, employment and healthy life style choices.

## 9.6.2 *Mental Health Operational Group*

### 9.6.2.1 **Social Indicator Focus: Psychiatric Hospital Admissions**

The first of the social indicator reports noted that there were well-established associations between psychiatric hospital admissions and aspects of low socio-economic status (including unemployment) in Mildura. With the exception of Greater Red Cliffs, all of the localities studied have witnessed a significant reduction in psychiatric hospital admissions since 2003 (Fig. 9.3).

However, these reductions may result from a number of factors, such as changes associated with the types of mental illnesses treated within hospitals outreach services that do not require admission; and other organisations providing similar community-based services. Regardless, the region still records higher levels of admission than Regional Victoria and Melbourne, as it did in the first indicator report. In some instances this figure is more than double the Regional Victorian figure. Irymple is the exception here (Aarons 2008).

As earlier noted, local rates of psychiatric illness often inter-relate with social conditions: oftentimes, these are connections that are well-established (e.g. in existence for 50 years). Socio-economic disparities in mental health can commonly be explained by the trend for individuals in lower socio-economic groups being

more likely to experience both acute and chronic stressful events, as well as lacking material and psychological coping resources. However, in Mildura, admission rates for serious mental and emotional disturbances can be distorted, because there are insufficient alternative community-based treatment programs, which results in higher hospital admission rates. Irrespective of this, the information already collected suggests that mental health issues warrant a closer investigation in Mildura. Consequently, the Mental Health Operational Group's key focus areas have included early in life mental health; mental health with Culturally and Linguistically Diverse (CALD) groups; and critical incident responses. Data collection has also been a focus of this group, with the aim of developing a more accurate interpretation of mental health in the community. In turn, this will facilitate more effective longer-term planning.

Data collection has also been a focus of the Mental Health Operational group, with the aim of developing a more accurate interpretation of mental health in the community. In turn, this will facilitate more effective longer-term planning.

### 9.6.3 *Mildura Community Wellbeing Survey*

Mildura Rural City Council also commissions a bi-annual Community Wellbeing report to provide an overall measure of wellbeing within the community. This report is used as an evaluation tool for the CEF. The report aims to 'take the pulse' of the community with a focus on measuring the overall 'state of the community' and its readiness to respond challenges, in several key respects. For example, a well-functioning community blends all four of the following attributes:

- The integration of people, groups and community organisations
- Maintaining direction, energy and motivation
- The substance and style of decision making
- Resource generation and effective allocation.

All four aspects of community functioning need to blend together in the interests of effective and satisfying community life. In conventional circles, 'integration' and 'motivational' functions have been viewed as the *internal* sub-system which binds and holds the component parts of the community together sufficiently to pursue and achieve its goals; with the 'leadership' and 'resource' functions as the *external* or task sub-system. However, when a region aspires to be the "most liveable people friendly community in Australia", these two sub-systems really need to be inextricably connected – joined by a semi-permeable membrane – rather than being viewed as separate, mutually-exclusive entities.

The innovative perspective in Mildura is to view the integration and motivational functions as being intrinsically linked with leadership and resource functions in the community.

The 2010 Community Wellbeing Report offers reassurance about that the Mildura community is being developed from a clear evidence base: this is a fundamental asset to be preserved and not taken for granted. Although residents still display strong feelings about local tolerance of differences, and community tensions, but the trajectory appears to be a downward one, compared with the attitudes recorded in the 2008 report. Greater communal participation in a review of goals and aspirations could be a means of strengthening this aspect of community functioning. This would also have implications for the perceptions of local leadership, which lagged in the 2008 report and continued to do so in 2010.

The *Community Wellbeing Survey* can help chart social strengths and limitations and suggest areas that would benefit from additional attention. In the final analysis, the choice of means for accomplishing that goal resides in the judgment of formal and informal leaders and residents generally.

The Community Wellbeing Survey can help chart social strengths and limitations and suggest areas that would benefit from additional attention.

## 9.7 Discussion

Local government – the tier of government ‘closest to the people’ – is ideally placed to engage communities and renew democratic principles. In Mildura, the CEF provides an example of community governance underpinned by evidence-based policy. The usefulness of the *local* social indicators is not confined to monitoring change over a substantial period. Rather, even in the initial stage, they can function as ‘alerts’: raising questions and highlighting ‘sleeping’ issues requiring further detailed examination; usually with the involvement of people and agencies possessing ‘on-the-ground’ knowledge of the matters in question.

The Community Engagement Framework (CEF) provides an example of community governance underpinned by evidence-based policy.

The indicator data can also have an opposite effect, indicating that challenges which were once thought to be great, are in fact more modest (at least on a comparative basis). For example, in Mildura, this was true for low birth weights,

with all but two of the sub-regions falling on the right side of the state and national averages. The Mildura sub-regions also generally maintain a level of infant immunisation cover that is characteristic of most of Australia.

The indicator data are also useful in terms of wider interpretation. For example, in the cultural sphere, there is a need to monitor cultural and recreational opportunities and people's access to the services provided. Obviously, the communal benefits of the Mildura Art Gallery are not reducible simply to the number of people who visit it; yet fulfilment of the Council's vision should see an increasing number of residents across the Mildura sub-regions availing themselves of the chance to view the art on display. When the postcodes of visitors to the gallery over a 6 months period were analysed, the data served to illustrate the concentration of patronage within a limited number of areas, inviting questions about the educational and out-reach functions of the gallery. The analysis of borrowings from the Council Library branches suggests the existence of a different problem in that sphere. The proportion of 'active' library users in each sub-region approximated to each locality's share of population. On the evidence available, the challenge is less one of increasing equity but rather raising the overall use of libraries to match the demands of the 'Information Age.'

Through the Community Engagement Governance Team, Mildura Council aims to shift the locus of control in many spheres from Council Chambers to the 'community'. The creation of the CEF and the Governance Team symbolise Council's wish to form horizontal partnerships rather than vertical principal-agent or patron-client relationships with local groups. It signals the Council's desire to take a more *activist* approach to its role in the creation and utilisation of social capital (Wallis and Dollery 2002: 77–78). As argued by Putnam (1993) and others, social capital is self-reinforcing and cumulative. Mildura's social capital will be strengthened by the Council's activities, not depleted.

Mildura Council has sought to shift the locus of control 'from Council Chambers to the community' via the community engagement approach.

However, whilst the creation of the CEF and the Governance Team is to be commended, this does not guarantee social progress. Change will require considerable effort from all members of the Mildura community, as well as stakeholders beyond the boundaries of the community, such as the State Government. The early signs are favourable in this regard, with participation of the relevant state minister and senior public servants in regional and even small neighbourhood meetings with local people and officials. The recognition afforded to the indicators as a planning tool and focus for action is also helping to attract new resources, as well as the harnessing of dormant resources (including local skills and expertise).

The opening up of the political opportunity structure by Mildura Council to groups traditionally less included, such as Aboriginal residents and those of non-English speaking background, will affect the access to, and formation, of social capital in Mildura (Wallis and Dollery 2002: 81). The existence of the CEF does increase the probability of constructive action.

The social indicators provide an objective measure by which to monitor the effectiveness of the effort. They also have the indirect effect of driving effort. Not that the existing data set covers all pertinent considerations. Some of the strategic outcome measures that are part of the Council's plan are attitudinal in nature and focus on specific local conditions. These include, for example, perceptions of personal safety and a number of resident satisfaction measures relating to opportunities to help shape the community's responses to its needs, the provision of health services, fire prevention and emergency services and town planning and policy. Data collection in relation to these matters requires the periodic conduct of surveys. This has yet to occur in Mildura but discussions are already in train with the local university about the work that needs to be undertaken.

Like other regions influenced by community government and evidence-based policy-making, Mildura needs to guard against some inherent dangers. The serious engagement of both State and Federal Governments with structural problems facing the region must be maintained. An active local citizenship should not provide an excuse for withdrawal by other levels of government. Data should be used to inform action rather than be an end in itself. Local knowledge and dialogue must surround the data to make sense of indicators in the local context.

The community's journey of making Mildura the 'most liveable, family friendly, community in Australia' will be watched with interest. The Council's ability to become a bridging, activist organisation has implications well beyond local residents, providing important leadership in the evolving nature of local government in Australia: "as the third tier of government and that most closely connected to the communities served, it becomes blindingly obvious that local government must play an increasingly important and diverse role in shaping our nations future" (Knight 2011).

The ability of a regional town to focus on key issues is enhanced by its circumstances, resilience and determination. This is often a product of a town's history and the drive of its people to work interdependently on a common objective. The CEF enables a platform for an evidence-based approach to focus ambitions and drive local solutions. Local communities need support to close the gap between local ideas and government rhetoric mobilising: cultivating and fostering ideas is important, but it is the relationships, drive and motivation that helps to achieves outcomes – and that's the rural advantage.

It is the relationships, drive and motivation that helps to achieves outcomes – innovation through collaboration.

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# Chapter 10

## Evocities: The Regional Livability Success Story

Shane Manley

**Abstract** This chapter describes the establishment of Evocities, an alliance of seven regional cities in country New South Wales, designed to attract population back to regional Australia. Here, the Evocities story is examined with respect to its approach to campaign development: the development a strong evidence-base, coupled with innovative strategies to market the ‘point of difference’ for inland regional cities. The case study explores the challenges of funding, brand development, and developing an effective response capacity to deal with the overwhelmingly positive response that ‘Evocities’ attracted – and continues to attract.

### 10.1 Introduction

In the mid-2000s, there was a general lack of awareness of the existence of regional cities among residents of metropolitan cities. Many, including the media, held negative images of country New South Wales (NSW). Simultaneously, many of Sydney’s residents were struggling in an increasingly congested city of rising living costs, amidst predictions of even greater future challenges in catering for a growing population with shrinking disposable incomes. Many were searching for greener pastures, and with ‘Sea Change’ and ‘Tree Change’ programs already putting alternative possibilities to major city living on the agenda, the time was right to introduce the concept of a ‘City Change’ – comparing seven regional cities favourably to Sydney. In July 2005, seven regional cities in New South Wales (NSW) formed a cooperative alliance to change the perception that there are only two types of places to live in Australia; capital cities or the country (or “bush”). At the time, regional municipalities were, with varying degrees of success, independently pursuing initiatives aimed at attracting new residents and industries.

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To make this push louder, Albury, Armidale, Bathurst, Dubbo, Orange, Tamworth and Wagga Wagga Councils formed an alliance, the first of its kind in Australia. Each of the cities was growing, offered outstanding industry, education, cultural and lifestyle opportunities, affordable housing, and had the capacity to support further population growth. What followed was the ‘Evocities’ marketing campaign, which has been lauded as the most successful relocation campaign ever launched in Australia.

Seven regional cities formed the Evocities alliance to change the perception that Australia had only two types of places to live – capital cities or the country.

## 10.2 The Idea

In July 2005, Gary Wells, the then-Director of the Commercial Response Unit of the City of Wagga Wagga in New South Wales, travelled to Ballarat, Victoria, to meet with Shane Manley, the owner and Director of the ASCET Group. ASCET is a full service marketing/advertising agency and web development company operating in Victoria and New South Wales. Gary was aware of ASCET’s work with the Victorian State Government in the research and development of the *Provincial Victoria* marketing campaign. ASCET, in partnership with the University of Ballarat, had conducted research measuring awareness, perceptions and attitudes of Melbourne residents toward relocation to regional Victoria. ASCET had subsequently recommended the brand name of ‘Provincial Victoria’ and the initial strategy for Victoria’s marketing efforts to encouraging regional and rural population growth. Gary had an idea which he wanted to share with Shane: he had concluded that the City of Wagga Wagga was wasting its time and resources in attempting to market itself like Sydney and trying to attract population growth by persuading Sydneysiders to relocate to Wagga. He had also concluded that many other regional cities shared this challenge; with many similarly-sized cities busy creating their own individual marketing strategies designed to attract regional population growth.

Gary had the idea of bringing together a group of regional cities to work collaboratively and develop strategies through which they could collectively market their cities.

A group of regional cities working collaboratively to collectively market themselves.

The first discussion point between Gary and Shane was the fact that the cities he had in mind for working together were all inland cities, with a common need to out-compete against the ‘sexy’ coastal regions, as well as the capital cities, for

population growth and overall appeal. The second insight was that the single largest target market for new residents and business investment from in Sydney. However, the harsh reality of regional council budgets meant that each city only had only around \$40,000 per annum to allocate to a marketing budget for its 'Live, Work, Invest' programs. Operating alone, this allocation was unable to impact significantly in a market of five million people.

Following the meeting, Gary returned to New South Wales convinced that a group of similar-sized regional cities could become a much more powerful marketing force if they began working together. Gary, acting on behalf of the City of Wagga Wagga, then approached nine other regional cities of New South Wales with the idea. Seven of them (Wagga included) agreed to pursue the concept further.

### 10.3 The Research

In 2006, ASCET was engaged by the seven Councils to undertake market research to inform what was to become the 'Evocities' campaign. A total of 420 telephone surveys were conducted with randomly selected Sydney residents over the age of 18. In addition to the telephone surveys, I personally facilitated a total of six focus groups in Sydney, recruited as separate demographic segments. Separate groups of retirees/investors, self-employed business owners, IT professionals, senior managers, trades people and manufacturing employees. Interestingly, the major findings of the Sydney research mirrored that of the Melbourne research that had been conducted by ASCET 4 years earlier for the Victorian State Government.

The key findings of the Sydney surveys included:

1. Almost a *quarter* [24 %] of respondents said they were *likely or very likely* to consider relocating to country NSW in the future, while about half (53 %) said they were unlikely or very unlikely to;
2. The cohort that had previously lived in country NSW (i.e., were born or educated there) were more likely to shift than those who had no connection. A high proportion of those with an existing country connection were full-time workers, with a good percentage in the 35–44 or 45–54 age groups;
3. The benefits sought from relocation were *lifestyle* and *moving away from the big city*;
4. The biggest barrier to relocation was family, closely followed by employment opportunities;
5. The majority indicated they would use the internet as their primary source of finding information on regional cities, while a personal visit to the actual destination would also be required; and
6. The main conditions required to change in order for participants to consider relocation were *employment* [29 %], *financial incentives* [11 %] and *facilities in the area* [9 %].

People with a pre-existing connection to a region would be likely to return, if they could be certain of employment opportunities and lifestyle benefits – including financial incentives and well-resourced regional infrastructure.

With respect to awareness and perceptions of regional and rural New South Wales, as well as attitudes toward relocation, preconceptions of life in the “country” were generally negative. While many associated country New South Wales with idyllic benefits, such as *peace and quiet, relaxation* and *wide open spaces*, a large percentage held contrary images of isolation and fewer opportunities (compared to Sydney).

The majority of participants also associated regional landscape images with country New South Wales. Such images included the coastline, green hills and agriculture. However, the drought was also consistently raised as a negative feature of country New South Wales. Other negative images and associations included: horses, pigs, cows, farms, drought, dryness, paddocks; no jobs, no careers, and/or limited wealth making opportunities. Some even believed that there was no internet in the “country”.

Reviewing the findings of the research, it could be said that there existed a certain amount of ignorance and arrogance among a percentage of Sydney and Melbourne residents. Ignorance in the sense that many possessed very limited knowledge of regional areas. They had little-to-no understanding of distance, travel time, or even locations of other cities and towns within their own state. The perception that there were *no jobs, no careers, no wealth making opportunities* also demonstrated a lack of knowledge of the labour markets outside of the capital cities. There was also arrogance in the sense that many tended to *look down their nose* at *people from the country*. A few comments included suggestions that if you live in the country, you have ‘failed’ in your career; this reflected a type of ‘snobbery’ that glamorised the urban living of capital cities.

Sydney and Melbourne residents appeared ignorant of regional NSW. . . some believed that there was no internet in the ‘country’.

### 10.3.1 *The Challenges*

We concluded that before embarking on any type of marketing campaign to influence Sydney residents to shift out to the ‘country’, two key issues needed to be addressed:

- Overcoming the widely-held perception that there were no jobs/limited careers in the regional cities; and
- Rebutting negative associations with the country stereotype images of “cows, horses, paddocks, droughts and isolation”.

### 10.3.2 *The Brand*

The first challenge that was addressed with the Steering Committee, comprised of representatives from each of the Councils, was how to brand the seven cities. Unlike many tourism regions of Australia, where different destinations would form a cooperative to share resources to market their common region, the seven cities stretched across over 1,000 km of New South Wales, from Albury at the southern end (on the Victorian border) through to Armidale at the northern end of the state. They were not neighbours as such. At the same time, we concluded it would not be practical, or achieve cut-through, to develop a marketing campaign that had to list all seven cities.

We needed a brand under which the cities could unite. We needed to avoid generic terms which the cities could never own, and phrases that had negative pre-conceptions.

As a starting point we recommended to the Committee that there were a number of terms we should **avoid** when considering a brand name, including:

- **Rural** – because this term conjures up negative images in the minds of metropolitan residents, it was to be avoided at all costs. Rural is associated with those images of droughts, paddocks, cows, and hardship; and is not favourable as a term to marketed to Sydneysiders.
- **Regional** – our research revealed that many metropolitan residents were confused with this term. It led to questions like:
  - “Is Armidale a regional town?”
  - “Is New England the region?”
  - “What defines a regional city? Is it size or where it is located?”
  - “What’s the difference between a regional city and a rural city?”
- **Inland** – while all of the seven cities are indeed inland, we recommended avoidance of this term as it can conjure images of dryness and isolation.
- **The Bush** – this term can evoke associations of backward or ‘Hicksville’. While it can have positive associations in the context of holidaying, bushwalking and camping, it was not the term to promote the sophisticated cultures that our seven cities possessed.
- **Country** – a term that everyone already holds an existing perception/meaning for. For some, it may mean happy memories of annual holidays in the country; for others it will mean backward, slow or droughts. To try and change the market’s existing perceptions of their definition of location represented an unrealistic challenge with the expected limited budget.

Further, all of the above are also generic terms which the cities could never own. In partnership with the Steering Committee, ASCET was determined to create a brand that had a degree of originality – a brand name that the cities could own.

Within the process of creative concept development, a need was identified to find what all cities had in common, and then establish a brand under which the cities could, together and individually, promote to the markets who were most likely to consider moving to them. The marketing themes needed to address what was obvious from the research: the lack of knowledge or, at the very least, misunderstandings of what these cities were offering. The cities themselves also wanted to avoid stereotypes. They were seeking a sharper, breakthrough image which would be futuristic while retaining a reality about the values and attractions of their regional locations. The councils indicated the images they wanted to portray; genuine representations of what they could offer. They included:

- Clean and green;
- Vibrant;
- Dynamic;
- Innovative;
- Professional;
- Accessible; and
- Globally linked.

There was a need for a contemporary, modern word or brand that labelled these cities as forward cities of the future, not just keeping up with the greater metropolis of Sydney or their cousins along the northern NSW coast, but in many cases with much to offer that these other locations lacked.

There was a need for a contemporary, modern word or brand that labeled these cities as forward cities of the future.

In developing the brief for the ASCET creative team, it was noted that the desired positioning of the cities was that fact in itself – the fact that they were indeed all *cities*. They all had sizable populations (the smallest being 24,000). As cities, they offered the infrastructure that would appeal to capital city residents – major shopping centres, cafes and restaurants, sporting and recreation facilities, excellent education including private and public schools, arts and cultural facilities and vibrant employment industries. Each also has a University campus (Charles Sturt and/or University of New England).

We believed that it was important to promote this ‘city’ positioning. The ASCET team proposed the term – *Evocities*. The acronym EVO was created from the brand elements that evolved from the positioning strategy: ***Energy, Vision, Opportunity*** – three words that captured the essence of the seven cities’ communities.

ASCET presented the Evocities brand to the Steering Committee in 2006 and the members unanimously endorsed the recommendation. Within 3 months Gary Wells and I had personally presented the concept and the proposed brand to the seven City Councils. Each Council endorsed the new brand. At the same time, ASCET developed a marketing strategy on how the brand and the ‘Live Work Invest’

campaign should be launched into the Sydney market. It was concluded that a marketing budget of \$1 million minimum would be needed to have any sort of impact in this competitive market. It was resolved that funding would be sought from both the State and Federal Governments to launch the Evocities campaign. That process commenced in 2006.

## 10.4 Funding

Ultimately, the lobbying by the seven Councils came to fruition. In 2009, Simon Crean, then Shadow Minister for Trade and Regional Development, committed an incoming Labour government to support the Evocities project. Some \$1.2 million in funding was offered following the election of the Rudd Government. The Councils all committed to contributing \$40,000 each, bringing another \$280,000 to the table. The Steering Committee then made the decision to appoint three specialist agencies to develop and implement the proposed marketing campaign. They created a business model of appointing a Project Manager to manage all of the administration needs of the project and to act as the ‘middle person’ between the Committee and the two other agencies. The Steering Committee then advertised all three contracts and proceeded through the tender process. Eventually, after submissions and presentations, the following agencies were appointed:

- Brendan Dunphy was selected as the primary person to act as Project Manager;
- ASCET was appointed as the Marketing Agency; and
- SHJ (Scaffidi Hugh-Jones) was appointed as the PR Agency.

In our original 2006 strategy, we proposed the idea of attracting corporate sponsors to the project. Once appointed in 2010, the task was to then follow up with the companies that we initially approached 4 years earlier, as well as new entities. In partnership with the members of the steering committee, the Project Manager and SHJ, we knocked on doors and prepared at least a dozen sponsorship proposals. Within 6 months we had secured seven *Evo-Partners*:

- CBA Bank;
- Country Energy;
- Charles Sturt University;
- University of New England;
- GWS Personnel;
- Rex Airlines; and
- Orange Mental Health.

Contributions from these corporate sponsors brought the total budget up to \$1.6 million.

Contributions from the federal and local government, as well as corporate sponsors, lifted the total budget to \$1.6 million.

## **10.5 Response Capacity**

### ***10.5.1 Evo Jobs***

The research had revealed that one of the biggest barriers to relocating for Sydneysiders was the perception that there are no jobs or careers in the regional areas of NSW. Apart from this negative perception, an obvious fact with any relocation decision is the need to actually find a job (or buy a business). ASCET recommended that dedicated jobs websites needed to be constructed: a job website for each city, called Evo-Jobs; and a job website that would be promoted to every employment agency and employer as a FREE service in each of the seven cities. The goal was to fill the Evo-Jobs database with a minimum of 300 job vacancies by the time we launched the advertising campaign in Sydney. This bank of jobs that would demonstrate the range of careers and employment opportunities available in the Evocities. The NSW Government agreed with this strategy and provided the funds to help build the seven Evo-Jobs websites.

ASCET Interactive (a member of the ASCET Group) was engaged to design and construct the jobs sites. Just a few weeks before the launch of the marketing campaign, Brian Lovison (Managing Director of ASCET Interactive) and I travelled to each of the seven cities to engage the local employment industries through special forums organised by the respective Councils. This engagement with employment agencies and employers was aimed at educating the local communities of the new service and begin the task of gathering job vacancies for the proposed Sydney markets.

### ***10.5.2 evocities.com.au and Evo Central***

A marketing strategy was developed upon the basis of three tiers of communication:

#### *Level One: Branding and Awareness*

The first objective was to launch the new Evocities brand and to build awareness of the new life being offered in these New South Wales regional cities. This would be achieved through the media advertising, digital and PR campaigns.

#### *Level Two: Education and Motivation*

If the advertising and PR could work to grab the attention of the target markets, the next objective was to attract them to the primary call to action – the new [www.evocities.com.au](http://www.evocities.com.au) website. This website was designed to educate visitors on just how much was on offer in the cities, and to motivate prospective new residents (and investors) to want to seek out further information. ASCET Interactive designed and constructed the new website in time for the proposed launch of the campaign on August 13th 2010.



### *Level Three: Tracking and Evaluation*

The Steering Committee and the Australian Government were strong in their stated desire to ensure that the proposed campaign could be effectively evaluated. It was established that every enquiry generated through the campaign would be captured, tracked and reported, as a project objective.

This represented a challenge in the sense that based on our experience of working with Local Governments over a 15 year period, councils were weak at tracking and managing new residents enquiries. Even with business investment enquiries, we had discovered that many Local Governments in Australia relied only on excel spreadsheets designed by economic development staff to monitor and manage enquiries. From a commercial 'sales management' perspective we had often been critical of these ad hoc systems.

Working with the members of the Steering Committee ASCET set about designing and constructing a web-based platform that would capture, respond to, track and report on all enquiries lodged via the Evocities website. This platform, quickly dubbed *Evo Central*, was also built in time for the launch of the 2010 marketing campaign. The database system was designed from scratch through specifications developed through consulting with a variety of staff from the seven city councils.

## 10.6 The Target Markets

Armed with the market research from 2006, we identified the three target markets that were most likely to consider relocation from their Sydney homes. We named the three segments and included detailed demographic and psychographic profiles of each: *the bloomers; the families and the free wheelers*.

We identified the three target markets that were most likely to consider relocation from their Sydney homes: the “bloomers”; the “families” and the “free wheelers”.

## 10.7 Positioning Strategy: The Point of Difference

The fact that the Evocities offering centred on living and working in a larger, regional city, as opposed to a rural/small town, needed to be leveraged as a key point of difference. The shift to an Evocity was not about 'trading down', or lowering expectations in any way – it was all about offering the benefits of the capital city but without the downsides (in a country context) – the best of both

worlds. In this sense, the Evocity campaign is about redefining country life: a third type of ‘change’ was to be added to Australian cultural behaviour and psyche: not a ‘sea change’, not a ‘tree change’, but a **‘city change’**.

The shift to an Evocity was not about ‘trading down’, or lowering expectations in any way – it was about offering the best of both worlds – city convenience without the congestion.

The development of the message that was to be used in the Evocities campaign communications was a refreshing exercise for our team at ASCET. We had been working within the “Live Work Invest” field with many local governments for over a decade; and we had observed many other campaigns launched by different cities, regions and states aimed at the relocation and investment markets during this time.

One type of campaign that we never agreed with – despite understanding its inception – was that of offering ‘cheap land’ in small towns. For example, past promotions had included “buy a block of land for \$1000” or “rent for \$1 a week” types of message. We believe these types of campaigns communicated one thing – this town is dying! Why would people want to live there? While the lower cost of housing is certainly a motivator for relocation from metropolitan cities, the buyer also wants to be reassured that their investment in a new home or investment property will be protected from the negative influences on capital gains caused by a declining population. Offering ridiculously cheap land or houses (to try and attract new residents) is the wrong message.

Another visual that we wanted to avoid was the classic ‘green lifestyle’ image. We deliberately sought to avoid using the people in paddocks with horses’ images. Why? Because these types of images tend to only reinforce the stereotypical images that metropolitan residents have of the country. Research told us that while the lifestyle is a great motivator for relocation; the negative perceptions need to be broken down first. We need to re-educate the capital city habitants that we actually wear suits out in the regional areas of Australia that we do have high speed internet, that we do have art galleries, live theatre, cinemas, and major shopping centres – and yes – even traffic lights!

We also needed to demonstrate the wealth-making opportunities that exist in the regional areas; to show the excellent careers and employment opportunities that exist – not more paddocks! It was interesting to note that within the focus groups that I facilitated in Sydney, one of the methods used by a metro resident, to judge how prosperous a regional city or town was, was to count how many McDonalds it had: one McDonalds meant that it was of a reasonable size; two meant that the city was indeed thriving! So there is a strategy – show McDonalds stores in your next image gallery when promoting your regional city!

We needed to demonstrate the wealth-making opportunities that exist in the regional areas.

In developing our communication strategy, we knew that the lifestyle was already identified by the target markets as a strength of the regional areas. This attractor was a given. It was more a matter of reinforcing the better lifestyle if we could manage to persuade the potential new resident to at least have a closer look at one of the seven Evocities. Research had also showed us that the negative elements of living in Sydney, such as the traffic, high cost of property, crime, pollution and other factors caused by urban crush, were serving to act as ‘push’ influencers on its residents. These negatives of capital city living were strong triggers to consider relocating out of Sydney. We wanted to use these triggers in our creative messaging.

This was where the Evocities structure was a refreshing environment. In other similar campaigns, the Government authorities had directed us not to paint the capital city in a negative light. The politics influenced the development of the creative message, which in turn restricted the impact of the message. The Evocities structure did not have any such political restraints. The members of the committee were all from the regional cities. Hence, this was an opportunity to fight some of the ‘arrogance’ of metropolitan habitants – an opportunity to market the comparisons of living in a capital city to an Evocity – an opportunity to show just who did have the better life! An interesting observation regarding this option of regional living and capital city living is to learn where Warren Buffet lives. Warren Buffett is one of the richest and most successful business men/investors in the world. Where does he live? In Omaha, Nebraska – not New York. Not Los Angeles. Not Chicago, but Omaha. It is the nation’s 42nd largest city. In USA terms, Buffett is headquartered in what could be classified as a ‘regional’ city. He still lives in a humble house he bought for \$31,000 several decades ago. His rationale for living in a regional city? He has stated that it is because it helps him to retain perspective of the world and business. An interesting observation.

The Evocities structure did not have political restraints; it allowed regional areas to be marketed for their ways in which they clearly outcompeted what capital cities have to offer.

So ASCET was given the job of developing the regional living message for the Sydney market. The ASCET team, headed by our senior creative, Andrew Vincent, set about creating several advertising concepts for the planned marketing campaign. Andrew himself created the eventual winner – the *happy face/sad face* concept. The committee immediately selected this concept and ASCET proceeded to work up the idea to full production stage.

## 10.8 The Media Plan

The media plan was developed around a particular communication strategy. We aimed to communicate with the target markets at their time of peak discomfort – whilst commuting. We knew from our research that the Sydney traffic was



**Fig. 10.1** Sample image from the Evocities billboard campaign. Photo credit is to evocities.com.au

becoming a nightmare for commuters. We aimed to promote the alternative life-style message while this angst with city life was being experienced.

Our media buying concentrated on three primary mediums – outdoor (billboards, railway platforms, buses) radio (morning and evening drive times) and digital (aimed at geographic, demographic and behavioural segments of Sydney) (Fig. 10.1).

The Evocities concept was also a story that would be leveraged by a major public relations campaign. SHJ did an outstanding job in developing, launching and managing this component of the marketing mix.

The first phase of the Evocities marketing campaign was launched on September 13th, 2010 and concluded (in advertising terms) in mid December 2010. The second phase of the advertising campaign was re-activated in May 2011.

## 10.9 Evocities Outcomes

When setting the original objectives of the campaign, the Committee and the agencies established a benchmark of desired 2,000–3,000 visits per month to the evocities.com.au website as a satisfactory level of campaign activity once the marketing commenced. Individual cities had indicated that they averaged 120 new residents enquiries per year, so an increase of a minimum of 20 % on this level of genuine enquiries was being sought from the campaign.

What resulted – and what continues to occur – has far exceeded all expectations:

- In the first 17 weeks of the marketing campaign, over 55,000 visits to the website were recorded at an average of **10,000 visits per month**;
- Ninety percent of website traffic was coming from Sydney;
- By the end of November, there had been over 1,200 direct enquiries to the cities from Sydney residents, delivering levels equal to 18 months in a space of only 10 weeks;
- By July 2011, there had been over 1,200 pieces of media coverage on the Evocities campaign, reaching 15 million people and providing an additional \$4 million worth of advertising value;

- The media coverage included high profiles pieces on A Current Affair, Today Tonight, numerous Daily Telegraph features, including a front page story, Sydney Morning Herald, a Domain cover, and extensive radio coverage, including multiple interviews on the high-rating Alan Jones Show;
- There had also been 29 registered enquiries regarding business relocations and/or investments; and
- The seven Evo-Jobs websites also had over 34,000 visits up until the end of December, 2010. Ninety-seven percent of all traffic to these jobs sites was from Sydney and over 1,700 jobs had been listed on the Evo Jobs sites.

Whilst the media advertising concluded in mid-December, traffic to the Evocities website, enquiries to the cities and media coverage have all continued.

By the end of June 2011, traffic to the Evocities website was approaching 100,000 visits, with over 326,000 pages viewed and over 1,000 pieces of media coverage. SHJ won the 2011 IABC Golden Quill award – a global Media Relations accolade – for their management of the PR component of the Evocities campaign. There has now been over 1,200 pieces of media coverage. The cities are continuing to attract genuine enquiries from hundreds of potential new residents, predominantly from Sydney.

The seven Evo Jobs sites have now attracted over 90,000 visits (as at June 2011). There had been over 3,500 jobs listed on these sites in the first 10 months. Applications for the job vacancies are being lodged daily – again predominantly from Sydney. There is also significant traffic and enquiries from potential migrants from many other countries.

Although our research had indicated that people will generally take 12 months to actually make a final decision and relocate (from the time of serious consideration), the Evocities have recorded over 275 new families having already shifted to their new homes since the commencement of the marketing campaign. Another 400 have indicated that they intend to shift to one of the Evocities.

We surveyed the registered enquiries lodged via the *Evo Central* database in February 2011. Some 75 % of the respondents indicated they were still seriously considering relocation; 8 % indicated they had already made the move; 7 % were actively seeking a job (or business) in one of the Evocities. Only 3 % indicated they were no longer interested. This indicates that the marketing campaign had triggered and retained serious consideration of relocation.

When analysing what were the critical success factors of the Evocities campaign, the following conclusions were drawn:

- It has been based on market research;
- It is ‘product’ based, not geographic-based;
- It has been non-political; and
- It has been professionally managed by agencies, providing the controlling committee with virtually full time administration, marketing and PR resources – essential to drive the project.

The creative message was non-traditional and did not look like a Government campaign.

The Response Capacity systems – the website providing the detail to educate and motivate, the Evo-Jobs sites to provide the resources for action and Evo Central – a web based platform, provided council staff with the resources to manage, track and record every enquiry.

When ASCET created the original Evocities brand in 2006, we created a style guide that showed how the brand could be extended to other parts of Australia. We believed then (and even more so now) that the brand held enormous potential for other similar sized regional cities in other states.

We believe that there is an opportunity to capture a space in consumers' minds of cities that are just below that of capital cities – larger cities with the infrastructure and facilities that are normally associated with capital cities, but without the negatives of the urban crush that is crippling Australia's capital cities. We believe that the Evocities can also be marketed internationally, to attract skilled migrants to other parts of Australia – not just to the capital cities.

We believe it is time to paint a whole new picture of living, working and investing in regional Australia. The real picture! A place:

- Where there are fantastic employment and career opportunities;
- Where there are people creating extraordinary wealth for their families and their local communities;
- Where valuable time is not being wasted in stress related traffic commutes – time that is spent with family, friends and enjoying life;
- Where there is affordable housing, delivering excellent capital gains and returns on investment;
- Where there are stable, reliable and skilled workforce banks, providing industry with the necessary labour resources to grow and prosper; and
- Where there are sophisticated arts and culture centres, outstanding sports and recreation facilities, exceptional education facilities, major shopping centres, high speed broadband and even. . . . . great coffee!

With so much to offer, who would want to live in a capital city?

# Chapter 11

## A Case Study of Katanning: Innovation for Cultural Dividend

Simon Lyas, Jessica van der Waag, Russell Pritchard, and Carl Beck

**Abstract** This chapter presents a brief examination of Katanning, a small regional town in Western Australia, where immigration has been principally ‘demand-pull’. Katanning is a Culturally and Linguistically Diverse (CaLD) community where successful long-term migrant settlement has been achieved through the advantage of offering an extremely welcoming and liveable regional lifestyle. A number of innovative, ad-hoc interventions have been deployed in Katanning in order to maintain the steady flow of skilled migrants to the region. This has been crucial in enabling the multicultural migrant group to be a key factor in addressing structural workforce decline in this area of inland Australia. The cohort is also responsible to cultural enrichment of Katanning itself. The analysis in this chapter is focused on describing roles of industry, community and all levels of government (local, state and Australian agencies) in engaging people from CaLD backgrounds, in order to achieve innovative community development. In turn, this allows Katanning to help deliver on national sustainable population growth, with the Shire having already been identified as a target for long-term planning growth.

### 11.1 Introduction

Migration has long been a key driver for population growth in Western Australia. Around 60 % of the State’s population growth between 2005 and 2010 was attributable to net overseas migration (DTWD 2011). Further, Australia is one of

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the top three resettlement countries for humanitarian refugees in the world (DIAC 2011). At a national level, migrants enter Australia through three streams of the Australian Government Migration Program:

- Skill;
- Family and Special Eligibility; and
- Humanitarian.

The attraction of skilled migrants in Western Australia over the past decade has been critical in helping the state meet its skills and labour shortfalls in an environment characterised by high workforce participation rates and low unemployment rates (DTWD 2011). Further, as with many OECD countries, Australia will likely meet the challenge of the ageing work force through overseas immigrants (Ball 2007). In regional areas, programs such as the Regional Skilled Migration Scheme have enabled the attraction of skilled migrants to fill professional positions. Humanitarian refugees relocating to regional areas have also provided a key unskilled workforce base, supporting industry development.

Skilled migrant attraction is a central part of addressing skills and labour shortages in regional areas.

According to the Australian Bureau of Statistics (ABS) 2006 census data, Western Australia has the largest proportion of population born overseas, of all the Australian states and territories, with more than half a million people (27.1 % of the total population) recorded as born overseas (DIAC and OMI 2008).

However, WA ranked third behind New South Wales and Victoria in terms of intake in the skilled migration stream, receiving 8,352 (14 %) of Australia's skilled migrants. It also ranked fourth (behind New South Wales, Victoria and Queensland) in receiving 1,557 (13 %) of the 12,122 migrants who entered Australia under the humanitarian (Refugee; Special Assistance; Special Humanitarian Program) stream (DIAC and OMI 2008).

A large majority of migrant and refugee arrivals settle in metropolitan areas. This is generally a 'default' choice driven by economic factors such as the need to secure employment and access the full range of government and non-government support services. However, cultural and social factors also come into play, with migrants feeling a need to be close to people from the same ethnic origins in what many perceive to be a strange environment. Fortunately for those that become aware, regional communities can provide opportunities such as easy entry employment, and comparatively lower cost of living, and are often keen to attract residents and workers.

There are three main avenues by which migrants into Australia settle into regional areas:



- Through regionally-focused sponsorship programs such as the Regional Sponsored Migration Scheme;
- Through secondary migration (or relocation) particularly among refugees who have first settled in a metropolitan area and decide for themselves to move to a regional area; and
- Through regional settlement programs coordinated by the Department of Immigration and Citizenship (DIAC). These are services that generally apply to humanitarian refugees who are permanent residents of Australia.

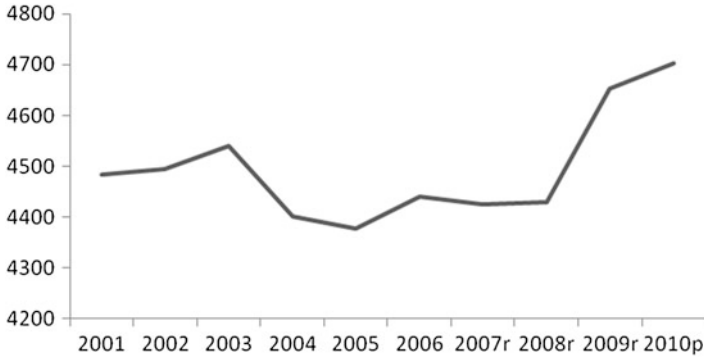
Regional communities can provide easy entry employment and comparatively lower cost of living to skilled migrants.

## 11.2 Katanning

The town of Katanning is a regional centre of 3,800 people, in the Great Southern region of Western Australia. The Shire of Katanning has some 4,600 people and comprises 7.9 % of the Great Southern region's population. The Great Southern is the second largest agricultural region in the State in value of production terms (\$1.1 billion in 2008/2009) and covers an area of ~45,000 km<sup>2</sup> (DRDL 2011). In addition to its agricultural base, the region's economy is diversified to a degree, through sectors including retail, manufacturing, construction, tourism, and the production of premium wines. There is an emerging mining sector, with a significant magnetite mining development (\$3 billion) at investment decision stage near Albany, and a gold mining venture (\$1.5 billion) at advanced feasibility stage near Katanning. The region's key industry sectors are affected by skills shortages in a range of services, including health professionals, the trades and in agricultural processing (GSDC 2011). The major centre in the region is the City of Albany on the southern coast. The town of Katanning is located on the Great Southern Highway, 170 km north of Albany, and 295 km south east of the State's capital city, Perth.

The Katanning economy is based primarily on agricultural production, including cereal crops (wheat, oats, barley), and sheep production for wool and meat. The Shire Council owns and operates one of the two primary sheep saleyards in the State, with an estimated local economic benefit (direct and indirect) of \$15 million per annum (Ball and Rowley 2007). A new \$27 million facility is under construction at the eastern edge of the town. Katanning is the site of the Western Australian Meat Marketing Co-operative's (WAMMCO) sheep meat abattoir and export processing facility which represents a \$100 million investment for the company, and generates an annual turnover of a similar amount.

The town is also the major service centre for the central Great Southern region, and has a range of recreation and leisure facilities, government offices, health services (hospital, medical clinic, chiropractor and dentist), education services (senior high school, primary schools, Great Southern Institute of Technology



**Fig. 11.1** Resident population of Katanning, 2001–2010 (Source: Derived from the ABS). r = resident, p = projected

campus), and a diverse retail and business district. Key occupations in the district, according to 2006 ABS statistics, include Labourers and Related Workers (26 %), Tradespeople (16 %), Intermediate Clerical, Sales and Service Workers (15 %) and Professionals (10 %).

The population of Katanning has experienced an average overall growth rate of 1.1 % per annum between 2004 and 2009 (ABS 2006). In 2009/2010, however, the town's population increased at a rate well above the average (5 %), mainly as a result of the relocation of humanitarian refugees from Perth (Fig. 11.1).

### 11.3 A History of Migration

Since the establishment of Katanning in the late 1880s, primary production and related industries have supported the economic development of the town and wider district. This became the catalyst for attracting a culturally diverse community through the creation of employment and demand for workers.

The development of agricultural sector of Katanning has been a catalyst for attracting a culturally diverse community.

In the interwar period, there was a steady inflow of mainly economic migrants into Katanning. This was a time when the State Government had an active policy of expanding the agricultural sector, slowed only by the onset of the Great Depression. In the immediate post-World War II years, the strong recovery of the demand for agricultural commodities and the associated government investment in infrastructure created a demand for labour that could only be addressed through migration programs that targeted mainly northern and then southern Europe. The most

intensive investment by State Government was in railways, which created a need for a large skilled and unskilled work force (Bignell 2007). The ‘million acres per year’ of rural land development was another policy that impacted on Katanning by expanding it as a services centre for the ‘new lands’ of Gnowangerup, Kent and Jerramungup.

Migration during this period remained of the ‘demand-pull’ type, although government had the power to direct the labour of state sponsored immigrants, and it did. The post World War II period was also a time that saw the beginning of employer sponsored schemes, mainly by farmers who assisted whole family units to migrate from northern Europe. One overall consistent feature of this period of migration was that there was little or no active policy by government at any level to provide settlement services for those who chose, or were directed, to work and live in regional towns.

The post-war period featured little or no active policy to provide settlement services for those who chose, or were directed, to work and live in regional towns.

A summary of the recent history of arrivals in Katanning (based on preliminary research) is outlined below and in Table 11.1:

- The first Christmas Islander families arrived in Katanning in 1973. Demand for workers at the export abattoir attracted further families, with approximately 300 people of an ethnic Malay background arriving by 1979 from the Christmas and Cocos Islands;
- Over the past 10 years, Afghan humanitarian refugees have come to Katanning seeking work and settlement. It was estimated by the Katanning Migrant Resource Centre (KMRC pers. comm.) that around 50 Afghan families (~250 individuals) had come to Katanning by mid-2010. As humanitarian refugees, these people are permanent residents or citizens of Australia;
- In 2006, the abattoir accessed 34 skilled workers from China (with 79 additional family members on secondary visas) through the 457 Temporary visa program. More than half of this group have secured permanent residency, and the balance are in the process of applying for permanent visas;
- Over the past 5 years, and more significantly in 2009–2010, Karen people from Burma have come to Katanning seeking work and settlement in a rural community. The relocation to Katanning was facilitated by Karen representatives in Perth through their employer (WAMMCO) and, once they had arrived, they were significantly supported by the local Baptist Church. It is estimated by the KMRC that over 30 families (~160 individuals) had come to Katanning by mid-2010 (KMRC pers. comm.); and

**Table 11.1** Summary of events and opportunities attracting migrants into Katanning

Approx. time line	Migrant origin	Events in Katanning region
1890-	South Australia (German descent)	Albany-Perth railway opens, new land available to purchase Roller Flour Mill established Farmers attracted to take up land
1905–1930	United Kingdom	State Government program to attract migrants to support agriculture (WA wide) Post war soldier settlement Farmers attracted to take up land, and farm labourers required
1950–1960	Italy	Agriculture expands, infrastructure improvements across the region Farm labourers, building and railway workers required
1973–1979	Christmas and Cocos Islands	Abattoir expands to Halal market Abattoir workers and Halal slaughtermen required
2002-Present	Afghanistan	Abattoir worker shortage Refugees needing work and settlement
2006	China	Skilled abattoir workers required WAMMCO accesses skilled workers through 457 visas
2008-Present	Myanmar (Burma)	Abattoir worker shortage Refugees needing work and settlement
2010-Present	Burundi and Congo	Refugees needing work and settlement

- The most recent arrivals are the Burundi and Congolese humanitarian refugees. The KMRC noted that there were around seven families (~40 individuals) in mid-2010 (KMRC pers. comm.).

In addition, people from a range of cultural backgrounds have come to Katanning from overseas to fill skilled professional positions, particularly in the medical and health fields, under programs such as the Regional Sponsored Migration Scheme. These positions range from administration, through to researchers, nurses, opticians, dentists and general practitioners.

In the 2006 ABS census, over 14 % of the population of Katanning was registered as being born overseas, with a large proportion from non-mainly English speaking countries. This statistic excludes Christmas and Cocos Islanders as they are Australian citizens. The latter group have brought with them their strong Malay culture.

The composition of Katanning's population has changed significantly in the past 10 years as a result of these arrivals. Figure 11.2 demonstrates the changes in the population between 2001 and 2006 (based on ABS census data), in comparison with the WA average, for categories including Overseas born – mainly English speaking (OSB-MES), Overseas born – mainly non English speaking (OSB-MNES), total Overseas born, Australian born, and total change in the population size. With the pending release of the 2011 census data, it is anticipated that the OSB-MNES and

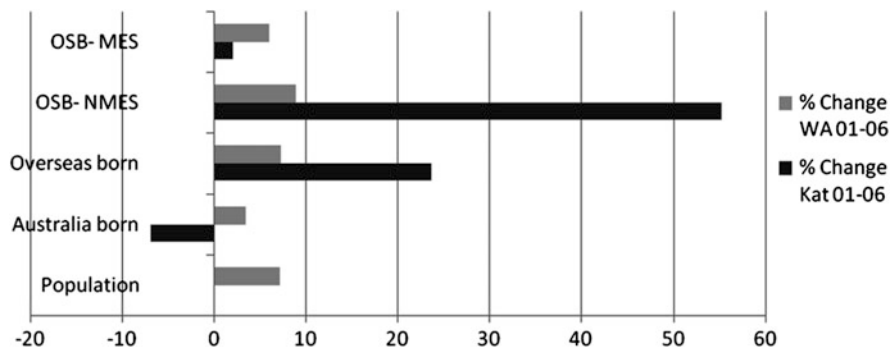


Fig. 11.2 Changes in the composition of the population between 2001 and 2006: WA and Katanning (ABS)

Overseas born categories will have continued to increase due to the arrival of migrants from Burma, Burundi and the Congo between 2006 and 2011.

There are many factors which drive migration to regional areas. These include employment opportunities, relocation programs and incentives, public housing availability, cost of living, country lifestyle, family and other social connections (Taylor and Stanovic 2005; VSPC 2009; Goel and Goel 2009).

In Katanning, the migration streams have been predominately employer-sponsored skilled migration, or humanitarian refugees. With regard to the latter group, there have been no formal government relocation programs or incentives to attract them to towns such as Katanning. The attraction has primarily been the opportunity for employment (with the abattoir engaging skilled and unskilled workers who have varying levels of English competency); comparatively lower cost of living in regional centres over metropolitan centres, and regional lifestyle (particularly attractive to the Karen people, who come from predominately farming backgrounds). There have been both advantages for the local economy through the availability of an expanded resident workforce, and challenges for service providers to respond to the needs of a quickly changing community demographic. This has placed a particular strain a range of service agencies including, but not limited to housing, health and education.

### 11.4 Industry Development

The largest employer in Katanning, and the sixth largest employer in the region is the Western Australian Meat Marketing Co-operative (WAMMCO), currently employing around 300 people whom reside in Katanning (Ball 2011). The workforce is predominately from CaLD backgrounds (80 %), with 65 Chinese (Peoples Republic of China), 57 of Christmas and Cocos Islander descent, 46 Burmese,

12 Afghans and a similar number of South African workers making up the majority of that group (OMI 2011).

The shortage of labour is a significant issue affecting growth and productivity at the abattoir. The availability of a large resident workforce, for example through the initial migration of Christmas and Cocos Islander families in the 1970s enabled the plant to maintain production and expand into Halal processing.

Skilled migration has been an important tool in allowing Katanning's largest employer to maintain and expand production.

The abattoir is continuing to source the majority of its workforce through the migrant community, including investing in the sponsoring of overseas skilled workers, predominantly from China, and by employing Afghan and Burmese humanitarian refugees. Inward migration has provided an ongoing resident workforce, which has enabled the abattoir to remain open all year round in an industry sector that is generally subject to periods of shut down caused mainly by labour and stock imbalances. It should be noted, however, that the employment of a CaLD workforce also presents challenges for the company, with additional costs such as training, interpreters, and sponsorship of skilled workers having to be met.

Katanning is reliant on the agricultural sector, which accounts directly or indirectly, for 90 % of economic activity, and this renders the district's economy vulnerable to disruption. This can be as a result of the full range of seasonal conditions, final market fluctuations, exchange rate variations and the full range of factors associated with primary production. For the abattoir, there is a reliance on the size and make-up of the sheep flock and the inter-relationship with investment and product supply and demand. For example, drought conditions in 2010 saw a significant reduction in the sheep flock which has, in turn, increased the cost of stock and put pressure on production margins.

In addition to agriculture, the potential of a gold mine to be established within the Shire of Katanning will result in increased job opportunities and demand for workers. Anecdotally, some of the more recent arrivals to Katanning still seeking employment, particularly among the Burundi and Congolese, are relying on the mine development proceeding in order to secure jobs and therefore remain in the community.

## 11.5 Response to Migration

In a report summarising drivers and success factors for refugee migration to rural areas in Victoria, the Victorian Settlement Planning Committee identified the need for adequate, early, flexible and responsive 'needs' identification and planning by, and for, the host community. This necessarily includes having prior knowledge of

the demographic composition of the new arrivals, and identifying service requirements and planning (VSPC 2009).

For migrants under the humanitarian refugee stream coming to Katanning, there has often been limited advance notice provided of pending arrivals, and therefore a lack of preparation in support services such as education and health (OMI 2011). As a result, the local response is largely reactive, with limited formal planning in terms of the development of local settlement service plans, or similar.

In February 2011, the Office of Multicultural Interests (OMI) conducted a consultation in Katanning as part of its state-wide community engagement strategy. The consultation was intended to identify issues faced by people from CaLD backgrounds in Katanning and the associated impacts of these. The report concluded that while some settlement services are available, mainly funded through the Australian Department of Immigration and Citizenship (DIAC), local services (education, housing, health) have, and will probably continue to experience, capacity problems (OMI 2011).

## 11.6 Community Response

For many arrivals from overseas, there has been a significant local response to service needs of migrants coming into the Katanning community. This mainly informal response to a clear need has been a crucial factor in the general level of successful long term settlement that has generated real benefits for the district.

There has been a significant local response to service needs of migrants coming into the Katanning community . . . this has been crucial in underpinning successful, long-term settlement.

Community assistance at a voluntary level includes a range of settlement support by groups such as the Baptist Church, Katanning Literacy Link (Read Write Now), and individual community members who provide for the introduction to local services, facilities and networks. The level of voluntary assistance provided for migrant families in Katanning is significant.

Proficiency in English language ability is a significant issue in settlement of migrants, and can be a barrier to integration and participation in community activities. In the 2006 ABS census, 12.1 % of the Katanning population spoke a language other than English. In comparison with other local governments in WA, Katanning ranked sixth (with 4.8 %) in the proportion of the population recorded as not speaking English well, or not at all.

English courses are offered through the Great Southern Institute of Technology. However there have been difficulties attracting and retaining qualified teachers to

meet demand (OMI 2011). Therefore, volunteers are particularly important in the interim to assist with basic English language skills development.

Some of the support services provided through structured and unstructured assistance include:

- **Katanning Literacy Link:** A community based volunteer group (part of the state-wide Read Write Now program) providing one to one tutoring to adults wanting to improve their speaking, reading and writing skills. In Katanning, the Literacy Link provides assistance to an average of 30 students per year, predominantly from CaLD backgrounds. Lessons are usually targeted for particular goals, such as shopping, achieving a driver's licence, communicating with the doctor, completing forms and so on;
- **School level assistance:** A community volunteer assists in school to complement existing ESL lessons, and support students in mainstream classes. Support is also provided on an 'as needs' basis for homework; and
- **Interpretation assistance:** The Shire liaises with members of the migrant community with proficient English to provide an interpreter service for others as required at community workshops and consultations.

These, and other, volunteer support services are provided across CaLD groups, including to partners and families of skilled workers, skilled workers transitioning from 457 temporary visa to permanent residency, and humanitarian refugees. The contact provided through these connections is also extremely valuable in familiarising migrants with various aspects of the community services and facilities such as the library, medical centre, Community Resource Centre, introductions to support networks available such as childcare, and ensuring inclusion in mainstream community events such as Saturday markets, Carols by Candlelight, Australia Day and so on.

As a result of the Christmas and Cocos Islanders being part of the community for nearly 40 years, the acceptance of a CaLD group within the community drives interest and willingness to assist new arrivals to integrate into the community.

## **11.7 Government Response**

### ***11.7.1 Local Government***

The Shire of Katanning is the second largest single employer in town, with around 40 FTEs across its administration and works staff. The staff is comprised of people from approximately seven cultural backgrounds, including Aboriginal, and this composition is a key asset in the Shire's development of programs to engage with the CaLD community, identify needs and adjust services accordingly, and lead in the promotion of cultural awareness and integration of the community.



Sport and recreation play a key role in the health, engagement and social cohesion of regional communities. The Shire provides a variety of sport and recreation programs to engage new residents and to help them integrate into the local community. The Shire has expanded its existing youth and recreation programs to accommodate the needs of CaLD user groups, and has actively employed a number of people from a range of CaLD backgrounds to identify and address needs within their service delivery. Many activities delivered have been designed by the Shire to address the requirements of CaLD groups in order to encourage participation and inclusion. Some of these recreation activities include:

- ‘Have-a-go’ events: aim to encourage participation by those who are not currently engaged in physical activity and structured sport, then assisting them to move into main stream programs at a later date. Each activity aims to remove barriers specific to the targeted group, including program costs, timing of classes around childcare and respecting religious needs;
- Friday night social multi sport evenings: program attracts around 100 youth from a range of cultural backgrounds to participate in activities such as basketball and rollerblading; and
- Women’s Only Swimming session & lessons: particularly targeted for Malay women of Muslim faith, the session is open only to women and children. The lifeguard and swimming instructors are female, and the venue is screened off to ensure minimal visibility into the facility.

The Shire of Katanning has worked hard to develop and implement a range of programs for inclusion and community interaction.

The Shire also works to promote the multiculturalism of the town, and to expose the broader community to the culture of its CaLD groups. Events include:

- The Harmony Festival: an annual one day event, organised by the Shire, aimed at actively celebrating and embracing multiculturalism in the community. The festival provides the opportunity for the CaLD groups within the community to share their culture including dance, music and food; and
- The Art Gallery holds an annual Migrant Art Exhibition showcasing cultural artwork, craft and artefacts from CaLD community.

In recognition of the work undertaken in developing and implementing a wide range of activities and programs to promote inclusion and interaction of all sectors of the community, the Shire of Katanning was awarded the WA Office of Multicultural Interests 2011 ‘Implementing Multiculturalism Locally’ Award.

### ***11.7.2 State Government***

The Great Southern Development Commission (GSDC) is a Regional Certifying Body (RCB) for the Australian Government Department of Immigration and Citizenship's (DIAC) Skilled Migration Program. This role involves certification of nominations under the Regional Sponsored Migration Scheme (RSMS). The Commission also provided certification for the 457 Temporary Skilled Business visa program in the 1990s before the role reverted to the Commonwealth, and continues to be the first point of contact for information on a range of visas. The GSDC's role in endorsing visa applications has complemented a wide range of its associated industry, small business and community projects across the central Great Southern.

The RSMS allows employers in regional and low population growth areas of Australia to sponsor skilled workers for permanent residence, in order to fill vacancies in their business. The position to be filled must be of a skilled nature and the applicant must be able to satisfy the skill, age and English requirements. As the RCB, the GSDC certifies that there is a genuine need for the position and full-time employment will be provided for a minimum of 2 years. In 2010–2011, 34 permanent skilled visa nominations were certified in the Great Southern region, with an associated 46 dependent partners and children accompanying the primary visa applicants (GSDC 2011).

Through the State Government Regional Centres Development Plan (SuperTowns), announced in 2011, Katanning was identified as a target for significant long term population growth planning. This initiative is driven by projections of the WA population more than doubling to 4.9 million by 2050 (RDL website). Katanning's multicultural community and history of successfully attracting migrant workers, which has in turn supported local industry development, contributed to the town's selection as a SuperTown. The infrastructure investments that will be made through the SuperTown program and the development of economic drivers will provide further incentives for the attraction and retention of people to the town.

Katanning has been identified as a target for significant long-term population growth planning – a good example of how innovative practice in regions can help deliver the policy objectives on sustainable population growth.

### ***11.7.3 Australian Government***

As previously outlined, DIAC provides the opportunity for employers in regional areas of Australia to access employees from overseas with recognised qualifications and skills/or experience in particular occupations required in Australia, to fill vacancies in their business. In particular, there is a high demand in regional Australia for doctors and nurses (DIAC website). In Katanning, these have comprised the majority of skilled migration nominations.

The Department of Immigration and Citizenship (DIAC) also provides intensive humanitarian settlement support through the Humanitarian Settlement Services program for the first 6 months in Australia. For the humanitarian refugees in Katanning, this intensive support has usually been completed at a metropolitan centre, prior to relocation to the region (DIAC 2011).

The Katanning Migrant Resource Centre has received funding through the DIAC Settlement Grants Program (SGP) to provide further support permanent Australian residents, meeting particular criteria, who have arrived within the past 5 years. In Katanning, this support is provided on a part-time basis, predominately to entrants through the humanitarian stream.

In addition, DIAC provides support through the Adult Migrant English Program (AMEP). The AMEP offers free English language courses to eligible migrants and humanitarian entrants in Australia to achieve functional English, of up to 510 h or for 5 years from their visa commencement date (DIAC 2011). In Katanning, the issue previously identified in attracting and retaining qualified English tutors means delivery of this service is currently limited.

## 11.8 Conclusion

The significance of this paper for the Katanning community, local and state government and other stakeholders at this time is that:

- There is a focus on strategic and tactical planning by local and state government agencies during a challenging period for the nine regions of WA. The regions are operating in the context of Australia's 'two speed' economy;
- There is a combination of strong investment and growth in the minerals and petroleum sectors while competition for labour, the Australian dollar exchange rate and other factors, are impacting on the other traditional sectors of this sub-region's economy;
- There are opportunities for expansion in some traditional sectors (agricultural processing, land management services etc), but there are constraints for developers in mobilising all of the factors needed for the required level of public and private sector investment; and
- Katanning has been identified as a SuperTown in a WA State Government program, announced in 2011, that is based on growth potential of regional towns, and improving their capacity to take a share of the anticipated metropolitan area population growth over the next 20–30 years.

The development of Katanning as a CaLD community has taken place over a relatively long period. The arrival of the Christmas and Cocos Islander people in the early 1970s, however, was significant in its timing, addressing a key labour shortage at the abattoir and enabling continued growth of a significant enterprise in the local economy.

As a regional centre, Katanning has continued to attract migrants through the opportunity for employment (for both skilled and unskilled workers), a comparatively lower cost of living over metropolitan centres, and a regional lifestyle. It is anticipated that new economic opportunities, such as the development of the proposed gold mine and potential for State Government investment through a range of programs, including the Regional Centres Development Plan (SuperTowns), will result in increased job opportunities and demand for workers.

The movement of people to Katanning, particularly migrants through the humanitarian refugee program, has been largely the result of voluntary relocation from metropolitan areas. It has not been as a result of a fully resourced policy by the State or Australian Governments. The intermittent arrival of families has created challenges for a range of support services in the community, including education and health.

The movement of migrant people to Katanning is largely the result of voluntary relocation from metropolitan areas . . . the purposeful development of a CaLD community is a truly innovative way to allow regions to be productive as well as liveable.

Katanning's success as a CaLD community is the result of mainly informal ad hoc community, local government and agency responses to address a range of needs among the migrant groups. Community driven interest and a willingness to assist new arrivals to integrate into the town has been a crucial factor in the general level of successful long term settlement that has generated real benefits for the broader district.

All of the factors introduced in this paper will be examined in more detail in a research work that will be completed by the University of Western Australia, Albany, in mid-2012. That analysis has been commissioned by the Great Southern Development Commission, Regional Development Australia – Great Southern and the Shire of Katanning and will include evidence based recommendations for consideration by all stakeholders. The sustainability of this key element of the Katanning community, the successful settlement of migrants from a range of backgrounds, will be the central theme of this research paper.

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## Chapter 12

# Empowering People and Enterprises with Strong Cultural and Territorial Identity: A Case Study of Setomaa, Estonia

Garri Raagmaa, Jaan Masso, Merli Reidolf, and Mihkel Servinski

**Abstract** As put by Dahrendorf (1959): *to be successful means to be liked, and to be liked means, in many ways, to be alike*. This chapter describes how to use cultural identity as a tool of economic development through the empowerment of local enterprises and people “as reported by Friedmann (*Empowerment: The Politics of alternative development*. Oxford: Blackwell, 1992)”. Cultural particularities might once have been considered a disadvantage in the modernist standardized world; but cultural assets are now increasingly being viewed as quite the contrary – a source for new regional economies, boosted by the current media-driven world to present difference and alternatives. This case study of Setomaa shows that cultural uniqueness can now be envisioned as a ‘regional advantage’. This innovative approach means that a location ‘on the geographic periphery’ is no more a sign of hopelessness but – in the case of some traditional well preserved amenities – instead is a resource for local enterprises. This is also a challenge to the conventional approach which states that population growth is a lead indicator for regional prosperity: Setomaa is expected to contract in terms of population in the future, however, continued economic development is still possible for the region, due to the focus on leveraging its ‘wealth’ of cultural identity.

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## 12.1 Introduction

The chapter presents a case study of Setomaa, a region in Estonia. Setomaa serves here as a classic example of a region 'on the geographic and economic periphery': it is characterised by a lack of large urban centres and is dominated by a continuously declining primary sector. Setomaa has lost the majority of its population due to outward migration; and population decline continues due to natural reproduction as well as net migration being both negative. The decrease in population numbers, including the number of young people, endangers the sustainability of the existing school network, which may give an additional impetus to regional emigration.

However, population processes within Setomaa are not completely negative. There is positive interest in settling in Setomaa, as well as optimism amongst the local population with regard to new people coming to live in the region. Later in the paper we will explain the post-productivist rural development paradigm giving effect to this new optimism. Also, a turn-a-round in Setomaa's development has been the result of several development programmes that succeeded to combine the particular 'Seto' cultural identity with a growing cultural and tourism industry. These interventions have been well timed, allowing for the utilization of the new development paradigm.

Combining the 'Seto' cultural identity with a growing cultural and tourism industry has helped to reinvigorate economic development in Setomaa.

In exploring the challenges, opportunities and learning from Setomaa, this chapter examines the theoretical foundation of post-productivism; overviews the case study region, and describes the development programmes being applied in Setomaa. The chapter then includes an analysis of the structural change in Setomaa enterprises: in particular, whether paradigmatic change and governmental programmes have been utilized by entrepreneurs. The concluding remarks are focussed on the further build-up of similar development programmes in Setomaa and potentially elsewhere.

## 12.2 Post-Productivism in Rural Development

Traditionally, economic development policy has focused on the promotion of exports to guarantee regional incomes. Usually, an export base divides a local economy into two types of activities: (1) basic industries that sell goods and services to markets located outside the local area, and (2) service industries that provide goods and services to local businesses and residents. Service industries, unlike basic industries, consist of firms that serve local markets. Examples here

include the full range of retail and service establishments that serve local residents, as well as firms that provide goods and (producer) services (inputs) to businesses engaged in basic activities (Mulkey and Hodges 2003; Raagmaa et al. 2009).

However, in 1956, Tiebout questioned the ‘export base approach’, by emphasising the importance of existing industries being the basis for the development of any export industry:

the idea that essentially the export base is the necessary and sufficient condition for regional economic growth may be, by definition, a true statement. . . Put another way, it is possible to define the necessary condition for regional economic growth as the creation of an export base. . . Again, formally speaking, it is the ability to develop an export base which determines regional growth. Yet in terms of causation, the nature of the industries will be a key factor in any possible development (Tiebout 1956, p. 163).

Several influential authors, like Richard Florida, Ann Markusen and Keith Halfacree, have contributed to this discussion over the last decade. Florida (2002) speaks about a “creative class” and the importance of creating an environment that they would like to live in. The presence of a creative class is, in its own turn, the basis for creative industries: it raises the human as well as social capital of a region. Markusen (2004) argues that investment in the local service sector is important because it provides important support to local (export base) economies and income development opportunities for workers. Therefore, economic development policy should focus on occupations (and occupational clusters) rather than industries, as workers are a key source of productivity and entrepreneurial growth in the regional economy (Markusen 2004). Halfacree (2006) also talks about opportunities for more intensive production and ‘counter-urbanisation’ as alternatives in the post-productionist era as outlined below.

It is important to recognise the value of the creative class. . . to create a regional environment that attracts them, as this will raise both the human and social capital of a region.

In the ‘post’-productivist era, however, there are more opportunities for counter-cultural, ‘back-to-the-land’ experimentation. This era has witnessed a revaluing of less intensive and industrial forms of agriculture, whereby back-to-the-land schemes not only appear less anachronistic but may also add value to their products through demonstrating links to the land. Thus, the diversity of post-productivism potentially opens up the countryside, not just to back-to-the-land schemes but also to other much more ‘powerful’ interests, such as super-productivism and the kind of mainstream counter-urbanization studied widely in the population-geography literature (Halfacree 2006, 330–331).

Ibery et al. (1997) defined two major approaches in the restructuring of agriculture:

1. From the early 1950s to the mid-1980s, a productivist approach: modernization and industrialization of agriculture aiming to raise production
2. From the mid-1980s, a post-productivist approach integrating agriculture with economic and environmental objectives (Raagmaa et al. 2009).



The reasons behind the post-productivist change have been explained by over-production, withdrawal of state subsidies, increasing competition, growing environmental regulations, a shift in rural development policy (e.g. payments to farmers for environmental protection and landscape) and diversification of farm population strategies (Ilbery et al. 1998). In the 1980s, when resource exhaustion loomed despite tremendous gains in agricultural productivity and industrial restructuring, economic developers began extending the concept of a sound regional economic base to include services. This especially included tourism, with joint consumption of local entertainment (for example, gambling, music, theatre, sports, and other attractions) by both visitors and locals alike (Fainstein and Gladstone 1999).

Industries like tourism, culture, arts and entertainment have great growth potential for creating jobs outside big centres (Cooke 1997). Tourism is an important asset for regional localities because it values living, business and a creative environment. Tourism creates contacts and brings information and know-how to the locality at a very low cost; as well as being an attractive public relations and image creation channel. At the same time, much of the tourism industry will continue to be reliant upon numerous small businesses important in securing jobs, particularly in peripherally located areas and lower qualified labour market sectors (Raagmaa et al. 2009).

Recreational land use has also been extended as a regional economic development tool. In combination with environmental activities, all other kinds of recreation, producer services (training, in particular), tourism and cultural industries form a wide complex of activities highly applicable for rural and semi-rural areas with natural beauty and a rich cultural heritage. Markusen (2007) argues that cultural activities make contributions to the community far beyond their economic value:

... /.../ nurturing arts and cultural activities and programming can yield multiple benefits for rural communities. They make communities more liveable, retaining existing residents and attracting new ones, especially retirees. They attract artists who are footloose and who export their work, bringing in income to the community. Spending by tourists and locals on arts and cultural events and products may keep more income circulating in the local economy. /.../ Arts and cultural activities have payoffs beyond the strictly economic as well—in civic participation, aesthetic and entertainment pleasure, and solving community problems (Markusen 2007, pp. 8–9).

A key question of economic sustainability for rural regions is not about the efficiency of export branches and services, but rather: how to establish societies that would stay and invest in the region despite better business opportunities elsewhere? True, some concentration points for certain groups and community that can create a cosy environment would be needed anyway, but this might be a village or a small town of a few thousand, not millions, of people.

A key question of economic sustainability for rural regions is not about the efficiency of export branches and services, but rather: how to establish societies that would stay and invest in the region despite better business opportunities elsewhere?

A new trend, very much in line with post-productivism, is setting up tourist farms: the numbers of these have increased remarkably. Referred to as “agriturismo” in Italy, “sleeping in the straw” in Switzerland, “farmstays” in New Zealand, and “farm holidays” in England, agritourism is well established throughout Europe and in many other countries (Rilla 1999, cf. Beus 2008). For example, in Lithuania, the number of rural tourism farmsteads grew from 202 in 2001, to 531 in 2006 – an increase of 163 % (Damulienė 2009). In Estonia, the number of all recognized rural accommodation establishments<sup>1</sup> (including tourism farms) grew from 333 in 2001 to 763 in 2010 – an increase of 129 % (Eesti maaturism 2010). Secondary housing and holiday-making in rural locations means extensive weekly commuting that we can observe every Friday night or before public holidays, with city workers driving *en masse* to the countryside. These people are usually not that much involved in local life and in most cases intend to enjoy the “space of silence”. Thus, the population of these further away rural areas is changing too, but not as rapidly as in the suburbs. Yet many naturally attractive areas may repopulate in a few decades as well. They may gain human capital but will remain sparsely populated and rural in their appearance. In Estonia, recreation by its very nature is highly seasonal. So, two powerful processes – suburbanization and re-urbanization – support the spread of the post-productivist development model in rural areas.

Two powerful processes – suburbanization and re-urbanization – support the spread of the post-productivist development model in rural areas.

There are also some other factors, like rising mobility, that are pushing rural localities towards a post-productivist model. A region’s distance to larger, growth-generating urban centres is important in feeding the development of rural communities due to spill-over effects. When suburban growth takes place because of a locational advantage, then the development of more distant countryside depends on local governance and consequently on the administrative model applied in the region. However, the new rural geography is not entirely distance-dependent. Similarly located and resourced neighbouring communities may have remarkably different development patterns (Raagmaa 2002). During the transition periods, when institutional set up and policies are not fixed, local leadership and earlier established networking plays crucial roles. Actors with network power can utilize the resources and competencies of their partners, build trust, link different matters to each other, inspire and excite new development (Sotarauta 2007). Thus, local trust and togetherness – that is, local-regional identity – might be decisive factors when speaking about regional economic restructuring (Raagmaa 2002).

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<sup>1</sup> The real number is a big question mark as far as officially registered are just part of farms providing accommodation. For example, the Otepää ski resort is able to accommodate more than 6,000 visitors during large events, but it is officially registered as an establishment with less than 3,000 beds.

Local trust and togetherness ... is a decisive factor concerning regional economic restructuring.

### 12.3 The Importance of Regional Identity

Keeping the idea of the region (nation, locality) on the table, and knowingly designing regional identity may pacify existing conflict (Amdam 1995) and breed social capital and cooperation. The regional identity with its 'institutional thickness' based on common social space and local culture forms so-called 'structures of expectations' (Paasi 1986). These allow changes in some institutions and the carrying out of painful reforms, without a danger of social collapse (Raagmaa 2002).

Taylor (1982) defined a community as a small stable group of individuals holding common beliefs and values with direct and multi-sided relations. The community is thus a consequence of a complex process of reproduction, production or creation of space (Lefebvre 1991). Identity and identification are worked out through issues of belonging and exclusion within some form of communal association (Hetherington 1998). Social groups are always rooted to the space where they act. People might be different, individually, but they inhabit a common moral and perceptual space, a 'common habitus' (Bourdieu 1990) in which everyone knows their place.

The post-modern communicative space is increasingly diverse, and people have an innumerable amount of variants to choose. The obstacle is not any more distance and lack of communication, like in agrarian (pre-modern) society, and not top-down standardization and belief in meta-narratives like industrial (modern) society. Paradoxically, though, in the condition of absolute information and the possibility of interactive communication, the most problematic issue for the informational (post-modern) society agent is making distinctions between different information and the time limits to deal with the subject.

If people are incredulous towards meta-narratives and they ignore general (scientific) truth, then they simply follow some other utopia, imagining and believing that this can bring them a better life (Raagmaa 2002). As Mingione (1994) writes, this leads people to greater reliance on informal kinship networks of support.

There are a multiple and growing number of spaces where certain types of communities feel safety. This means that traditional communities with strong internal coherence and identity, that declined heavily during the industrial period but survived in a sense of functional social structures and preserved highly valuable cultural and natural amenities, may hypothetically recover and go through a new renaissance (Fig. 12.1).

Some communities are open minded, eager to innovate and to promote new entrepreneurship. Others tend to keep the status quo and preserve existing industrial culture and (power) relations. The latter can be classified as a closed community. In its extreme, a declining economy and rising unemployment may benefit such communities, insulating them from emergence of hidden activities that reflect a

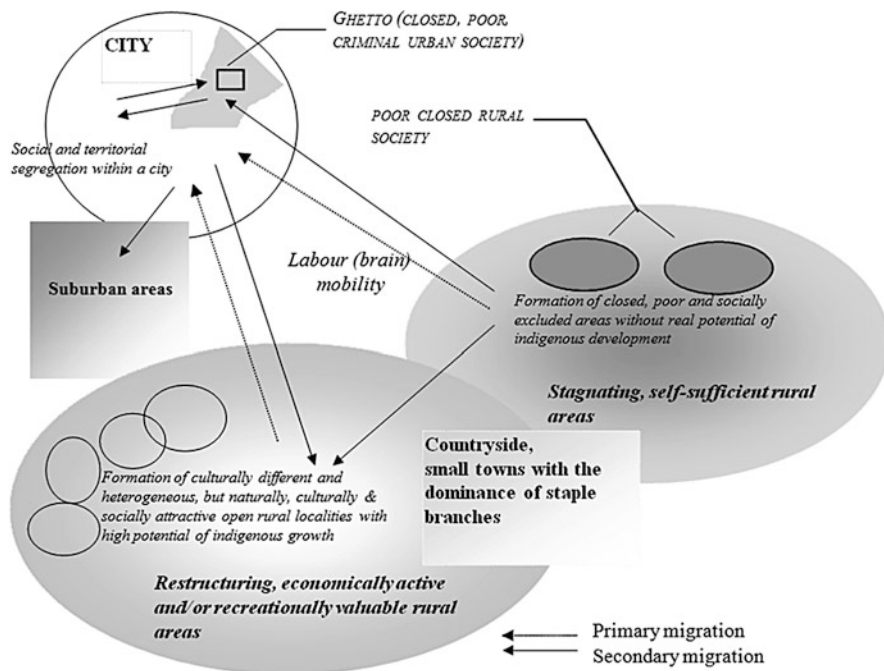


Fig. 12.1 Principal transformation model for the peripheral rural areas

change of attitudes rather than a desperate reaction to unpleasant circumstances (Kockel 1993). A locality where the official living standard falls and hidden activities tend to grow will gradually lose its ties with the rest of the nation. An economically and culturally (and therefore often also politically) opportunistic local micro-culture closes onto itself and becomes increasingly traditional and intolerant towards official (national) standpoints and different thinking and thinkers within the locality, let alone new residents and enterprises. Usually, this kind of segregation is associated with the emigration of more capable youngsters who see no possibility for the modernisation of local life and the extremely low business activity due to the lack of societal interaction and the very unfavourable business climate. Otherwise, in an even more negative case, young people may set up gangs and terrorize the provincial townships (Juska and Paulikas 2006). This kind of “hidden” path, starting from an economic or cultural decline, may seriously damage development perspectives for any locality in the long run. Most typically, such societies can be found in declining farm and single enterprise settlements, where the main employer was closed down and many lowly qualified workers remained unemployed.

Some regional communities are open minded, eager to innovate and to promote new entrepreneurship; others are closed – preferring to keep to the status quo and preserve existing industrial culture and (power) relations.

Summing up this theoretical discussion, there is good reason to argue that during the transition from a dominant, industrial economic development model towards a post-productivist paradigm, there is hope for some peripheral, sparsely-populated and economically long-term declining regions. Where these can succeed in keeping their local culture, strong spirit and togetherness, a positive development track can opening, presenting new and growing economic opportunities. However, in the case of continued closeness and the absence of successful, economic flagship projects, a further decline is inevitable.

Where regions can succeed in keeping their local culture, strong spirit and togetherness, a positive development track can opening, presenting new and growing economic opportunities . . . but further economic decline is inevitable if the community is ‘closed’ and lacks flagship projects.

## 12.4 Case Study Description: Setomaa, the Border of the Western World

### 12.4.1 Location, Demography and Culture

Setomaa is located in the South-Eastern corner of Estonia bordering Russia and Latvia. The historical Seto area has an area of 1,700 km<sup>2</sup>. According to the present territorial division, Setomaa includes Mikitamäe and Väraska rural municipalities from Põlva county and Meremäe rural municipality and a part of Misso rural municipality from Võru county, and the area inhabited by Setos in Petseri (Pechory) district of Pihkva (Pskov) oblast. The area of Setomaa on the Estonian side is 613 km<sup>2</sup> with an average population density 6.6 persons/km<sup>2</sup>. It accounts for 1.4 % of the area of Estonia and 0.3 % of Estonian population (Servinski et al. 2011). The corresponding proportions of Estonia in the European Union are 0.27 % of population and 1.03 % of the area. The distances of municipal centres from county centres are in the range of 34–40 km; and 263–283 km from the capital city Tallinn.

Today, the Setos live predominantly in the Republic of Estonia and their total number is estimated to be around 10,000–13,000, with about 3,000–4,000 in Setomaa.<sup>2</sup> According to data from the Statistics Estonia, the population of Setomaa numbered 4,058 persons in 2010, of which 1,022 persons in Meremäe, 1,024 in Mikitamäe, 710 in Misso and 1,302 in Väraska, and it has decreased by 18 % since 2000. The proportion of people aged over 65 in Estonia was 15.0 % in 2000 compared to 17.2 % today, by comparison Setomaa’s share of the elderly did not increase, although this age group in Setomaa is significantly higher than the

<sup>2</sup> The 2000 census of the Republic of Estonia did not provide a possibility for the Seto to register separately.

average for Estonia: in 2000 25.4 % and in 2010 25.0 %. The share of young people has decreased significantly faster in Setomaa than in the average for Estonia. However, despite social and political changes that have caused the Setos to move outside their historic region, they have largely remained in good contact with the region. The borders of Setomaa have been moved several times in recent history, resulting in Setomaa becoming very complicated and fragmented. Setos form a specific cultural space, where there are tight connections to the other regions, mainly with the capital city Tallinn and university town Tartu. In that respect, Setos behave on the national scale like Jews or Palestinians on the global level attempting to support their fellow countrymen where-ever they live.

Today's Setos live predominantly in the Republic of Estonia and their total number is estimated to be around 10,000–13,000.

Seto's are a fenno-ugric ethnic group, their language belongs, along with Estonian, to the Balto-Finnic group of the Finno-Ugric language family (Eller 1999; Kasak 1998). According to several other authors, Seto is not a separate language but rather a dialect of Estonian (Erelt et al. 2007), with separation dating back to the thirteenth century. Seto was developed while under the influence of orthodox and Russian culture, while Estonia became dominantly Lutheran. By the mid-2000s, 36 % of the inhabitants of Setomaa considered the Seto language to be their mother tongue or first language. A similar number indicate the Seto language is their local language. Approximately one-third of the population consider the Seto language to be an independent language. However, these responses differ by age; people under 35 years of age said their mother tongue was Estonian (87 %) but for people over 35 years of age a large proportion consider both Estonian and Seto language as their mother tongue respectively 47 % and 40 % (Mäger et al. 2006), so there appears to be a clear trend of diminishing identity.

Setomaa is in an economic periphery, like most geographic borderlands in Estonia. Historically, Setomaa used to be one of the poorest areas in the country. The original quite a dense population, Seto lost a majority of people after WW II. No large scale industries were established there except for two companies (Väraska Sanatorim and Väraska Water), which utilize local mineral water and curative mud reserves. The transition period of the 1990s and the achievement of Estonian independence from the former Soviet Union caused a further shock to the economy as the border closure effectively cut the well-established border trade. Former economic co-operation and business networks at the border have disappeared or changed their character; nowadays, there is an extensive semi-illegal border trade with fuel, alcohol and cigarettes. The re-orientation of the economy in new conditions has been painful and resulted in the impoverishment of the population. Hypothetically, the location of the EU border and presence of border stations should give greater opportunity for legal border trade and business development.

Paradoxically, the location on the border means a higher level of security exists because of the presence of power-structures such as border guards and customs authorities.

Setomaa is in an economic periphery . . . historically, one of the poorest areas in the country.

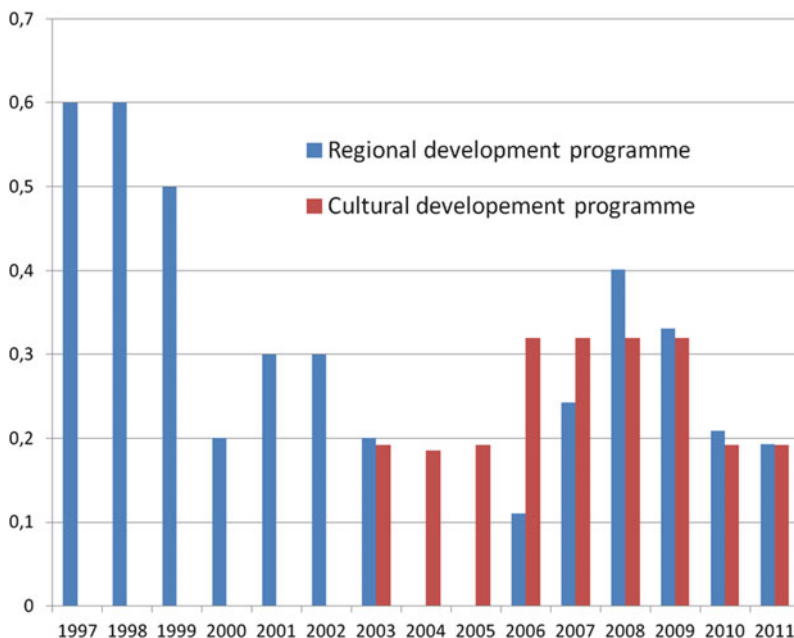
On the other hand, because of Setomaa's location on the border of Eastern and Western cultures they have managed to maintain their cultural originality and identity. The most significant, visible and beloved element of Seto culture is their traditional singing, called *leelo*, that has been listed by UNESCO as an intangible cultural heritage since 2009. Seto leelo is a unique polyphonic local style that has evolved from earlier *runo* singing traditions of the Balto-Finnic people. The choir repeats or varies the lead singer's lines in two or three voices. Women have been primary bearers and developers of leelo. Choirs unite women of different ages and allow them to transmit traditional knowledge (UNESCO 2009). However, a number of popular local folk-rock bands use leelo as the basis for their repertoire. Leelo is an integral element of the Seto culture. Choirs have been established in Setomaa and in larger Estonian towns where the Seto currently reside. Leelo is a cornerstone of Seto identity and can be heard at almost all Seto community events. Both leelo choirs and other members of the community sing. Being efficient transmitters of Seto culture they are the hubs of the community and embody the Seto identity, also outside Setomaa (UNESCO 2009). Besides leelo, traditional handicraft, architecture, local food and even Seto weddings and local celebrations have become widely known and are extensively used in tourism, but also increasingly as a marketing tool for manufacturing enterprises and sanatoriums.

The most significant, visible and beloved element of Seto culture is their traditional singing, called "leelo".

### ***12.4.2 Setomaa Development Programmes and Studies***

In 1993, the Petserimaa<sup>3</sup> parliamentary support group was established to deal with border, citizenship and ownership issues. The Setomaa regional development programme received an amount of 640,000€ (10 million Estonian Crowns) for 5 years from 1997; dealing mainly with resettling and infrastructure but also cultural issues (Ministry of Interior 2011). In 2003, a Setomaa cultural development programme was opened that had been supported mainly by local museums, leelo

<sup>3</sup> Official name for Seto county before WW II.



**Fig. 12.2** Setomaa regional development and cultural programme assignments in Million euros (Source date: Ministry of Culture 2011 and Ministry of Interior 2011)

choirs, handicraft and media outlets (Kultuuriministeerium 2011). A union of rural municipalities of Setomaa organised, in co-operation with Statistics Estonia, University of Tartu, the Võro Institute and OÜ Saar Poll, on the order of the State Chancellery, an extensive survey in 2005, which covered six rural municipalities in South-Eastern Estonia located near the border: Meremäe, Mikitamäe, Misso, Orava, Vastseliina and Väraska. The aim of the survey was to get an overview of the problems of the above-mentioned rural municipalities regarding social, cultural and economic sustainability. Based on the findings, decisions were to be made on the measures taken to improve the population's economic situation, and so create prerequisites for the preservation and development of cultural heritage in the survey area.

The results of the survey were widely introduced (Mäger et al. 2006) and used in compiling the (new) programme document of "Setomaa Development Programme 2006–2010" (Ministry of Interior 2006). While compiling the analysis for 2010, data collection works were not made in the volume of 2005, but data obtained from public sources were analysed. This concerns first and foremost official statistics and data of Tax and Customs Boards, in addition interviews were conducted in focus groups. As a result of the work of experts, the document "Qualitative and quantitative survey of the situation in Setomaa's 4 rural municipalities". As evident from Fig. 12.2, governmental programmes were rather small – good for so-called "soft" projects.



In addition to the Setomaa Development Programme 2006–2010, there are other ongoing development programmes in Setomaa, namely the Norwegian Financial Mechanism backed “Setomaa Development Plan for 2009–2013 with a vision up to the year 2015”, and “Borderlands Leader. Development Strategy 2008–2013” financed by the EU LEADER programme. There are also significant investments made by the Estonian Road Administration to provide new roads and by the Schengen facility to develop a new railway border station. Both employ several local companies in construction works.

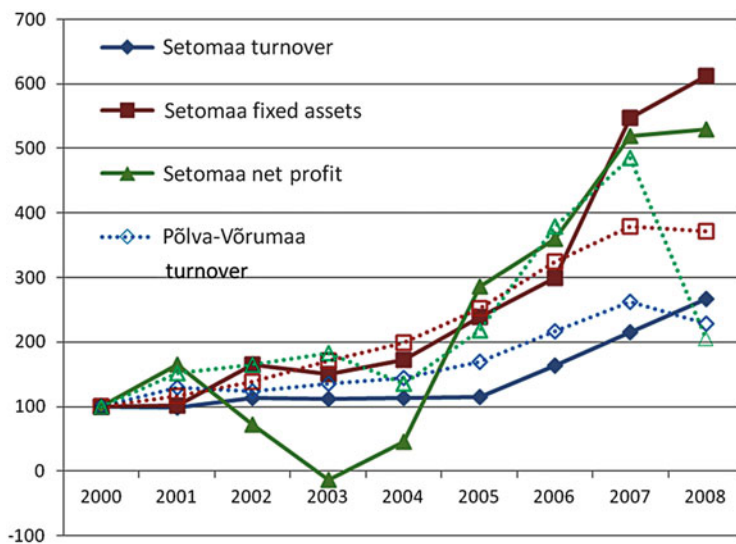
## **12.5 Assessment of Setomaa’s Enterprise Development and Industrial Restructuring**

This section describes an assessment of entrepreneurial activity undertaken in Setomaa, using both statistical and qualitative methods. We analysed annual reports (2001–2009) from the Estonian Commercial Register and personal income tax data (2002–2010) from the Revenue and Customs Office. The collection of data was seen as important to measure the actual level of enterprise development and particularly for ongoing restructuring. When analysing the enterprise data, we compared Setomaa with other peripheral areas (excluding the county centres) of Põlva and Võru counties. In addition we carried out group interviews with representatives of the five most important enterprise sectors of Setomaa: culture, tourism, agriculture-food, manufacturing, and transportation. Of interest were the causes of restructuring, the level of connections between enterprises with “Seto identity” as well as results of governmental programmes to develop the economy.

The five most important enterprise sectors of Setomaa include culture, tourism, agriculture-food, manufacturing, and transportation.

### ***12.5.1 The Analysis of the Annual Reports***

The main economic indicators of Setomaa are significantly better than those of the peripheral rural areas of Põlva and Võru counties, especially with regard to the growth of fixed assets and profitability (Fig. 12.3). In 2000–2008 the net sales of Setomaa’s enterprises were growing, but in the rural areas of the Põlva and Võru counties there was a slight negative trend. The positive change in Setomaa’s net sales may be explained by two leading enterprises, Väraska Sanatorium AS and AS Väraska Vesi (Väraska Water). The net sales from these two businesses account for more than a half of the respective sales of Setomaa. A comparison of fixed assets for Setomaa and the peripheral rural areas of Põlva and Võru counties revealed a stronger positive trend for Setomaa’s enterprises, although due to the economic

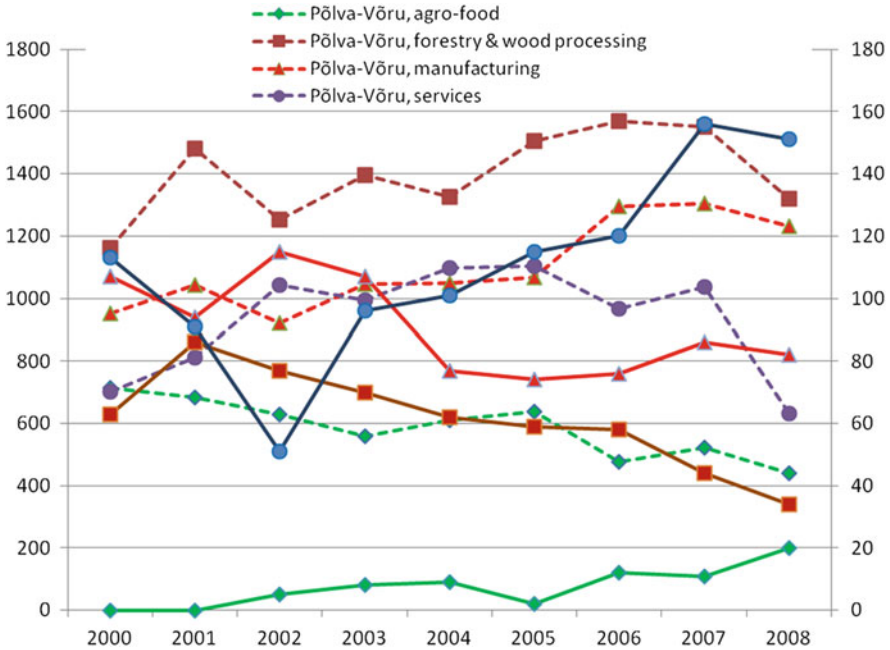


**Fig. 12.3** Main economic indicators enterprises of Setomaa and peripheral areas of Põlva and Võru counties (2,000 = 100 %) (Source data: commercial register)

recession the value of fixed assets has decreased everywhere. Due to the small size of Setomaa, there are more fluctuations because of irregular activities of timber and real estate companies, but also due to large investments by Väraska Sanatorium AS and AS Väraska Vesi. Overall the relative growth of Setomaa has been quite constant with Setomaa's enterprises managing to maintain a profit in 2008. Profitability in the Põlva and Võru counties has been negative due largely to economic recession.

The enterprise and employment structure of Setomaa has undergone essential changes during 2000–2008 (Fig. 12.4). The agro-food sector has increased, largely as a result of European Union agricultural subsidies introduced in the middle of the 2000s. These subsidies contributed to the growth of fixed assets but also encouraged farmers to declare their economic activities that until then had remained hidden. Agricultural indicators have also increased due to subsidies from the Agricultural Registers and Information Board (ARIB), which had underestimated income. The majority of agricultural producers are private entrepreneurs who do not have a Commercial Register and therefore estimates of income were unreliable or difficult to estimate. The agricultural sector has increased with farms being formed into commercial enterprises. As a result, the number of enterprises has tripled and employment has doubled, however profitability indicators have decreased. The decrease in the profit was due to a large price fall in agricultural products in 2008–2009.

The manufacturing industry has increased the level of fixed assets and net sales during the 2000s. The sector continues to be important employer in Setomaa, although it has reduced employment by one-third. At the same time the industry has been increasing profitability since 2005. The number of companies has also grown although it should be noted that AS Väraska Vesi accounts for over one half to three-quarters of Setomaa's industrial fixed assets.



**Fig. 12.4** Employment by main industrial sectors (value chains) in Setomaa (*right scale*) and peripheral areas of Põlva and Võru counties (*left scale*) (Source data: commercial register)

The wholesale and retail trade sector lost their ground significantly in Setomaa in the mid-2000s due to the so-called “Euro-Standards” which resulted in the closure of many small stores. The number of enterprises decreased from 13 in 2000 to 6 in 2003 and the number of employees from 53 to less than 30. As a result the whole sector recorded a loss for the period 2002–2005. Since then the number of companies and profitability has grown, but employment has been static. The introduction of chain stores in the 2000s and tight competition offered by large supermarkets outside the regions impacted sector activity negatively.

The tourism sector (hotels-restaurants) has started to grow vigorously since 2004 with new enterprises entering the market. The turnover started to grow in 2006 although decreased again in 2008. The profit achieved a peak in 2007, the last year of the boom and then started to decrease rapidly. Employment meanwhile has been maintained. Employment in the sector is most likely larger than reported as several tourism farms and guesthouses operate as private enterprises.

Setomaa’s tourism sector (hotels-restaurants) has started to grow vigorously since 2004 with new enterprises entering the market.

Surprisingly, there are only three transport and storage enterprises in Setomaa. The modest status of the transport sector is somewhat surprising given the border

location of the area. It is expected there are a number of self-employed individuals providing supplementary transport services to the region. The launch of the Koidula frontier railway station should provide the transport sector with new opportunities for employment.

In 2008, the statistical classification of economic activities in the European Communities (NACE) field “Public administration and defence; compulsory social security; education; health and social work” included three enterprises. In Setomaa, it included the Väraska Sanatorium with all 82 employees in the sector. The sector has undergone stable growth and increased employment by a third.

In 2008, there were only two cultural enterprises with no salaried employees in Setomaa. The total turnover was slightly over 12,800 € with a profit of 6,500 €. This growing sector is operating by self-employed people who operate as non-profit associations and thus they have no obligation to submit annual reports or supply data.

### ***12.5.2 Employment Situation and Structural Change According to Income Tax Receipts***

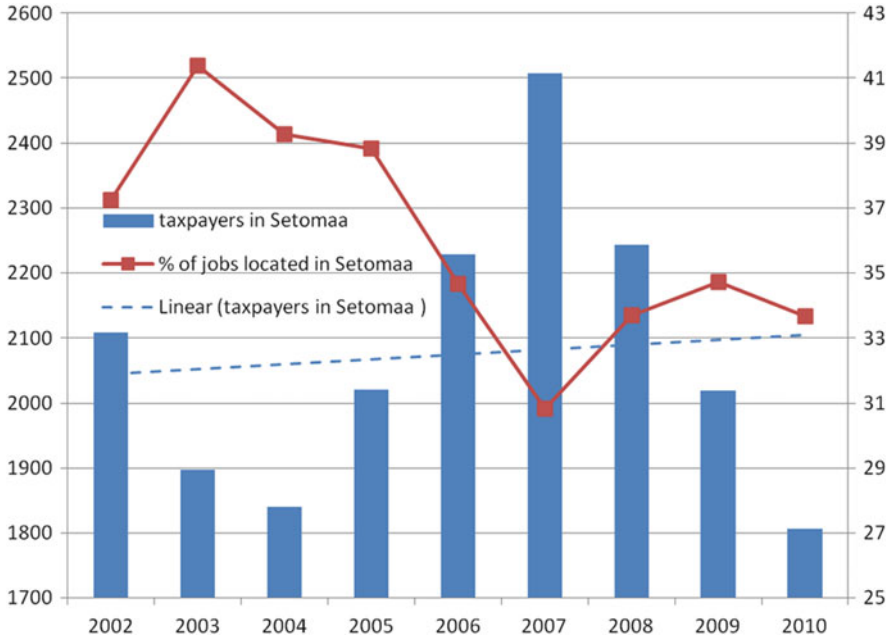
In 2005–2007, the number of taxpayers in Setomaa increased rapidly to over 2,500 persons (Figs. 12.5 and 12.6). However after the economic crisis a rapid fall has occurred with the number of taxpayers decreasing by 700 persons (28 %). It should be also noted that only a third of the taxpayers of Setomaa receive incomes from Setomaa employers.<sup>4</sup> During the period of rapid economic growth for the country the share of taxpayers registered in Setomaa decreased from 41 % in 2003 to 31 % in 2007, which indicated improved work opportunities outside the region. Average salaries also increased rapidly up to 2008, mainly because of employees working outside Setomaa. After 2008 salaries decreased although there appears to be a levelling out in 2010s.

The share of persons employed in the food sector remains at about 6 % (Fig. 12.7). In the timber and forest sectors employs is around 7 %. Other industrial jobs make up about 18 % but are mostly outside the Setomaa area. The manufacturing industrial employment has decreased losing almost half its employment during the decade. External employment has also declined although during the boom period a slight increase was evident. The average salaries of manufacturing employees has increased during the crisis, indicating a more efficient work organisation, but also new technology that has led to reducing the number of employees and payment of higher salaries to those who had remained.

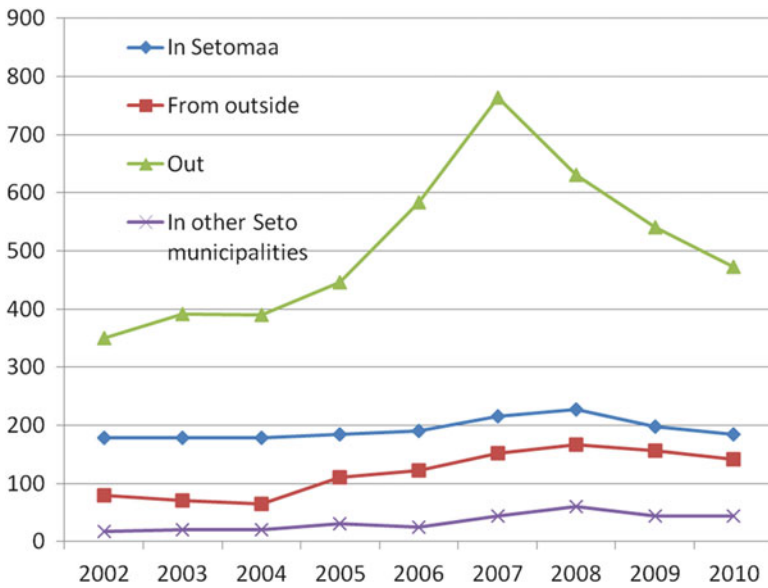
Employment in the services sector has been more stable in Setomaa, although it decreased by about a hundred persons during the crisis. External employment in the services sector increased by nearly 500 persons between 2005 and 2007, but

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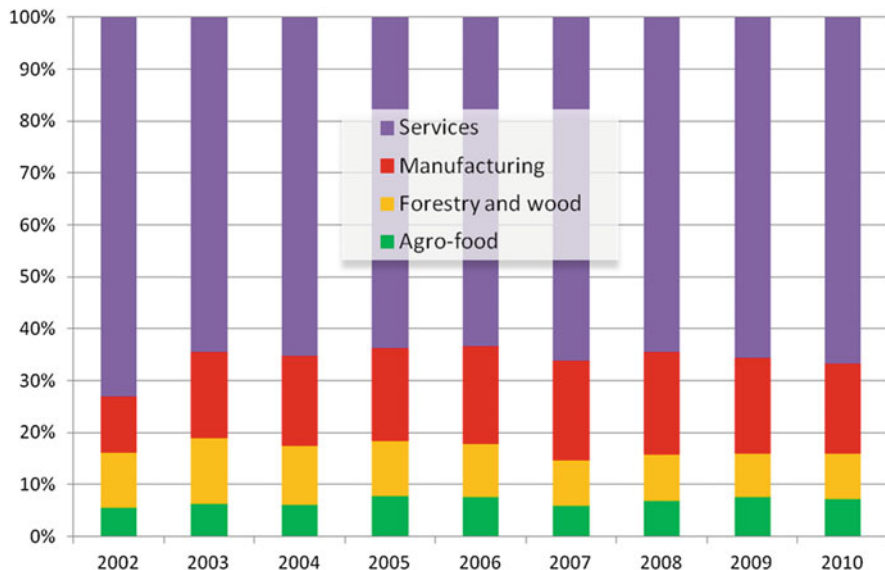
<sup>4</sup> Several enterprises (e.g. retail chains) headquarters are registered outside the region.



**Fig. 12.5** Number of taxpayers living in Setomaa (*left scale*) and the proportions of jobs located in Setomaa (*right scale*) (Source data: Estonian Tax and Customs Board)



**Fig. 12.6** Number of all Setomaa taxpayers according to their main workplace and number of people commuting Setomaa from outside (Source data: Estonian Tax and Customs Board)



**Fig. 12.7** The proportion of taxpayers living in Setomaa according to main economic sectors (Source data: Estonian Tax and Customs Board)

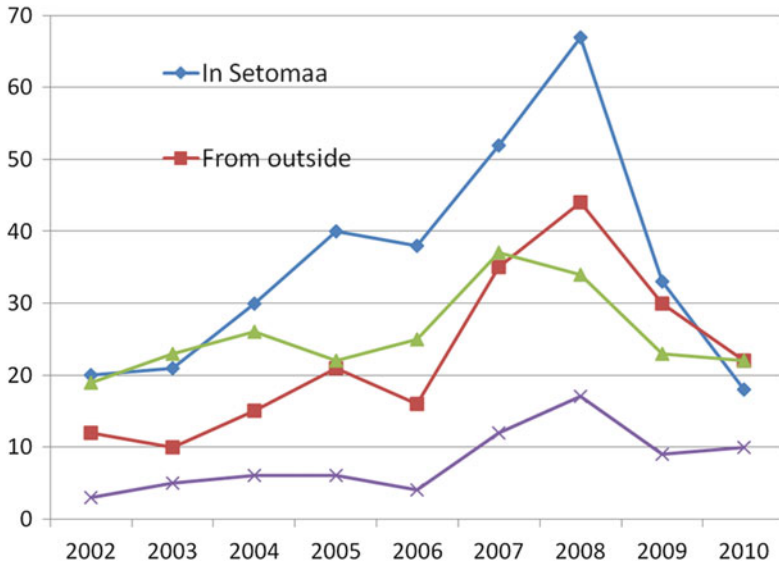
decreased by an equivalent number after the financial crisis. About 200 persons work in Setomaa from outside the area with a larger proportion working in the non-public sector. Local employment in Setomaa has been stable, but modest. While official figures indicate most employment is outside the region it should be noted that there is significant local employment in local stores and gas stations. The average wages and salaries of sales employees has continued to grow through to 2009 although this has been as the expense of intensive layoffs of low-salaried employees and/or closure of smaller enterprises.

Construction has undergone the most drastic rise and fall in employment with a quadrupling of employment during 2002–2007, and then a decreased by one-third subsequently. Construction workers work outside Setomaa as a rule, only a few builders receive salaries in Setomaa. Transport and storage enterprises employ over 100 people, but as their headquarters are also located outside Setomaa we do not know whether these jobs are in or outside the region.

The number of jobs in the accommodation-catering sector is small with only 35 taxpayers, but it is increasing in spite of the financial crisis.

The local public sector of Setomaa is relatively stable, although it has lost 133 jobs during the crisis. The number of taxpayers in the health and social work sectors (incl. Väraska Sanatorium) of Setomaa has doubled, and is approaching 200 but was not impacted by the crisis.

The situation is interesting in the arts and entertainment sector (Fig. 12.8). The number of persons employed in the arts and entertainment sector for the period 2005–2008 grew almost fourfold, and then decreased back to 2002 levels. This anomaly can be partly explained by the cultural projects of the “Taarka”



**Fig. 12.8** Number of Setomaa arts sector taxpayers according to their main workplace and number of people commuting Setomaa from outside (Source data: Estonian Tax and Customs Board)

performance and film-making, but also by the fact that instead paying “official” salaries the cultural self-employed person works for free during difficult economic times.

The number of persons employed in the arts and entertainment sector for the period 2005–2008 grew almost fourfold, before decreasing back to 2002 levels.

### 12.5.3 Qualitative Analysis

Considering gaps in official statistics, we arranged group interviews with leaders from dominant sector enterprises to investigate the current state of Setomaa business development, but also to obtain feedback on government programmes. Setomaa’s entrepreneurs’ opinions of the state of Estonia are positive (whereas attitudes in many other Estonian regions is fairly negative). National structures are functioning well and the presence of defence and security forces operating along the border have resulted in national investments in the infrastructure, especially at the Koidula’s frontier railway station and for road construction. Entrepreneurs’ attitude to local governments varies. In general, they are satisfied with the administration of the Värskla municipality, but more was expected from other administrations. The Union of Municipalities of Setomaa was assessed as functioning efficiently.

As a rule, other businesses were not considered competitors, especially if they operated outside the region. Co-operation between enterprises is also improving although competition between business operators in Setomaa was reported among cultural and tourism enterprises.

Co-operation between enterprises is improving; and local entrepreneurs considered tourism, culture and agriculture-horticulture as the most promising fields of activity in Setomaa.

Local entrepreneurs considered tourism, culture and agriculture-horticulture as the most promising fields of activity in Setomaa. With regard to production of timber and manufacturing, the entrepreneurs were sceptical because of competition from large enterprises and the scarcity of local labour, capital and market. Access to labour was seen as a problem. There was no opportunity to purchase labour from outside the region as it was seen as being too expensive. Regarding the local business environment, the Setomaa Development Programme and other State funded measures were considered positive. Most businesses have obtained some benefits from these programmes. One problem raised by the respondents was the accountability of firms receiving funds. It was believed that tighter measures may be required to ensure accurate reporting of results and performance.

## 12.6 Conclusion

The main economic indicators of Setomaa were found to be significantly better when compared to those of the peripheral rural municipalities of Põlva and Võru counties, especially in regard to growth in fixed assets and profitability. Since 2004, profitability has been rising and has not been much influenced significantly by the economic recession. Setomaa businesses have gone through serious restructure towards the tertiary sector. Successful and growing new economies are tourism, health – (spa treatments), handicrafts and arts, with potential also for local food. However, growth in handicrafts and the cultural sectors remain largely invisible because of a large grey (underground) economy.

Setomaa is restructuring according to the post-productivist paradigm: manufacturing is becoming more effective through the use of new machinery and gradually replaced with health/hospitality and arts sectors. The strength of Setomaa's economy (measured by "official" numbers) lies in two enterprises using local resources: Väraska Sanatorium and AS Väraska Vesi. Both are proud Seto enterprises and believe one reason for their success has been effective marketing using Setomaa as a trade mark. Another positive factor comes from locally-owned and managed small enterprises that create close co-operation and actively seek outside opportunities. An important third factor originates from clever and effective network leaders, who on the one hand have been



good network agents, but on the other they have been extremely successful in lobbying ministries and parliamentary bodies to keep Setomaa development and cultural programmes alive. Another success factors has been good co-operation with Setomaa's local government leaders who promote "Seto" regardless of political or personal interest. Here the strong cultural and territorial identity really works positively. Finally, because of a very positive image, many people from outside, including "native" Setos keep their second house and often take part in local cultural and social activities – the so called "seasonal buzz" (Marjavaara 2008) is important when making contacts in the capital city or when launching new projects. These changes highlight how Setomaa is becoming a more post-productivist region.

Clever and effective network leaders have worked to keep Setomaa's development and cultural programmes alive.

The population of Setomaa is not likely to grow in the following years. Rather, the opposite is expected. However, positive changes have occurred in the attitude of people towards the likelihood of life continuing in Setomaa, the belief in the possibility of the region being able to do something has grown, people are proud of the original Seto culture and see it as an opportunity for continued economic development.

**Acknowledgements** This chapter was co-funded by the Target Funding Project No. SF0180052s07 "Factors influencing spatial mobility of population and the impact on the regional development" of the Ministry of Education and Science of Estonia. Also, empirical research was financed by Setomaa development programme and co-financed by the Union of Setomaa Municipalities. Authors would like to thank all interviewed persons for their time, municipal authorities and particularly Mr. Aare Hõrn and Mr. Margus Timmo, key persons of Setomaa Cultural and Development Programmes, for their assistance and very positive attitude.

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# Chapter 13

## A Collaborative Effort in Regional Response and Recovery: Innovative Ways to Manage Extreme Flooding in Rockhampton

Brad Carter

**Abstract** The Rockhampton region is a major economic and lifestyle hub for Central Queensland. In 2010/2011, the region experienced a series of extreme flood events, including the fourth largest river rise recorded in history. Whilst the Rockhampton region is familiar with flooding, having experienced many in its history, the 2010/2011 event was particularly challenging in light of its severity and periodicity, especially the impact on the region's broken transport links with the rest of the state. For an extended time, the city of Rockhampton was inaccessible by rail and air, and was only accessible by road from the north. The following narrative illustrates the ability of the Rockhampton region to 'connect and collaborate' – that is, to innovate – across the range of organisations, services and functions required to respond to this natural disaster. It also highlights the 'regional advantage' in coping with natural disasters and adapting to climate change. Here, regions can use their naturally strong social linkages to facilitate rapid information-sharing and formulate truly collaborative, community-level responses to extreme weather events, despite the challenges of a low resource base and a large geographic spread. Finally, it demonstrates the critical need for regional economies to innovate in order to recover from the direct and indirect costs of natural disasters. In Rockhampton, this has been achieved through a post-flood 'Regional Investment Brief': this is designed to attract new private and public investment, which can be used to ensure the region continues on its pre-flood trajectory of being a significant economic contributor to Queensland and the nation.

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### 13.1 The Rockhampton Region: A Background

The Rockhampton region is the provincial capital of Central Queensland, with a regional population expected to exceed 150,000 by 2031. The region has a number of fundamental strengths – its people; its beautiful setting; an enviable depth of built heritage; well resourced facilities, and excellent water reserves: each of these will ensure a promising future for generations to follow. The region also boasts an impressive range of employment, health, sporting and cultural facilities providing real lifestyle opportunities; together with affordable housing, and strong community and social networks.

The Rockhampton region has a number of fundamental strengths – its people, its beautiful setting, a depth of built heritage, well resourced facilities and excellent water reserves.

According to Prof. John Rolfe,<sup>1</sup> the Rockhampton region is a vital contributor to the economic growth of Central Queensland, Queensland and Australia, representing \$5.2 billion in gross product in 2010. The city of Rockhampton is a key regional logistical centre and provides support for mining, manufacturing, retail, transport and other major industries that contribute to 7.7 % of Queensland's Gross State Product. Originally established as a transport interchange in the 1860s, Rockhampton's position as a regional hub was confirmed by the diversified network structure of rail and road services that were built in Queensland (as compared to the radial pattern adopted in other states) (MacDonald 1981). Along with a well-serviced airport, the region now has major national highways (including the National Highway, which travels through the centre of Rockhampton; and the Capricorn Highway to the west), as well as strong rail and international port links.

To date, Rockhampton has been largely a beneficiary of the growth in service and administrative areas of the economy, which has generated increased focus on urban clusters. Over the past decade, two things have particularly influenced the economic and demographic growth in Central Queensland region: the first has been the boom in the black coal mining industry, while the second has been the 'seachange' impact. The recent, rapid expansion in the mining industry has generated additional employment of more than 10,000 people in Queensland, with approximately 85 % of them working in the Bowen Basin. This has increased direct expenditure on salaries in the Central Queensland region in the coal industry by more than \$1 billion, with additional multiplier effects expected to increase the impacts on regional economies by between 2 and 3 times (Rolfe et al. 2007, 2010).

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<sup>1</sup> Professor of Regional Economics, CQUniversity Australia.

Rockhampton has been largely a beneficiary of the growth in service and administrative areas of the economy; the boom in the black coal mining industry; and the emergence of the 'seachange' market.

## 13.2 Effective Regional Responses to Natural Disasters

Flooding of the Fitzroy River isn't a new experience for the people of the Rockhampton region, with severe flooding occurring in 1918, 1954 and 1991. However, the flooding experienced during the summer of 2010/2011 was one to remember – two floods in 2 months, including the fourth largest flood in regional history. The following narrative is provided to illustrate the ability of the Rockhampton region to 'connect and collaborate' – and therefore, to innovate – across the range of services and functions required to respond to this natural disaster.

### 13.3 The “Summer of Water”: 2010/2011

In the final months of 2010, unexpected rainfall was recorded across the Rockhampton region, with the wettest September being recorded in 30 years. A number of planned Council projects were delayed as the ground became soggy and waterlogged. By early December, Council were warning residents to stay informed and be prepared for the possibility of localised flooding due to the continuing rain on already-saturated ground. At this point, the threat of the Fitzroy River flooding was considered low; but there was more rain to come. Within days, the Local Disaster Management Group (LDMG) had met to discuss the potential risk to the region presented by a combination of water from several tributaries flowing into the Fitzroy River, as well as the continued rainfall across Central Queensland.

The Local Disaster Management Group – despite being an array of many different regional organisations – came together quickly to assess the flood risk.

The LDMG came together quickly to assess the flood threat: this group comprised representatives from Rockhampton Regional Council, Queensland Police Service, Ergon Energy, Queensland Fire and Rescue Service, the Department of Communities and State Emergency Services (SES), and many others. On behalf of the LDMG, the Chair (also the Mayor) warned residents that the quantity of water expected to flow through the Fitzroy River remained unclear, but

that current predictions indicated that the river would peak around the 7 m mark. This was a 'minor flood' level for the river, similar to the extent of flooding experienced in 2008.

Given that there was no significant threat to the region, the community was requested to stay calm and informed. Council Officers undertook the task of door-knocking areas of affected residents and hand-delivering a letter of advice to ensure they were aware of the potential risk. Council also supplied maps detailing the expected community impacts based on the predicted river peak of 7 m: these were distributed in local shopping centres, Council's Customer Service Centres and made available on Council's website.

The LDMG and Council worked quickly to ensure that as much information about the potential impacts of the flood peak was available to the community, so they could prepare effectively. The flood was very similar in nature to the flood that occurred in the Fitzroy River in 2008: most of the people who were going to be affected knew they lived in flood-prone areas – so it wasn't necessarily a surprise. However, on Wednesday 8 December 2010, the LDMG revised its prediction of a peak of approximately 7 m to a peak of 7.8 m. The revision of the peak meant that more residents would be affected by rising flood waters – for example, modelling showed that water inundation would occur to the suburbs of Port Curtis, Depot Hill and surrounds, Koongal, areas close to the River in Park Avenue, Wandal and Kawana, with a possibility of water breaking through at Pink Lily. There was also a new threat that the flood peak would take a number of days for the water to recede, due to the volume of water expected to come down the Fitzroy River. The decision was made by the LDMG to request the District Disaster Management Group to deploy Emergency Management Queensland's flood barriers to the Rockhampton Region. These barriers would protect identified critical infrastructure at risk of flood water inundation. Luckily, by Friday 17 December, the Fitzroy River had peaked at 7.6 m and waters were starting to slowly recede, despite continued rainfall across Central Queensland. In reflection, the preparedness and response of the community had been extremely pleasing – they had taken Council's warning seriously – but it wasn't long before residents were preparing their homes for the second time...

The trust and close bonds of regional communities are pivotal in responding to natural disaster threats: the preparedness and response of the community was extremely pleasing ... they had taken Council's warning seriously.

### **13.4 Two Floods in Two Months**

By Christmas Eve, the LDMG met again to prepare for the potential risks of high rainfall, with up to 200 mm of rain expected within the next 48 h period. By Boxing Day, 150 mm of rainfall had been recorded overnight and further falls of 50–100 mm were expected within days. The LDMG were now meeting on a

daily basis due to the consistently rising river. With a rise of 1.8 m overnight, the LDMG had no choice but to advise residents that the Fitzroy River would flood for the second time in 2 weeks.

At this point, a key problem was the unknown height of the second flood peak. The LDMG decided to meet again in 2 days' time (Tuesday 28 December), by which point a prediction for the flood heights would be available, as the rainfall started to reach the river gauges. By Tuesday, the Fitzroy had reached 7.75 m – higher than the previous flood faced in early December – and it was still rising. On Tuesday 28 December, the LDMG Coordination Centre was activated, with a dedicated phone number and all agencies on call, with the Fitzroy River expected to reach in excess of 8 m by the weekend and a possibility of 8.5 m by early the next week. The final peak was all dependent on how much additional rain was received in the catchment area: good planning was critical at this point.

With up to 400 houses at risk of being affected, this was shaping up to be a significant flood. The LDMG Chair urged the community to prepare, secure their property, and have their self-evacuation plans in place. A key early strategy for the LDMG was to “over-prepare and under-deliver”, to ensure the region was ready for anything that happened. This approach worked exceptionally well, particularly when combined with the good support from community and all agencies involved.

The early approach for the LDMG was to “over-prepare and under-deliver”, to ensure the region was ready for anything that happened ... this was a successful strategy and well-supported by the community.

The water was now starting to affect the Rockhampton Airport, with travellers warned not to leave their cars in the low-lying car park. The Rockhampton Showgrounds was established as a temporary animal shelter for those in low-lying areas. The SES and Rural Fire Services had also commenced providing sand piles and sand bags for residents to prepare their properties. The LDMG had now identified some of the possible impacts linked with key river heights, for example:

- Impacts on operations at the Rockhampton Airport, with car park inundation and possible inundation of runways at 8.5 m;
- Inundation of the Yeppen Bridge (Rockhampton's southbound highway access) at approximately 8.95 m;
- The Capricorn Highway between Rockhampton and Gracemere is subject to inundation at 8.2 m;
- Gladstone Road is cut at 8.2 m;
- Lakes Creek Road and access to the Landfill will be cut at 8.5 m;
- North and South Rockhampton Treatment plants will not be accessible at 8 m;
- Gracemere Sewerage Treatment Plant access will be cut at 8.5 m; and
- The Railway yards and line will be cut in South Rockhampton at 8.5 m.



There were also a growing number of local road closures throughout the Region, and an up-to-date list was posted on the Council website to inform our local residents.

By Thursday 30 December, the predicted peak had been revised to major flood level of 9.4 m due to occur Tuesday 5 January 2011. A flood peak of this size would be equal to the second largest flood in Rockhampton's history. The revised peak required the LDMG to move quickly, making decisions to ensure the community was as prepared as possible for the highest flood peak in 20 years. The LDMG Disaster Coordination Centre hours were extended to be operational 24 h a day; an Evacuation Centre was opened at the Rockhampton Campus of CQUniversity; updated flood maps with the revised impact zone were placed on Council's website and in local shopping centres throughout the Region; and the Rockhampton Airport was preparing to close its doors and cease operations.

With such a wide scope of effects on the regional community, it was necessary for the response to be multi-faceted, including Council, the LDMG, the Coordination Centre at CQUniversity, and a focus on public information dissemination.

The Chair of the LDMG assumed the role of media spokesperson, together with the Queensland Police Service Inspector (David Peff). Residents were encouraged to stock up on water and dry food, prepare an evacuation plan and self-evacuate if necessary. Council officers again door-knocked approximately 2,000 residents in low-lying areas, warning them to be prepared for a 9.4 m flood. With formal predictions stating that up to 40 % of Rockhampton City would be affected at 9.4 m, the difficult decision was made by the LDMG to undertake mandatory evacuations where necessary.

By Friday 31 December, with the Fitzroy at 8.2 m, it was time for the LDMG to recommend residents self-evacuate wherever possible – either to friends or family or to the Evacuation Centre. The assistance of four Black Hawk choppers was brought in, and a Chinook could be made available should assistance be required. With these resources at call, preparation of food drops to isolated rural properties commenced.

In an environment of regional resource constraint – both human and financial – it becomes vital to properly coordinate both internal and external assistance.

The Rockhampton Airport was also being prepared for the rising flood waters, with the deployment of the Emergency Management Queensland's flood barriers. The steel barriers were set up around the terminal building to reduce infrastructure damage. The Rockhampton Airport was closed on Saturday 1 January 2010, which

coincided with the closure of the highway access to the south (National Highway) and the west (Capricorn Highway). Rockhampton was now almost isolated, with the only exception being the highway to the north. A serious situation was now unfolding; some areas of Rockhampton to have their power supply switched off.

The closure of the Rockhampton airport coincided with the loss of highway access to the south and west: the city was now almost isolated, excepting the northern highway access.

Ergon Energy door-knocked affected residents over a 2 day period to advise residents when their power would be temporarily switched off. A total of 205 homes were disconnected within the day, as to delay would have meant increased safety risks to both residents and Ergon Energy staff. The LMDG had also come under some scrutiny for the decision to closing the highways, however, this proved to be appropriate with half a meter of flood water covering the Capricorn Highway within 12 h of the closures. By 2 January, the airspace around Rockhampton had also been restricted and all non-emergency use had to be approved by the District Disaster Management Group.

Some key safety issues emerging, such as the security of homes following mandatory evacuations, as well difficulties with people swimming and boating in flood waters. In response, the Water Police increased their patrols of evacuated areas. A scare was experienced one morning when a male person was reported to have been seen struggling in the flood waters off Quay Street, however after an extensive search by Police and SES the reports were found to be unfounded.

These were tense times for the LDMG, with the main priority being community safety. There had been three lives lost in the 1991 flood, which peaked at 9.3 m, and there was a determination to avoid a repeat of this. The LDMG remained proactive and prepared, despite receiving some criticism from the community for mandatory evacuations and the cutting of power. It was also necessary to simultaneously begin the planning for the community recovery effort – again, proactivity and preparedness was a key strategy.

The main priority was community safety . . . a determination to avoid the loss of life that had been experienced in 1991 . . . it meant the management group had to be proactive for the sake of the region.

On the morning of Wednesday 5 January – the expected peak day – the river was flowing at 9.2 m. Although the predictions were that the river would continue to rise to 9.4 m, there was an increasing confidence that the water would remain at the 9.2 m mark. This was welcome news: it meant limited potential for further damage, particularly for the Sewerage Treatment Plants. As the afternoon matured,

the river behaved and did not rise above the 9.2 m mark. Nevertheless, at the peak of the flood, there were over 2,000 properties flooded; 200 of which had water above their floor boards. A total of between 500 and 600 people had self-evacuated and 187 people had registered at the evacuation centre. The community had experienced no loss of life, no major injuries and no looting. But we still had a long way to go.

The Rockhampton flood had become a major national and international media story as the flood waters rose. There was intense media pressure during the flood, with over 30 visiting media including journalists, cameramen and photographers all covering the story. The international media attention was also quite intense with media interest from the USA, UK, Germany, Netherlands, France, Canada and others. This was an extremely busy time, but a key task throughout was to be open to media and ensure the key messages reached the residents. There were days where the LDMG Chair took part in more than 30 media interviews – one day, 12 interviews before 8 am – but it was critically important to communicate a consistent public message and have coordinated media coverage. There were some more comical headlines that occurred simply due to the amount of media in the region. One report in a local newspapers was that 30,000 pigs that had been swept away and were heading downstream through the city. Fortunately, it was a matter of a bad phone line, and the story turned out that there were only 30 sows and pigs that had been swept away – a miscommunication from the farmer to the journalist – and comical relief to all else!

It was critically important to communicate a consistent public message and have coordinated media coverage.

Though the River had officially peaked, the struggle was not yet over for the region. The next challenge was the knowledge that the peak would only fall slightly before staying at an approximate height of 9.15 m for up to 2 weeks. The duration of our flood peak was probably the hardest challenge for the community to face – it meant the continued closure of the National Highways, the railways and the Airport – continuing the community isolation for a further 2 weeks, not including the additional time that would be needed to fix damage resulting from the flood waters. This was a major concern, not only for the local community, but also the effect that the closures were having on the transport industry. There were some reports that due to the closure at Rockhampton, some truck drivers having to drive as far west as Longreach then double back to Mackay or further north. As a critical exporter and service hub as well as the service centre for a catchment of over 450,000 people (within a 3.5 h commute), the economic impacts were significant on our \$5.2 billion economy. The flood had directly and indirectly impacted on our regional, state and national economy and business performance.”

The duration of our flood peak was probably the hardest challenge for the community to face ... flood had directly and indirectly impacted on our regional, state and national economy and business performance.

### 13.5 The Recovery Finally Begins

Finally, by Wednesday 12 January – 1 week after the River's peak – the recovery phase began. Even though the River was at 9.1 m, a Community Recovery Centre had already opened to provide support services for affected residents and the Rapid Assessment Team from the Queensland Fire and Rescue Service (QFRS) arrived to begin the assessment of flood affected properties (where they could get access) to enable a coordinated recovery approach.

On Friday 14 January, the River had dropped to 8.55 m, which enabled some of the clean up work to begin. The National Highway to the south reopened; Queensland Rail also began urgent track repairs to the rail system; and 80 people from Fitzroy River Water (FRW), Council, SES, Ergon Energy, QFRS and volunteers assisted flood affected residents with the clean-up. However, many people were still not able to access their homes, with 144 people still registered at the Evacuation Centre. A few days later on 17 January, the Fitzroy had finally dropped to 6.3 m, sufficient to reopen the Capricorn Highway to the west, as well as allow homeowners to return to their homes and assess the damage. It also gave Council the opportunity to assess the damage to roads and public infrastructure including the Airport which was still closed, and to grapple with the expected costs of flood repairs. For example, the initial estimates of the capital costs for infrastructure damage included:

- Over \$40 M for our road networks;
- \$92,000 for our water and sewerage networks; and
- \$900,000 + for the Rockhampton Airport.

This cost was on top of the costs of initiatives and support Council put in place to assist residents with the cleanup process including:

- A water rebate for flood affected properties;
- A delay of 2 weeks in issuing rates notices;
- Free bulk clean of houses affected by water inundation;
- Free cleaning product kits to affected properties;
- Free landfill access for 2 weeks;
- Free roadside collection of flood damaged waste; and
- Organised community recovery events to provide flood affected residents with an update on the activities and support available to them.

The impacts were always going to be large, so it was important wherever possible to encourage tourists to return to the city once the flood had passed and

to encourage spending within our own Region. Residents were urged to support local businesses and spend money within our own community, because the more we can support local businesses, the more people can return to their jobs and boost our local economy.

Residents were urged to support local businesses, and tourists were encouraged back into the region.

Finally on Monday 24 January, the Rockhampton Airport was able to reopen, albeit with a slightly shorter runway (fortunately, this didn't affect the aircraft that services the daily routes to and from Rockhampton). Qantas and Virgin Blue were able to start flights immediately, however there was another loss taken with Tiger Airways not wanting to restart flights until March 2011. In total there was more than \$700,000 in lost revenue for the 3 week period the Airport was closed.

Once Rockhampton was finally accessible from road, rail and air, there was a perceived need to mark the 'end of the flood' – a Community Clean Up day which staged to clean up and recover from this terrible event. On Saturday 22 January, more than 300 volunteers got in and dirty, helping flood-affected areas to clean out their homes and businesses; a fantastic day in which the community spirit shone through.

Coordinating responses must occur at both regional and neighbourhood settings, to allow smaller centres to overcome difficulties of low critical mass.

The community spirit was also on display with the generous donations received. The Mayoress Regional Charity Foundation started a Flood Recovery Appeal to raise money that would specifically benefit the Rockhampton Region. This raised more than \$400,000 to go towards rebuilding and transforming flood affected sporting, community and charitable organisations within the Region. While Mother Nature has certainly made her presence felt in the Rockhampton Region, the generosity of human nature has also overwhelmed our community.

Rockhampton was lucky enough that it did not suffer the direct flood impacts (such as loss of life) that many other Queensland communities experienced. The advanced warnings of the flooding that was coming from the upstream tributaries, along with the emergency management systems and plans that were in place worked well to ensure that the Rockhampton community was as prepared as it could be.

Regional communities can use their tight social networks to share information and increase preparedness to the extreme weather events that are increasingly more likely under climate change.

## 13.6 Regional Economic Impact

A key flood impact was the closure of transport corridors for long periods of time (national highways closed for 2 weeks and the regional airport closed for 3 weeks) which limited access between businesses, suppliers, customers and employers and effectively split the Queensland economy into two sections. Research by Rolfe et al. (2011) showed that the floods in central Queensland caused a large number of direct economic impacts, including lost coal production, lost agricultural production, damaged infrastructure and the emergency response and avoidance costs. However, the floods also caused a variety of indirect costs, as those impacts and the interruption to business activities rippled through the local and state economy. A particular subset of the indirect impacts that are assessed in this report are the costs stemming from the closure of the transport corridors at Rockhampton, largely isolating the city from supplies and separating north Queensland from southern Queensland (Rolfe et al. 2011).

The research also indicated that the impacts of the transport corridor closures at Rockhampton in January 2011 cost the Rockhampton economy approximately \$35 million, and the wider Queensland economy a further \$45.7 million, for a total of \$80.7 million. The issue of transport corridor closure at Rockhampton is therefore very important in a policy setting because they could have been avoided if better infrastructure had been in place. The cut in the state's transport link highlighted the very real need to flood-proof the Rockhampton Airport and the Bruce Highway into and through Rockhampton.

With access to the region all but eliminated, the tourism and retail sectors were severely affected. Retail – one of the largest employers in Central Queensland – was severely affected not only as a direct result of flood damage to premises and stock, but also due to transport restrictions which restricted access for staff, product and customers. Whilst major retailers including the two main supermarket chains were able to organise supplies to be delivered by air to Mackay, or by barge to Roslyn Bay, before being trucked into Rockhampton, this incurred significant additional costs. Many smaller retailers were unable to implement similar strategies. Tourism was one of the worst affected sectors in terms of the access limitations, with occupancy rates down 50 % for December and 70 % for January. Given that some businesses receive up to a quarter of their annual revenue over the Christmas/New Year period this will have significant effects in the long run. Total revenue losses over this 10 day period for the Rockhampton, Capricorn Coast and Central Highlands were estimated at almost \$3 million. The Callaghan Park racecourse in Rockhampton alone suffered a loss of \$100,000 from the cancellation of one race day (Rolfe et al. 2011). The effect on employees due to the flood impact on business has also had a big impact, with up to 1,200 full time equivalent (FTE) staff estimated to have been out of work during the flood period.

Transport is essential to every industry sector and service needs in the Rockhampton regional economy. For the Rockhampton region to continue to contribute to national productivity goals, both the State and Commonwealth Governments to recognise the need and importance of rebuilding and flood-proofing the region's transport infrastructure.

Transport is essential to every industry sector and service needs in the Rockhampton regional economy. Road is the dominant transport option for people and goods, with a mixture of road and rail being used for commodities and bulk goods. There is also increasing use of air transport, with approximately three quarters of a million passengers passing through the Rockhampton airport each year (CTEDL 2010). As a direct result of the floods and the subsequent closure of the Rockhampton Airport, all Qantas and Virgin Blue flights were cancelled between 1 January and 24 January 2011. Tiger Airways cancelled all flights until Tuesday 29 March. All Queensland Rail Sunlander and Tilt Train services were also cancelled. These figures all serve demonstrate the importance of the Rockhampton Region to the state and national economies. Despite the flood, the region still remains well-placed to continue to grow its \$5.2 billion local economy, which can ultimately contribute to national goals in sustainable economic growth. However, for this to occur, both the State and Commonwealth Governments to recognise the need and importance of rebuilding and flood-proofing the Rockhampton Region.

### **13.7 Moving Forward**

The flooding that occurred in the Rockhampton Region during 2010/2011 was the fourth largest flood experienced. The Rockhampton Regional Council followed its disaster management plan during the flood, which worked incredibly well. The LDMG is to be congratulated for its collective response during the event to ensure the best possible outcome for all. Throughout the whole ordeal, the efforts of volunteers from the SES, Rural Fire Brigades, many individuals and corporations cannot be emphasised enough in their contributions that prevented loss of life and major damage. These groups worked tirelessly alongside the professional emergency service agencies to achieve these outstanding results. It is also important not to underestimate the important work done by the many welfare agencies and church groups who looked after those individuals in desperate need of comfort and counselling.

There is both a need, and an expectation, for individuals and organisations within regional communities to be mobile, flexible, and multi-taskers.

The economic recovery will take a lot more time than the physical recovery, however we have a number of projects underway to help with this task. Rockhampton Regional Council developed a 'Regional Investment Brief' which is designed to clearly identify the Region's major priorities and to encourage investment into the Region – either by private or public investors. Although the document was already underway prior to the 2011 floods, it was a perfect opportunity to showcase what our \$5.2 billion economy can offer and what we need to get back on track. The brief outlines six key priorities including 'Critical Road and Rail' which will see the upgrades to the highways and rail network for future flood-proofing of the city. This priority also includes improving the flood immunity of the Rockhampton Airport. This brief and these priorities easily demonstrate the areas within the Region that we need to not only recover from this flood, but to ensure the wide ranging impacts from another flood aren't felt again.

The Rockhampton Region is a vital link in the future growth of our local, state and national economy, and its regional advantage has allowed it to recover from the devastating events with a level of immunity – however, it is equally important to learn some key lessons from the experience, and fund our regional centres appropriately to ensure this level of impact does not occur again.

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# Chapter 14

## Catalysing Regional Business Development Through High Speed Broadband: Opportunities and Risks

Brian Ramsay

**Abstract** This chapter explores the effect of the National Broadband Network (NBN) rollout on regional businesses. Research conducted in Tasmania by Inovact Consulting on how regional businesses are responding to broadband access provides illustrations of these opportunities and challenges being played out in the context of an increasingly interconnected global economy. The first part of the chapter examines the opportunities and challenges that the rollout of the NBN presents to regional businesses. The research shows that broadband technology can increase internal efficiencies and harness business growth, grant geographically isolated businesses access to global supply chains and enable innovations that make entering the export market more viable. The second part of this chapter outlines the need for businesses to initially regard the access to high speed broadband as a shock to their operating environment, and to prepare a strategy that views its advent as having potentially disruptive effects. However, once a strategy is in place to preserve and stabilise the company, it can then adopt a forward-thinking strategy for optimal leveraging of opportunities in the digital economy.

### 14.1 Introduction

Access to affordable high speed broadband is essential to the way Australians communicate and do business. It will drive productivity, improve education and health service delivery and better connect our cities, regional, rural and remote communities.<sup>1</sup>

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<sup>1</sup> Agreement between the Government and Mr. Tony Windsor MP, Member for New England and Mr. Robert Oakeshott MP, Member for Lynne, Australian Government, *Statement of Expectations*, 20 December 2010.

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In 2009, the Australian Government announced that it would invest more than \$36 billion<sup>2</sup> over the next 8 years to install the National Broadband Network (NBN), in order to allow Australia to remain competitive in the global digital economy. NBN Co Limited, established to build and operate the NBN, will upgrade and expand the network of fibre optic cables around the country. NBN Co Limited aims to deliver access to a high-speed fibre network capable of providing broadband speeds of up to one gigabit per second to 93 % of Australian premises, with fixed-wireless and satellite technologies providing optimal speeds of 12 megabits per second to the remaining 7 % of Australian premises (Australian Government 2011). In relative terms, the NBN will deliver average internet speeds approximately 100 times faster than the speed of dial-up internet currently used in many parts of Australia (Hawker Britton Group 2011).

The NBN will deliver average internet speeds approximately 100 times faster than the speed of dial-up internet currently used in many parts of Australia.

The Australian Government entered the ‘Commitment to Regional Australia’ agreement in 2010.<sup>3</sup> Under this agreement, the Government has pledged to make the rollout of the NBN in regional areas a priority.<sup>(ibid)</sup> The rollout commenced in Tasmania, and Inovact Consulting was commissioned by the Rural Industries Research and Development Corporation to research how regional businesses could use broadband technology to seize new market opportunities and develop their businesses, including achieving productivity gains.

Inovact Consulting has researched the stories of six regional businesses in Tasmania to understand what they are doing to translate broadband access into business outcomes:

- *Huon Aquaculture Group* – is a vertically integrated salmon farming and processing business which focuses on the Australian market;
- *Hansen Orchards* – is a family owned and operated apple and cherry farm catering for domestic and international markets;
- *Bridestowe Lavender Estate* – is a farming, retail and tourism business with an export focus;
- *Houston’s Farm* – produces cut salads for major Australian supermarkets;
- *Premium Fresh* – produces and packages a variety of vegetables for the domestic market; and

<sup>2</sup> Total capital investment in the NBN was revised down from \$43 billion to \$36 billion primarily due to the agreement reached with Telstra.

<sup>3</sup> Agreement between the Government and Mr. Tony Windsor MP, Member for New England and Mr. Robert Oakeshott MP, Member for Lynne, Australian Government, *Statement of Expectations*, 20 December 2010.

- *TasmaNet* – is a Tasmanian based internet service provider. Their focus is on providing wireless connections to rural businesses.

These businesses are each interacting with information and communications technology to differing extents. However, all businesses see information technology and broadband as important inputs to their future growth and viability within their industry.

The research found some practical insights for businesses gaining access to broadband and also for regional leaders and policy-makers across all levels of government. Inovact Consulting's report was published in April 2011 and Managing Director, Brian Ramsay, presented the findings and key messages to SEGRA 2011 in Geelong in October.

This chapter reflects Inovact Consulting's further consideration of how regional businesses can plan and prepare for access to high speed broadband internet – a potential 'paradigm-shifting' development in how businesses operate and can be successful in regional, rural and remote areas of Australia.

Businesses must plan and prepare for high-speed broadband internet – for a new paradigm in how businesses can successfully operate from regional, rural and remote areas of Australia.

For the purpose of this chapter, regional businesses are defined as those located in geographical areas outside metropolitan centres and major cities (MacGregor and Vrazalic 2006). The first part of the chapter examines the opportunities and challenges that the rollout of the NBN presents to such businesses. This discussion draws on the research conducted by Inovact Consulting in Tasmania and the insights of business leaders who have prepared for being successful players in an increasingly interconnected global economy.<sup>4</sup> The second part of this chapter outlines the need for regional businesses to think through their strategy for how they will engage with the digital economy. It presents an approach for transitional change in which strategies are systematically researched, implemented and position a business for success.

How well businesses manage the transition into the digital economy will define the success of the enterprise itself and the level of regional economic benefit that results from many businesses seizing the opportunities.

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<sup>4</sup>Inovact Consulting is a specialist advisor to government, industry and commerce on organisational effectiveness. The case studies measuring the effect of the rollout of the NBN in regional Australia were conducted as part of the research underpinning *New Connections Driving Innovation and Productivity: Opportunities for Rural Industry Development from Innovative Use of Broadband Services* (2011). Available: <http://www.inovact.com.au/index.php/component/zoo/item/rirdc-broadband-report>. Inovact Consulting is committed to translating research and knowledge into valuable outcomes.

## 14.2 The Opportunities and Challenges of Broadband: Setting the Scene

This new super-fast National Broadband Network is the single largest nation-building infrastructure project in Australia's history.<sup>5</sup>

The NBN creates many possibilities for regional businesses. It is potentially both enabling and disruptive, providing new opportunities and new threats. The opportunities centre around three factors that are discussed in this chapter. The threats involve disruptions to business as usual largely resulting from consumers being able to access goods and services from many markets including overseas and new competitors being able to access local markets.

The NBN creates many possibilities for regional businesses – both enabling and disruptive . . . new opportunities as well as new threats.

There is a substantial volume of literature on the potential benefits of the NBN including the obvious advantages of high speed internet access in remote areas. A significant insight from Inovact Consulting's Tasmanian study was how some of the businesses examined have used broadband technology to expand beyond their local markets into export markets. However, it was not simply about being able to connect to the NBN, but also about how they established the business foundations and strategies that were then facilitated by the availability of high speed broadband services.

## 14.3 Australia's Export Growth

As a modern trading nation, Australia is a diversified and reliable supplier of high quality goods and services to over 200 countries (Australian Government 2008a).

Despite global recession, Australia has recorded steady growth over the last 3 years. In 2010–2011, Australia recorded just over 2 % growth from the previous year. An essential mobiliser of Australia's economic growth is the strength of its growing exports market. Australia has a diverse export base with major exports including food, resources and fuels. The value of Australian commodity exports is forecast to be around \$256.3 billion in 2011–2012, a rise of 17.7 % from an expected \$217.8 billion in 2010–2011 (Thompson et al. 2011). In 2011, Australia proved the resilience of its export market, managing to record strong growth even after adverse

<sup>5</sup> Prime Minister Kevin Rudd, Transcript of Joint Press Conference with Treasurer Wayne Swan, Minister for Finance Lindsay Tanner and Minister for Broadband, Communications and the Digital Economy, Stephen Conroy, Parliament House, Canberra, 7 April 2009.

weather conditions early in the year threatened to decrease trading ability. Australia's major trading partner, China, has maintained a strong demand for Australian exports, particularly raw materials.

Rural exports are a substantial component of Australia's overall exports: the nation currently exports around two-thirds of its total farm production. Export earnings for farm commodities are forecast to be around \$34.1 billion in 2011–2012, a rise of 6.6 % from the previous year.<sup>(ibid)</sup> The international demand for farm commodities is increasing. Farm commodities for which export earnings are forecast to be higher in 2011–2012 include wheat, oilseeds, rice, raw cotton, wine, sheep meat and wool.<sup>(ibid)</sup> There is increased scope for these regional industries to utilise evolving technology to allow businesses to meet the growing demand for their products.

There is increased scope for regional industries to utilise evolving technology to allow businesses to meet the growing demand for their products.

## 14.4 The Role of Australian Regions

Unleashing the economic potential of the regions helps maximise the potential of the national economy.<sup>6</sup>

Australia's regional communities are a major source of the nation's export strength and economic wealth. Conversely, regions rely heavily on the strength of the export market with recent statistics showing that a quarter of all jobs in regional Australia depend on exports (Australian Government 2008c). Agriculture and mining have always been major contributors to regional exports and remain so. Exports including iron ore, coal, wool, wheat and sugar still form much of the economic base of regional Australia.

The growth of Australian industries has led to diversification of Australia's exports. Regional Australian industries are now strong producers of automotive parts, textiles products and construction products and new technologies. Such is the strength and diversity of Australia's export profile, regional businesses are said to have become a "powerhouse of economic investment" (MacGregor and Vrazalic 2006).

Regional businesses are a "powerhouse of economic investment".

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<sup>6</sup> Simon Crean, Address to Regional Development Australia National Forum, Convention Centre Canberra, 2011. [on-line] <http://www.rdamidnorthcoast.org.au/content/driving-regional-economic-development-through-localism-hon-simon-crean>.

The dynamism of Australia's regional export trade has its source in the skills, ingenuity and determination of business leaders and employees, and the comparative advantages that regional Australia offers business and investors (Australian Government 2008b). The comparative advantages include Australia's resource-rich environment, comparatively affordable operating costs, time zone compatibility with the Asia-Pacific region, a high level of education and innovation and a lack of prohibitive government industry regulation.<sup>(ibid)</sup>

## 14.5 Connectivity and Economic Development

It has long been recognised that e-commerce technology has the potential to become a major source of competitive advantage to small businesses because it is a cost effective way of reaching customers globally and competing on par with larger counterparts (MacGregor and Vrazalic 2006).

Connectivity has always been the facilitator of economic development. Connections to new markets or more consumers in existing markets drive economic growth. The advent of high speed broadband has drastically expanded the scope of access and speeded up the connections and available supporting information. This expanded scope and speed of access allows local businesses to expand into new markets, but it also allows new competitors into local markets. This can be a significant shock to a business and has been illustrated previously in Australia when domestic markets have been opened to international competition.

There is little doubt that the availability of high speed broadband through the NBN rollout will be of great economic benefit to regional Australia. A recent report found that the direct contribution of the internet to the Australian economy "is set to increase by \$20 billion over the next 5 years from \$50 billion to roughly \$70 billion." The report estimates that approximately 80,000 more Australians will be employed in areas directly related to the internet as a result (Deloitte Access Economics 2011). In line with the national trend of increased innovation delivering increased productivity and economic development, research suggests that technology utilisation is a major factor in Australia's regional industries realising their export potential (Thompson 2003).

There is an observable difference between the benefits for urban and regional businesses from access to broadband services and integration of these services with business functions. This difference is fundamentally driven by the distance most rural businesses are from services, markets and networks.

One of the primary benefits of the NBN is its ability to ameliorate the 'tyranny of distance', allowing regional industries to participate in export markets (Inovact Consulting 2011). Technological innovation in regional industries provides an opportunity to 'level the playing field' of access to global markets by making it easier for regional industries to interact globally, despite geographical constraints (DITA 1998; NOIE 2000; Multimedia Victoria 2002).

The NBN will help ameliorate the ‘tyranny of distance’, allowing regional industries to participate in export markets.

The NBN rollout also has the capability to develop new industries, reshape existing industries and redefine both occupational boundaries and the skills required to complete existing or new jobs. These capabilities present a broad range of opportunities to regional industries for boosting economic growth for regional businesses.

Research combined with the insights from the Tasmanian businesses studied shows that broadband access will have both positive and negative implications for local economic activity. For example, access to broadband will allow some businesses access to a wider set of support services and suppliers than are available locally (Inovact Consulting 2011). This will also mean that local businesses that are not competitive at a state, national or international level may lose local business.

Alternatively, service and supply businesses linked to agriculture that are competitive will be able to access a much wider marketplace. Whether the progression into the digital economy provides a net benefit for a region or a locality will depend on the ability of regional business leaders to recognise the opportunities and challenges increased connectivity presents and respond with strategic business models, discussed in the second part of this chapter.

Whether the digital economy provides a net benefit for regions will depend on the ability of business leaders to recognise the opportunities and challenges, and to respond strategically.

Inovact Consulting’s research demonstrates the three major impacts of broadband that make regional businesses more likely to be successful in the export market:

1. The delivery of internal efficiencies and productivity increases allows regional businesses to be in a stronger position to compete internationally.
2. The access broadband technology grants geographically remote businesses to all levels of global supply chains has a marked effect on their ability to engage in the export market.
3. Broadband opens up the scope for innovations such as the creation of distribution ‘business hubs’ that allow regional businesses to develop scale and compete in the export market more effectively.

## 14.6 Delivering Internal Efficiencies and Productivity Growth

Inovact Consulting's research demonstrates that access to broadband presents businesses with opportunities to reduce internal business costs and boost productivity. The Organisation for Economic Co-operation and Development (OECD) has recognised that the use of information and communications technology will play an increasingly vital role in businesses achieving productivity gains. Research shows that the cost of completing a transaction online is much lower than the cost of completing one offline (OECD 2008). These savings permeate through the entire value chain and impact significantly in business interactions with other businesses and consumers.

Access to broadband presents businesses with opportunities to reduce internal business costs and boost productivity.

Where regional industries are able to boost productivity and efficiency, as in the case of both Hansen Orchards and Huon Aquaculture Group, they are increasingly likely to be in an export-ready position. Broadband has the potential to accelerate the speed at which a business can be run, making it more efficient internally and more competitive externally.

Particular efficiency gains for regional businesses may include:

- Increased labour productivity through more technologically advanced processes;
- More efficient processes for procurement of inputs through ordering and payment online;
- Better information on availability and price inputs resulting in improved price-setting;
- Removal of intermediaries thereby reducing transport requirements and costs;
- Cost reduction through online marketing and selling products;
- The undertaking of business functions that have an online component such as communication with customers and financial management with increased speed and reliability; and
- The increases availability of information and assistance enabling enhanced staff education and decision-making capability.

Clients of TasmaNet a wireless service provider illustrate this potential.

### 14.6.1 *TasmaNet*

#### 14.6.1.1 Broadband: Improving Business Productivity

TasmaNet is a small wholesale wireless service provider that works with large Tasmanian businesses to provide tailored internet solutions. The business has



directly witnessed the benefits that faster internet and more reliable services have for their customers. However, they also very aware of the limitations businesses face in realising the full benefits of this technology due to the gaps in people's knowledge about IT. From their perspective, people often see the cost of the service, which is easily quantifiable. In contrast, the benefits are often less tangible and diverse. This makes quantifying the benefits very complex.

TasmaNet also sees wider social benefits flowing from uptake of internet by some of its customers as the installation of specialised infrastructure means better services for people who live close to customer operations that are serviced by TasmaNet systems.

For one client, live reporting on project sites and live stock reporting has been crucial to internal efficiency. Previously, all their processing was paper based. Wireless access has cut processing time for this paper based information from 4 days to about 4 h.

There have been significant benefits to their decision-making capability through the combined use of telemetry and wireless to provide real time monitoring of the business' vehicle movements and fuel consumption. This has enabled the business to monitor and reconcile all fuel use within the company online. Consequently it is significantly easier to identify any anomalies in the consumption.

## 14.7 Opening Access to Global Supply Chains

Inovact Consulting's research also demonstrates that broadband has the potential to open up access to global supply chains for geographically distant rural industries. Technology such as video conferencing, product tracking and online transaction systems increase regional businesses' access to communications tools and knowledge, ensuring they are adequately informed and enabled to compete in the global market (IBSA 2011).

Inovact Consulting has observed that many regional exporters use broadband technology to share information with customers and suppliers, communicate with transporters and customs officials, manage stock inventories and monitor budgets. All this can be done in real time with a reliable high speed internet connection. Costs can be minimised by more efficient and accurate processes leading to more competitive positioning of the regional business in the international market (Australian Government 2008b).

### 14.7.1 Hansen Orchards

Technology is the key to our business being able to continue to expand. The technology we use means that I can use my time much more effectively (Inovact Consulting 2011).

### ***14.7.2 Context***

Hansen Orchards is a large and innovative family-run cherry and apple producer servicing international and domestic markets. For this business, technology is increasing the productivity of labour across the business and enabling access to overseas markets. Hansen Orchards produces 600 t of cherries per year and they expect this to grow to about 1,200 t in the next 3 years. They estimate that this will be equivalent to 10 % of the Australian cherry crop.

### ***14.7.3 Becoming Export-Ready***

Hansen Orchards was the first Tasmanian business to look at export markets for cherries. Their cherries are exported to 14 countries, mainly in Asia where the principal markets are Hong Kong and Taiwan. Large supermarket chains are driving change in the industry in international markets. There is high demand for a reliable, high quality supply of fruit. Internationally, seasonal advantages mean that Australian growers such as Hansen Orchards can offer a quality product at a time where there is less competition in markets. Due to their location, the Hansen's produce some of the latest maturing fruit in the world and because of Tasmania's cool climate, the cherries they produce have a longer shelf life. This gives the orchard a natural competitive advantage and therefore enables them to export their cherries as a premium product.

The utilisation of technology and the drive to continually innovate has been integral to Hansen Orchards' success in the international market. Hansen Orchards' relationships with international service providers and customers is enabled by internet technology including email, video conferencing and product updating. Having a reliable and fast internet connection is fundamental to the business competing in the global export market.<sup>(ibid)</sup>

### ***14.7.4 The Effect of Broadband***

The experience of Hansen Orchards shows how labour productivity gains can be made from utilising and integrating relatively simple and widely available internet technology with a sophisticated production system. The utilisation of high speed internet has enabled Hansen Orchards to tap into a wider variety of knowledge, services and suppliers allowing the company to maintain their competitive edge in the industry. As a result, the business is continuing to grow despite pressures on local producers.

## 14.8 Opportunities for Aggregation

The Tasmanian businesses studied by Inovact Consulting demonstrate that where business leaders have embraced broadband technology, they have been able to innovate and streamline their practices for business growth. An example of this is the increasing number of ‘business hubs’: networks of businesses that combine at the distribution stage of the supply cycle (OECD 2011). Common in the horticulture industry where production may be unpredictable, these networks allow suppliers to commit to supplying a quantity of the product to a customer. The customer can rely on the network to deliver on the order and the networked businesses can ensure that the production and distribution risk burden is shared. Research has identified the potential for substantial cost and time efficiency gains to be made from the utilisation of ‘business hubs’ making Australia’s regional industries more competitive.

Hansen Orchards has used broadband technology to facilitate the operation of a business hub. In partnership with two other Tasmanian growers, Reid Fruits and Top-Qual, Hansen Orchards have developed a marketing company called Cherry Isle Tasmania. This partnership means that they can guarantee supply and volume to the supermarkets. Consequently, supermarkets have engaged in more active promotion of cherries. Together Cherry Isle markets 1,800 t of cherries a year, making them the biggest marketer and exporter in Australia. All three producers are benefiting by selling directly to the supermarkets and independent exporters (Inovact Consulting 2011).

## 14.9 Participation and Barriers to Broadband Take-Up

The literature points to threats of business loss or even closure if rural firms fail to take up e-commerce technologies. It is argued that rural businesses will be by-passed or will lose market share to competitors who use e-commerce technologies to good effect. <sup>(ibid)</sup>

Inovact Consulting’s research demonstrates that business take-up and use of telecommunication services is driven by knowledge of how these services can improve the productivity of their business. In a recent study, some 75 % of SMEs indicated that broadband has a positive impact on their business (Australian Government 2008c). The main benefits were the productivity gains that were made due to saving time, accessing information, and better communications. <sup>(ibid)</sup> Speed of access (58 %) was the overwhelming benefit, but increased general internet efficiency, access to a greater range of applications online and the ability to free up phone lines were all important. Cost savings were also an important advantage for some businesses. <sup>(ibid)</sup> Additionally, Inovact Consulting found that factors not determined by the businesses’ internal operations, such as price and reliability of service, also informed the decision to take up high speed broadband (AIG and Deloitte 2008).

Business take-up and use of telecommunication services is driven by knowledge of how these services can improve the productivity of their business.

Broadband take-up figures indicate a divide in the level of take-up by big businesses compared to SMEs. “Research shows that it is mostly larger businesses that have benefited from e-commerce adoption with small businesses showing a much slower rate of adoption” (MacGregor and Vrazalic 2006). One commentator suggests that the failure of a significant number of SMEs to utilise broadband technology in and of itself will create competitive barriers for those businesses.<sup>(ibid)</sup>

Inovact Consulting’s research shows that reasons for slow broadband take-up in regional areas vary. They include high costs associated with technology upgrades, lack of technical resources and expertise to implement upgrades, the complexity of the technology and the difficulty measuring the return on investment. The research shows that the major reason is a lack of awareness of the benefits of broadband and the corresponding perception that existing internet speeds are adequate for business. The Tasmanian businesses demonstrate that where businesses had held these perceptions prior to adopting broadband, they were surprised by the increased efficiencies and creation of opportunities that had resulted from their take up of faster internet.

A further concern is that even where regional businesses are innovative and active adopters, there are significant unrealised gains from existing innovations and future opportunities for further innovation. Regional businesses are faced with the challenge of identifying the most relevant and adoptable innovations, capable of delivering their business structure the potential productivity gains. The businesses studied all reported a strong need to engage experts in the field to bring dedicated expertise in house or develop a strong relationship with skilled external service providers to realise all the benefits broadband has to offer (Inovact Consulting 2011).

## 14.10 Looking Ahead

These are exciting times for regional Australia, full of potential and promise.<sup>7</sup>

Throughout Inovact Consulting’s research and business profiling, some key themes have emerged. The adoption of broadband technology and corresponding innovation is a longer term process for many regional SMEs. Technological upgrades and opportunities for innovation commonly fall outside the core areas of a business’s operation and there is a tendency for businesses to continue using the

<sup>7</sup> Crean, Simon, Address to Regional Development Australia National Forum, Convention Centre Canberra, 2011 [on-line] <http://www.rdamidnorthcoast.org.au/content/driving-regional-economic-development-through-localism-hon-simon-crean>.

past innovations that they have deemed adequate. Identifying the most relevant and adoptable innovations is a crucial and challenging demand of business leaders. Additionally, the rate and success of regional business innovation is heavily dependent on the skill, knowledge and interest level that exists within a business. The challenge for regional businesses, as outlined in the next part of this chapter, is to preserve and stabilise the business and then grasp the opportunities.

The adoption of broadband technology and corresponding innovation is a longer term process for many regional SMEs.

## **14.11 Part 2: Success Comes with Good Strategy and Effective Implementation**

### ***14.11.1 Strategic Path to Innovation and Development***

Deciding how to respond to the potential disruption associated with high speed broadband technology is primarily a question of strategy at the individual business level. How a business acts to transform high speed broadband connectivity into business advantage depends on how it sees its strategy to win in the market. That means the first step for a business is to test its strategy. It means researching the external trends, formulating and implementing a plan of action that responds to both the threats and the opportunities presented by broadband technology.

This part of the chapter outlines a framework for devising such a strategy. It sets out a series of processes that businesses may take and tailor them to a particular market, industry, location and business structure. It is important to note that these variables will have a significant impact on the actual strategy that a regional business implements.

Inovact Consulting has observed a range of strategies adopted by businesses in response to evolving technology. While the strategies differ vastly, the common theme is that the success of a strategy is reliant on the extent to which a business has made itself aware of features of the global marketplace, the industry operating environment, the strategies and actions of competitors, the needs and habits of customers and the businesses' own capacity and positioning within the market.

There are a number of external drivers associated with high speed broadband that can create an imperative for change by a business. For example:

**Adapting to new risks:** Adapting to a changing world is a normal and vital part of conducting and sustaining a viable business in the modern, interconnected global economy. The choice for all firms is to adapt quickly to advancements in technology, such as high speed broadband, or risk being overtaken by competitors. The integration of broadband into business operations provides a cost-efficient means of accelerating business performance and evolution.

**Behaviour of Competitors:** Understanding how competitors (local, regional, metropolitan or overseas) are responding to high speed broadband can provide a local firm with useful insights on what might work, what does not work and the range of options to consider. These insights can help inform better risk management and decisions about business strategy and allocation of resources for business operations.

**Accessing global opportunities:** The adoption of broadband technologies can enable businesses to access international supply chains or collaborate in business hubs to supply products that can compete in overseas markets. The globalisation of local businesses opens them up to opportunities for growth, increasing the prospects for export capabilities and international interconnectivity.

**Operational flexibility.** Broadband technology not only allows a business to increase operational flexibility, it also provides a means of communication with other businesses and customers. Business functions that have an online component such as communication with customers and financial service providers can be undertaken with increased speed and reliability where broadband technology is utilised (Inovact Consulting 2011). With this technology, information from a wider variety of sources becomes available, supporting increased knowledge for decision-making.<sup>(ibid)</sup> Increased knowledge of innovative business practices and their eventual implementation will have a positive influence on growth and sustainability.

In summary, the imperative for regional businesses is to look outside the business for insights on how to adjust direction, how to change internally and how to use high speed broadband to accelerate performance.

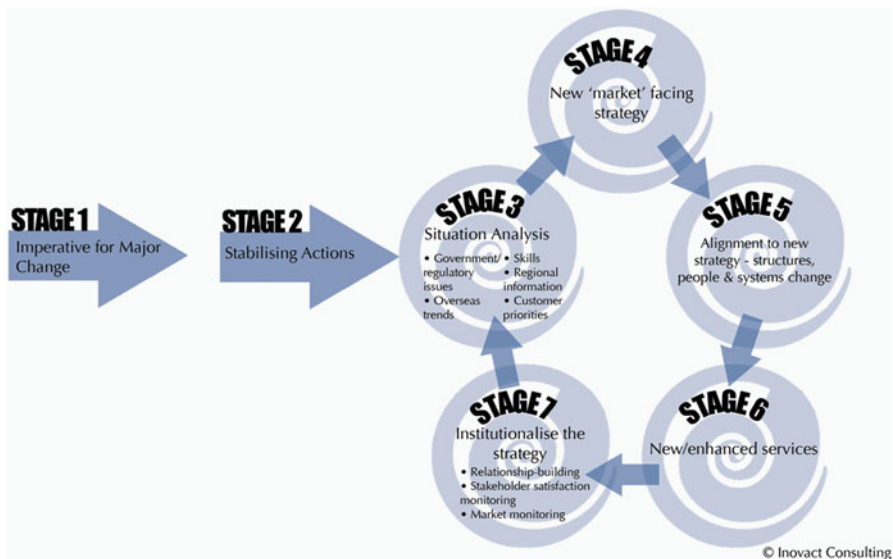
The imperative for regional businesses is to look outside the business for insights on internal change and how the NBN could accelerate performance.

Inovact Consulting has developed an adaptive change cycle (Fig. 14.1) that provides a practical way for business leaders to understand make decisions about how to respond to external change and disruption. It is premised on the reality that businesses must constantly adapt to external change and need to ensure that operational decisions are be shaped by the business strategy. The process follows some predictable stages, which are explained below.

## ***14.11.2 Processes for Successful Business Adaptation***

### **14.11.2.1 Imperative for Major Change**

As outlined in the first part of this chapter, regional access to high speed broadband can be viewed as a shock to the business operating environment. It creates an imperative for a business to consider the immediate and strategic implications for business direction and operations. It creates an imperative and incentive to act.



**Fig. 14.1** The Inovact adaptive change cycle (Source: reproduced with permission from Inovact Consulting)

The motivation for action is not simply driven by the new opportunities that high speed broadband might offer a business. It is also influenced by the scope for high speed broadband to introduce new risks from competitors. In both instances, the business response needs to be a considered and strategic – there is no room for complacency.

### 14.11.2.2 Stabilising Actions

Where a disruptive change is potentially de-stabilising for a business, immediate action may be needed. For example, high speed broadband might provide competitors with access to a business’s key customers. In that case, the immediate response would be to increase efforts to retain customer loyalty.

### 14.11.2.3 Situation Analysis

A situation analysis is used to assess the position and progress of a business and creates the foundations for strategy. It gives the business an opportunity to assess its strengths and weaknesses and allows for a strategy to be designed in line with the business’s specific market positioning, opportunities and needs. Meeting the challenge of disruptive change involves a business considering its values, resources,

processes and the team and structure for implementation (Christensen and Overdorf 2000). Examples of practical ways of sourcing strategically relevant information are:

- **Connect with regional information sources:** Business associations, local government and regional development bodies can share ideas and information that could benefit the growth of a local business;
- **Know customer priorities and directions:** How are customers responding to high speed broadband and what are the implications for suppliers?
- **Watch the industry innovators:** Successful commercial players locally and nationally are a source of valuable insights and lessons about what might work and what to avoid;
- **Consider Government/regulatory issues:** When will high speed broadband be introduced in your region and what services will be available?
- **Monitor overseas trends:** Watch what overseas businesses in your industry are doing to identify strategies for using broadband technology; and
- **Assess skills:** What skills exist within the business to assist in technological innovation and what external services are available that could be used?

#### 14.11.2.4 Formulating a Strategy

After the situation analysis is complete a market-facing strategy can be designed that incorporates broadband to enhance competitiveness. For example, Hansen Orchards had a clear strategy to meet demand for fresh, quality cherries in the northern hemisphere. Their challenge was in how to supply the niche market profitably and scale up the export business.

#### 14.11.2.5 Alignment to New Strategy

If high speed broadband or other drivers require changes to business strategy, then systems, processes and structures need to adapt in response. This is the stage where failure is most likely to occur as the implementation of internal change tests the business' adaptability. In the case of Hansen Orchards, they used broadband to enhance communications with overseas customers, build a business hub and improve efficiency of production.

#### 14.11.2.6 Operating with Enhanced Services

This stage is fundamentally about organisational learning to test workability and to measure the success of new or improved services or goods. Often, it will involve testing more than one approach to build confidence in what is most likely to succeed and to justify investment in business-wide change.



### 14.11.2.7 Institutionalising the Strategy

Institutionalising the strategy is the final stage of the transition to a new strategy, where the business fully adopts a new infrastructure and operating system. In the case of broadband, this stage is when the business has fully adopted broadband technology and is habitually using it as a permanent solution. Now, everything that is done within a business takes this new strategy and technology into consideration. The organisation can work to build greater resonance within its market and greater relationships with customers.

An important aspect of this stage is monitoring stakeholder satisfaction and market changes. It is by no means the end in terms of business strategy evolution. As markets continue to change, it is crucial to periodically repeat the situation analysis stage (Stage 3) in order to assess whether more changes need to be made and a modified or new strategy needs to be devised.

## 14.12 Conclusion

The advent of high speed broadband via the National Broadband Network represents a disruptive change to the operating environment for businesses in rural and regional Australia. It represents a profound change to the competitive landscape for businesses that cannot be ignored.

Research with businesses in Tasmania has produced useful insights as to how the NBN will allow regional businesses to engage in export markets and to be better positioned in market competition nationally and globally. It suggests that three major impacts of broadband will make regional businesses more likely to be successful in the export market:

1. The delivery of internal efficiencies and productivity increases allows regional businesses to be in a stronger position to compete internationally;
2. The access broadband technology grants geographically remote businesses to all levels of global supply chains has a marked effect on their ability to engage in the export market; and
3. Broadband opens up the scope for innovations such as the creation of distribution ‘business hubs’ that allow regional businesses to develop scale and compete in the export market more effectively.

The NBN represents a profound change to the competitive landscape for regional businesses that cannot be ignored.

A key implication is that regional businesses will need to pause and re-assess as to how access to high speed broadband will impact on their strategy to succeed in domestic and overseas markets and how they should respond. By viewing the

business through the lens of an adaptive change cycle, a structured approach can help make informed decisions that mitigate risk and open up opportunities. Those businesses that have good strategies to compete can then leverage broadband and other technology to accelerate business performance.

Regional communities are critical to the nation's export strength, economic wealth and employment rates, and the installation of broadband in these regions has the potential to stimulate sustained and diverse economic growth. However, individual businesses and whole regions are at the early stages of innovation process and the biggest challenge is to catalyse informed change.

Regional communities are critical to the nation's export strength, economic wealth and employment rates, and the installation of broadband in these regions has the potential to stimulate sustained and diverse economic growth.

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# Chapter 15

## Developing Renewable Energy in Australia: Developing Regional Advantage

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and Salahuddin Azad

**Abstract** Growing concern about climate change and global warming has resulted in an increasing emphasis on reducing carbon emissions. Renewable energy (RE) is emerging as a universal remedy to these problems. However, due to the congestion and heavy load on distribution networks in metropolitan areas, large scale RE facilities are unlikely to be built in urban settings. By contrast, the ‘wide open spaces’ and low population densities of regional areas are a considerable advantage for siting new RE installations. The large-scale deployment of RE plants in the regional Australia is a need and requirement for both environmental sustainability and energy efficiency. Regional Australia has enormous potentialities for RE, particularly in wind, solar and geothermal. However, due to the intermittent nature of RE sources and cost of energy generation, integration of large-scale RE with the grid introduces potential challenges that include power quality (PQ), energy-efficiency, cost-economic analysis with respect to greenhouse gas emission (GHG) and other socio-environmental factors. This chapter explores the benefits as well as the possible deployment and integration issues of renewable energy into the grid, when considering the development of a clean-energy system for a sustainable regional Australia. A hybrid model is presented to investigate the prospects of renewable energy, in particular, wind and solar energy in different locations across regional Australia. From simulation analysis, it is clearly evident that regional Australia has huge potential for large scale renewable energy which could feed energy into the national grid.

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## 15.1 Introduction

Industrialization, urbanization and population growth have all increased the demand for energy. Currently, this demand is met mostly by combustion of carbonaceous fuels such as coal, oil, and natural gas, resulting in the production of excessive amounts of greenhouse gases in the atmosphere every year. These greenhouse gases have been linked with global warming (reference?), with the probable effects of such warming being frequent occurrences of extreme weather events including heat waves, droughts and heavy rainfall events and reduction in agricultural yields (reference). Damage caused by extreme weather in Australia incurs significant social and economic costs, signifying that Australia has a climate-prone economy. For example, two of the major climate events that have significant economic consequences are drought and extreme climate events (e.g. hail storms and cyclones). The gross value of Australian farm production drops by at least 10% or more on average in an Australian drought year. The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) predicted that the drought would reduce the economic growth by nearly 0.75 percentage points in Australia in 2006–2007 (PMSEIC 2007). Moreover, some 87% of economic losses due to natural disasters are caused by weather related events in Australia (BTE 2001) and estimates show that Australia's average annual insured loss due to natural disasters is around \$1 billion (Crompton and Mc Aneney 2008). One third of these losses were due to floods, 30% due to severe storms and 28% due to cyclones. The cost of insurance payouts from weather related natural disasters continues to rise in Australia (PMSEIC 2007).

“Because of the growing public awareness of climate changes, there has been worldwide pressure in reducing carbon emissions by producing clean and renewable energy”.

Because of the growing public awareness of climate changes, there has been worldwide pressure in reducing carbon emissions by producing clean and renewable energy. Existing fossil fuel-based power generation systems are one of the major contributors of carbon emission and consequently, global warming. Currently, renewable energy sources meet 15–20 % of the world's total energy demand. Renewable energy generates around 7% of electricity in Australia, with 4.5% sourced from hydro-electricity, while wind energy generates 1.5% of the total electricity (Shafiullah et al. 2012). However, according to ABARES, biogas had the fastest rate of growth in 2008–2009 with around 33%, followed by solar and wind with 6.5% (Renewable Energy 2012). South Australia is the pioneering state in RE having 20% RE in the energy mix compared to 7% nationally (Clean Energy Australia 2011).

A number of policy measures have been launched in Australia to boost the proportion of electricity generation from renewable energy.

A number of policy measures have been launched in Australia to boost the proportion of electricity generation from renewable energy sources aiming at achieving the national goal of incorporating 20–25% RE into the energy mix. It is commonly believed that the deployment of alternative resources will require a great deal of new research and development effort. This may have been true in the past, but it is not a correct assumption in the current days as there are a number of tried-and-tested technologies that are readily deployable. Unfortunately, many of these renewable energy technologies seem cost-ineffective when compared with coal-generated electricity; that is, unless coal is fully costed for its carbon emissions (Dopita & Williamson 2010). The introduction of a carbon tax in Australia will make fossil-based power generation costlier, while introducing feed-in tariff would encourage energy producers to generate renewable energy.

Since the power grid in urban areas are congested and overloaded due to huge customer base, installing renewable energy farms in urban areas would be counter-productive. Due to lightly loaded and sparse grid infrastructure in the regional areas, renewable energy farms must be based in regional Australia. Recent research already shows that wind and solar power generation has great prospect in regional Australia (Shafiullah et al. 2012). Furthermore, besides reducing carbon emissions and environmental impacts, regional generation of renewable energy can strengthen the socio-economic condition of regional Australia through job creation and economic diversification, as well as improved regional environmental outcomes.

Due to lightly loaded and sparse grid infrastructure in the regional areas, renewable energy farms must be based in regional Australia.

This chapter explores the benefits and possible deployment and integration issues of renewable energy so as to build a clean-energy future for a sustainable regional Australia. A literature review was conducted to explore the benefits and opportunities renewable energy can bring for regional Australia. The initiatives taken by the governments and the research community in Australia to develop a climate-friendly sustainable regional Australia have also been discussed. Finally, a hybrid model has been presented to investigate the prospects of renewable energy, in particular wind and solar energy, in different of locations across regional Australia aiming at the discovery of the locations that have great potential for wind and solar energy generation.

## 15.2 Comparing and Contrasting Renewable Energy Sources

The renewable energy technologies including wind, solar, biomass can be divided into three broad categories depending on the application: (1) grid connected renewable energy systems, (2) off-grid power generating renewable energy systems and (3) renewable energy systems for thermal energy and mechanical use (Akella et al. 2009; Shafiullah et al. 2012). Small scale photovoltaic technology is also cost-effective in providing electricity in rural or remote areas, particular in a country such as Australia. However, wind generation is one of the fastest-growing and cost-effective resources amongst the different renewable energy sources.

Large wind turbines are cheaper than any other renewable energy sources, and under the mandatory renewable energy target (MRET) they are comparable with coal-fired electricity generation at current costs (Dopita & Williamson 2010). However, as fossil fuels are expected to incorporate environmental costs with the introduction of carbon tax, the competitive position of wind turbines will be better. The greatest advantage of wind turbines is that they can generate power when there is no sunlight. They can run in parallel with existing solar installations or as a standalone wind system. Off-shore installations of wind farms could at least double Australia's wind power potential; with turbines either mounted on the seabed in shallow water, or floating but tethered to the seabed in deep water. The greatest Australian prospect for off-shore wind power is near Tasmania (Shafiullah et al. 2012), but all the southern coast of Australia could be used. Unfortunately, both the capital cost and operational and management costs of off-shore wind power is about twice that of on-shore. The former is due to the considerable costs of foundations, submarine transmission cables and installation facilities, while the latter reflects the remote and harsh sea environment in which they operate.

Solar photo-voltaic (PV) cells are the best for supplying peak demands in the middle of the day, but they are not effective in handling the evening peak. PV systems are suitable for domestic grid-connect power applications. However, PV cells are costlier than wind turbines and hence, it requires a longer period to recover the cost depending on the feed-in tariff. While PV system generates electricity directly, solar thermal generation system concentrates solar energy to heat a fluid. The high temperature fluid produces steam that drives the turbine to produce electricity. When equipped with appropriate energy storage, solar thermal generation systems can be used to generate base load power.

Some believe that bio-fuels offer a useful fuel supplement for fossil fuel. The full carbon accountancy shows that the net savings on carbon emissions for liquid bio-fuels is negligible and sometimes negative (Dopita & Williamson 2010). Biomass combustion already provides a useful supplement to coal in conventional power stations. Given that agricultural crop residues often have a dumping cost associated with them; and that biomass energy conversion processes can be used for heat and electricity generation – and even transport fuel production – there are good economic and market prospects for biofuels (Stuckley et al. 2004). However, substantial amount of land and water is required to grow these crops.

The full carbon accountancy shows that the net savings on carbon emissions for liquid bio-fuels is negligible and sometimes negative.

‘Smart grids’ are also an emerging phenomenon with strong linkages to renewable energy systems. Two of the key goals of smart grids are to ensure energy efficiency through (1) demand-side management and consumer participation and (2) integrate renewable energy into the smart grid. Energy efficiency measures allow households, businesses and regional communities to lower energy costs while at the same time contributing to cutting carbon pollution. The intermittent and variable nature of renewable energy sources makes the integration more challenging, which introduces significant costs to integration. However, smart grid strives to address this by maintaining the balance between power generation demand using demand-side management and electricity storage technologies.

### 15.3 Australian Renewable Energy Initiatives

Australia is one of the leading countries generating wind power. South Australia has an installed capacity of 907 MW from 435 turbines accounting for close to 20% of that state’s electricity needs, considerably ahead of Victoria with 428 MW from 267 turbines, and Western Australia with 202 MW from 142 turbines (Clean Energy Australia 2010). Once completed, the 420 MW Macarthur Wind Farm will be the largest wind farm in Australia and the Southern Hemisphere (Australian Power Technologies 2011; BTE 2001). At the end of October 2010, there were ten renewable electricity projects at an advanced planning stage and a further 99 projects at a less advanced stage in Australia; of these, eight are advanced wind energy projects and 79 are wind projects at a less advanced stage (Australian Government 2011).

There are five proposed solar energy projects in Australia, among which the 80 MW solar plant at Whyalla, South Australia is the largest (BTE 2001). Lately, the Clean Energy Initiative (CEI) (CEI 2011) has been set up by the Australian government for the commissioning of a number of renewable and clean energy technologies to cut GHG emission and to meet increasing electricity demand. CEI program consists of a number of schemes including:

1. Carbon Capture and Storage (CCS) initiatives: CCS flagships scheme fast-tracks the commissioning of large scale integrated CCS projects in Australia that will cut emissions from coal use.
2. Solar flagships: Solar flagships scheme promotes the development and demonstration of large scale, grid connected solar systems in Australia that play a vital role in power generation.



3. Australian Solar Institute (ASI): ASI offers solar research and development facility as well facilitates collaboration among researchers in universities, institutions, and industry.
4. Australian Centre for RE (ACRE): ACRE is fostering the development, commercialization and commissioning of RE technologies.
5. RE Future Fund (REFF): REFF promotes the development and commissioning of large and small-scale RE projects.

The Intelligent Grid Program (CSIRO 2009, iGrid; Dopita & Williamson 2010) in Australia started on 19 August 2008 which is being developed under the CSIRO's Energy Transformed Flagship. The program aims at achieving the national goal of cutting GHG emissions.

## 15.4 Prospects for, and Value of, Renewable Energy in Regional Australia

The regional areas of Australia are paying the toll for changing climate. Research shows that Australia is expected to warm at 0.45 °C per decade – almost five times faster than the continent warmed between 1950 and 2000 (PMSEIC 2007). The range of warming is projected to be maximum in spring and smallest in winter. Also the rise in daily maximum and minimum temperature will be similar to the changes in average temperature (Huges 2003). South-west Western Australia has already seen a decline in rainfall and the best climate models show a continued decline in this region. There is increasing evidence that rainfall in the most southern parts of Victoria will also decline. The projected declines in rainfall over southern Australia in the winter and spring seasons have significant implications for water resources and activities particularly dependent on them. The warming would be much less and the range in rainfall would be much narrower if the CO<sub>2</sub> concentrations in the atmosphere could be stabilised (Suppiah et al. 2007). The planned generation of renewable energy would help reduce the impact of changing climate regional Australia.

Increasing the share of renewable energy in total power production will not only reduce carbon emissions and slow the effects of climate change; it will also have a significant impact on the socio-economical conditions in regional Australia. New modeling presented in the *Clean Energy Australia 2010* report by Clean Energy Council predicts that more than 55,000 jobs are expected to be created in renewable energy by 2020, many in regional areas. Europe – in particular, Germany – leads the world in photovoltaic manufacturing, producing an estimated 1,063 MW of solar cells in 2007 which is more than 56% of the production in 2006 (Dopita & Williamson 2010). This growth has seen a sharp increase in jobs in this sector. In 2004, Germany has employed 25,100 in photovoltaic sector. By 2006, this has risen to 40,200 and to 50,700 in 2007. Similar growth of photovoltaic manufacturing

sector in Australia will create new job opportunities and new sources of economic growth.

New modelling presented in the Clean Energy Australia 2010 report by Clean Energy Council predicts that more than 55,000 jobs are expected to be created in renewable energy by 2020, many in regional areas.

Renewable power plants would also bring indirect benefits to regional areas like income generation, employment creation, and improvements in local air quality and other enhancements for quality of life. Job creation is an important part of economic development activity and strong economies. For example, the creation of employment not only benefits the community through the income earned from those jobs: as workers tend to spend a fraction of their income in the local economy, it generates spin-off benefits known as the multiplier effect (Akella et al. 2009). The growth in income stimulates more economic activities in other sectors such as retail, restaurant, home and entertainment. A review of some 30 studies of employment in the energy sectors in North America showed that renewable energy projects can create twice as many jobs as conventional energy projects, per dollar invested (Campbel & Pape 2009). According to (Dollars from Sense), the economic advantages of renewable energy technologies are twofold: (1) they are labour intensive, so they generally create more employments for the same amount investment than conventional electricity generation technologies, and (2) they use primarily native resources, so most of the energy dollars can be kept at home.

Australia's regional areas continually seek economic diversification. Investing in renewable energy can be one good way to diversify the economy: instead of one or two main sources of energy supply (such as oil or coal), there can be numerous sources and technologies, depending on particular regional advantages – that is, what resources are available in any particular location (wind, solar, biomass, geothermal, wave). Establishment of renewable energy plants would result in direct construction jobs, purchase of materials, need for transportation, hire of equipment, housing of workers, purchase of land, and the requirement for a variety of other goods and services. According to Stuckley et al. (2004) some of the benefits of renewable energy generations, particularly biomass energy is as follows:

- Stimulation of rural and regional development through rural depopulation and diversification of the local economy.
- Macroeconomic achievements which include energy security, higher growth, diversification of risks, increased export capability.
- Supply-side implications, including higher productivity, more competitiveness, better of mobility labour and population, superior infrastructure, and economies of supply.
- Demand-side implications, including employment, income, induced investment, and support for related industries.

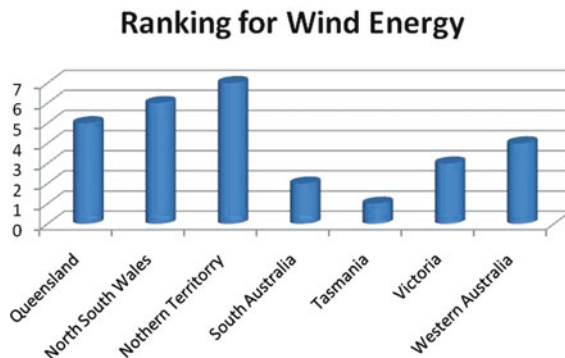
Investing in renewable energy is a good way to diversify regional economies.

A study by Shafiullah et al. (2012) observed that in Australia, Tasmania is the most suitable State to install large scale wind generation plants and on the other hand, the Northern Territory is the most suitable place to install solar plants. They also concluded that wind and solar generation have great prospects in Australia, and are able to produce large scale energy which is free from GHG emissions. Medium and small wind turbines can supply remote power for sparsely populated regions in Australia. Feed-in-tariff has been introduced by the state governments to stimulate solar PV power generation in Australia. However, medium and small wind turbines can play important roles in shaping the renewable energy future of Australia. Currently, small turbines have an installed cost per unit of power output three times higher than the large wind farms. Therefore feed-in tariff that include wind energy would encourage the uptake of wind energy from small turbines to individual houses and the uptake of wind energy from medium turbines to community and businesses.

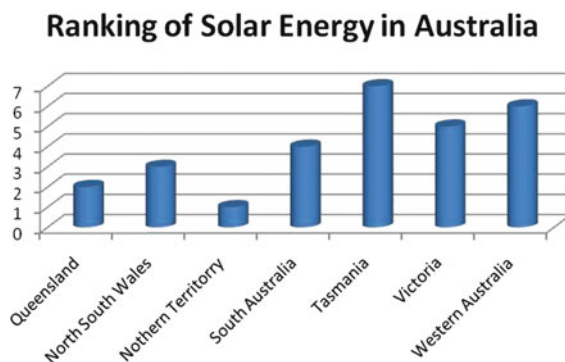
## 15.5 Regional Prospects: A Wind-and-Solar Case Study

Considering the need of RE for a energy-efficient climate-friendly environment the Australian Government has taken the initiative to integrate 20% or even 25% energy from RE sources to the energy mix by 2020 (PMSEIC 2007). Therefore, this study draws on the work of Shafiullah et al. (2012) to focus on investigating the prospects of RE for the regional Australia to increase power generation from RE sources. In this study, suitable locations of Australia for wind and solar energy generation sites were explored with the intent of providing early indications to utilities as to possible sites for deployment of large-scale renewable energy generation plant. A simulation and statistical analysis demonstrated considerable variation amongst Australian states, with respect to rankings for suitability of RE generation, For example, it was observed that Tasmania is the most suitable and the Northern Territory is the least suitable state for wind energy generation (Fig. 15.1). By comparison, the Northern Territory and Queensland are the first and second preferred States, respectively, for generation of large-scale solar energy (Fig. 15.2). From these preliminary results, Tasmania and the Northern Territory were selected as case studies for a more comprehensive examination of the significance of RE in regional Australia.

Tasmania ranks highest in terms of potential for wind power; for solar power the Northern Territory is the most promising.



**Fig. 15.1** State-wise ranking of Australia for wind energy generation. Rankings indicate 1 – most preferable to 7 – least preferable (Source: Adapted from (Shafiullah et al. 2012))



**Fig. 15.2** State-wise ranking of Australia for solar energy generation. Rankings indicate 1 – most preferable to 7 – least preferable (Source: Adapted from (Shafiullah et al. 2012))

Next, five regional weather stations/locations were chosen from both Tasmania and the Northern Territory. For Tasmania, three regional locations were chosen that has maximum wind speed irrespective of solar irradiance (Macquarie Island, Maatsuker Isl, Mt. Wellington AWS<sup>1</sup>); one location was selected considering both wind and solar energy (Cape Grim); and the remaining other location was of minimum wind speed (Launceston Airport). For the Northern Territory, three regional locations were chosen that has maximum solar irradiance irrespective of wind speed (Alice Springs airport, Tennant Creek airport, Victoria River Down); one location selected considering both wind and solar energy (Cape Wessel); and the remaining location had minimum wind speed (Pork Keats Aws).

For each of these study sites, the authors considered the potentialities of wind and solar energy. Hybrid models were developed using Hybrid Optimization Model for Electric Renewables (HOMER) simulation software to analyse the potentialities

<sup>1</sup> AWS = Automatic Weather Station

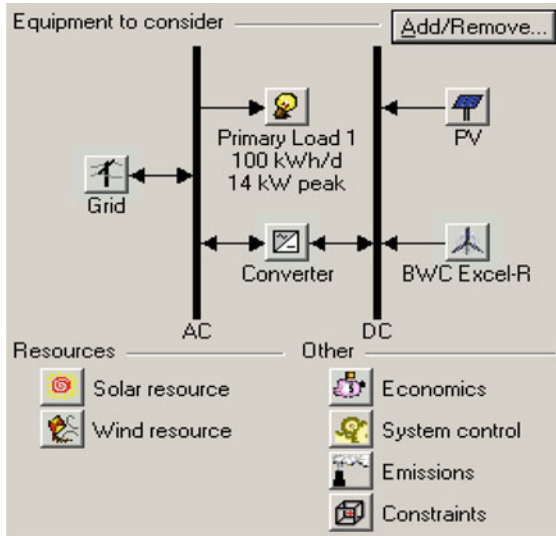


Fig. 15.3 Typical hybrid renewable energy model

of solar and wind energy in the Northern Territory and Tasmania. These developed simulation models compare the performances of PV/wind/grid-connected, PV/grid-connected, wind/grid-connected and only grid-connected system based on the performance metrics of net present cost (NPC), cost of energy (COE), renewable fraction (RF) and GHG emissions. In general, a hybrid system comprises with an electric load, renewable energy sources (wind and solar) and RE sources (PV and wind turbines), a converter, and a grid connection (Fig. 15.3). A typical load profile was used in this study considering Australia’s average monthly load demands.

In terms of methodology, solar irradiation data were collected from NASA’s Surface meteorology and Solar Energy (SSE) resource website (NASA). The total solar energy available from the Sun at the Earth’s surface over time is given in (15.1) (Nielsen 2005).

$$E = 0.58 * 3.6 * 10^{-9} S n \pi r^2 \tag{15.1}$$

where E is the solar energy in EJ, S is the solar constant in W/m<sup>2</sup>, n is the number of hours and r is the Earth’s radius in km.

HOMER calculates daily radiation and monthly average values of clearness index from the daily solar irradiation data which is used as an input resource in the hybrid model. For sensitivity analysis, four values around the mean radiation were used to increase experimental flexibility and robustness. The maximum power P available from the wind turbine can be represented as (15.2) (Fox et al. 2007):

$$P = \frac{1}{2} \rho A v^3 \tag{15.2}$$

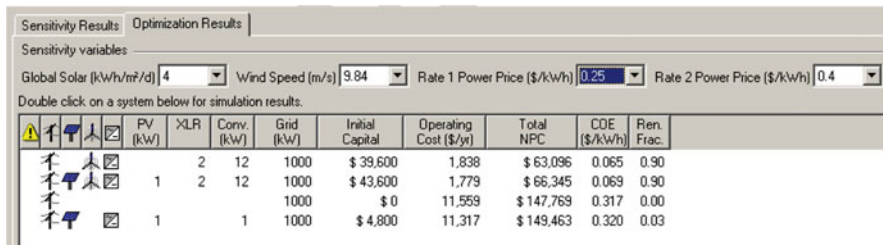


Fig. 15.4 Optimization screen results for Macquarie Island, Tasmania

where  $A$  is the swept area of the rotor,  $v$  is the wind speed and  $\rho$  is the air density. However, it is not possible to extract all available energy and hence, the energy production from the wind turbine will be less than the actual theoretical amount. Therefore, a power coefficient ( $C_p$ ) is defined which the ratio of maximum power is obtained from the wind to the total available power in the wind. The factor  $C_p = 0.593$  is known as Betz’s coefficient or limit (Fox et al. 2007, Kamau et al. 2010).

Capital, replacement and O&M costs of PV unit and wind turbine has defined with number of units and operating hours in HOMER in order to simulate the system for economical analysis. The sensitivity analyses have been conducted in the model evaluating the performances of different hybrid systems. Optimization and sensitivity analysis have given an in depth picture for each individual system and location: either the system/location is or is not economically or environmentally sustainable in certain meteorological situation. Sensitivity analysis is used to check the sensitivity of a model with changing the value of the parameters and the structure of the model (HOMER). This study also measured  $CO_2$ ,  $SO_2$ , and  $NO_2$  emissions from standard grid-connected, wind/grid-connected, PV/grid-connected and PV/wind/grid-connected system.

From simulation analysis, it was clearly observed that wind and solar energy have an important role in allowing regional Australian to deliver on reduced GHG emissions at the national level. They are also critical for reducing energy production cost and meeting increasing electricity demand (energy security). The simulation results proved that Tasmania has significant potential considering large scale wind energy generation, whilst the Northern Territory could play a major role in solar energy generation. For example, in Tasmania, wind energy contributes extensively to generate energy in most of the locations in Tasmania except Pork Keats Aws. Furthermore, of the studied sites, the optimized Macquarie Island wind/grid-connected power system was identified as economically more viable than the other studied systems (Fig. 15.4). Here, the wind/grid-connected system has a minimum total NPC of \$63, 096 and a minimum COE of \$0.065/kWh in comparison to the grid-connected power system with a minimum total NPC of \$147,769 and a minimum COE of \$0.317/kWh. However, the contribution of PV is not significant and economically acceptable. Contribution from RE, i.e., RF in wind/grid-connected system is 0.90 while contribution from RE, i.e., RF in PV/grid-connected system is 0.03.

**Table 15.1** Annual emissions (kg/year) of carbon dioxide, sulphur-dioxide, and nitrogen oxide of four studied system

State	Weather station location	Standard grid			PV-grid			Wind-grid			PV-wind-grid		
		CO <sub>2</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO <sub>2</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO <sub>2</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO <sub>2</sub>	SO <sub>2</sub>	NO <sub>2</sub>
Tasmania	Macquarie Island	23,068	100	48.9	22,643	98.2	48	-19,724	-85.5	-41.8	-19,933	-86.4	-42.3
	Maatsuker Island	23,068	100	48.9	22,503	97.6	47.7	-20,016	86.6	-42.4	-20,291	-88	-43
	Mt. Wellington Aws	23,068	100	48.9	22,448	97.3	47.6	-19,118	-82.9	-40.5	-19,430	-84.2	-41.2
	Cape Grim	23,068	100	48.9	15,770	68.4	33.4	-20,176	-87.5	-42.8	-20,607	-89.3	-43.7
	Launceston Airport	23,068	100	48.9	22,741	98.5	48.3	18,480	80	39.2	18,182	79	38.5
Northern Territory	Alice Springs Arprt	23,068	100	48.9	14,905	64.6	31.6	-21,280	92.3	45.1	14,241	61.7	30.2
	Tennant Creek Arprt	23,068	100	48.9	14,739	63.9	31.3	9,119	39.5	19.3	7,413	32.1	15.7
	Victoria River Down	23,068	100	48.9	21,280	92.3	45.1	22,188	96.2	47	14,890	64.6	31.6
	Cape Wessel	23,068	100	48.9	12,499	54.2	26.5	-1,276	-55.3	-27	-13,486	-58.6	-28.6
	Pork Keats Aws	23,068	100	48.9	16,784	60.1	35.0	11,577	38.5	20.3	9,986	60.5	30.2

By contrast, in the Northern Territory, the study illustrated that at Tennant Creek Airport, the wind/grid-connected system is only preferable when the wind speed is above 5.5 m/s. Unfortunately, the average wind speed of this location is 4.78. Therefore, this location is only suitable for PV/grid-connected system. In terms of economic considerations, a cash flow summary for Cape Wessel, Northern Territory showed that majority of the operating cost is due to the grid components and converters, whilst RE sources require less expenses. However, 80% of the capital cost is required for the wind turbine and PV module, and remaining 20% cost is required for converter.

Finally, the total yearly emission from standard grid-connected, wind/grid-connected, PV/grid-connected and PV/wind/grid-connected systems were estimated and analysed. Here, the amount of emissions from pollutants is calculated by multiplying the net grid purchase of each pollutant in KWh and the emission factor g/kWh. The net grid purchases is calculated in HOMER by deducting the total grid sales from the total grid purchases (HOMER) and emission factor considered for this simulation analysis are based on reference (DOE USA).

Table 15.1 represents the yearly emissions of CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>2</sub> from the developed hybrid RE models at the selected ten locations in regional Australia. For example, for Macquarie Island, Tasmania the standard grid-connected only system emitted 23,068 kg CO<sub>2</sub> per year, while a PV/wind/grid-connected system emitted only -19,993 kg/year. A PV/grid-connected system emitted 22,643 kg CO<sub>2</sub> per year and wind grid-connected system emitted only -19,724 kg/year. This negative emission clearly indicates that wind energy has significant potentialities in Tasmania and this system sells more power than it purchases from the grid. For Victoria River Downs, the Northern Territory the standard grid-connected only system emitted 23,068 kg CO<sub>2</sub> per year, while a PV/grid-connected system emitted only 21,280 kg/year. A wind/grid-connected system emitted 22,188 kg CO<sub>2</sub> per year and wind/PV/grid-connected system emitted only 14,890 kg/year.

From this study, it can be concluded that wind energy has more prospects compare to solar energy and plays a key role in this hybrid energy system. Based on the performance metrics, optimization results and sensitivity analysis from the models it has seen that many locations in regional Australia have potential for both solar and wind energy generation. However, most of the locations of Tasmania perform exceptionally well for wind energy generation and few locations are highly promising for solar energy generation. On the other hand, most of the locations of the Northern Territory are highly prospective for solar energy generation and few locations are also promising for wind energy generation. This study only focuses cost of energy generation and GHG emissions, and does not focus on transmission cost or other socio-environmental factors. Therefore, require further studies that concentrate these areas for a sustainable pollution free environment.

Many locations in regional Australia have potential for both solar and wind energy generation.



## 15.6 Conclusion

A recent issue of increasing public focus is the requirement for sustainable and environmentally friendly power systems that are smart, reliable, and with zero carbon dioxide emission. Renewable energy is an essential component of Australia's low emission energy mix, and is important to Australia's energy security. Currently, Government, utilities and research communities are jointly attempting to increase the use of renewable energy mix it into the energy grid. Solar and wind are the most promising sources of energy among the renewable sources. However, biomass energy generation can have good economic and market prospect as the feedstock are grown and processed locally. The Australian Government is currently focused on wind and solar energy generation and has introduced a large number of projects in this area to achieve their mission to integrate 20–25% renewable energy into the grid by 2020. Much of the energy needed from RE cannot be located in the highly populated area or metropolitan area due to the limitation of the already loaded grid. Thus, successfully achieving Australia's 20% RE target will rely on delivery from regional Australia.

Successfully achieving Australia's 20% RE target will rely on delivery from regional Australia.

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## Chapter 16

# The Contribution of Business Operators to Regional Areas: Roles, Skills, Benefits Beyond the Store Front

Peter Vitartas, Sue Kilpatrick, Martin Homisan, and Susan Johns

**Abstract** Why would an entrepreneur leave a secure position or business, with all their creature comforts, and move to a regional area of Australia to take on a new business venture? The statistics on regional populations have indicated that these areas are aging; the young have no interest in staying in regional areas and are moving to the cities for education and job opportunities. Further, regional areas suffer from a lack of services and infrastructure. Yet rural regions are still attracting people; many of whom are willing to establish an enterprise as a means of employment.

This chapter specifically reports on data from self-employed business operators who have moved to a regional community. The data was collected as part of a larger study on professional and other highly skilled workers, that examined how rural communities can capture maximum benefit from an increasingly mobile and transitory workforce (Kilpatrick, S., Vitartas, P., Homisan, M., & Johns, S. (2010) *The Mobile Skilled Workforce: Optimising benefits for rural communities*. Rural Industries Research and Development Corporation, Canberra, ACT). In this work, the new business operators are examined as a subset of mobile skilled workers, with the objective of identifying the benefits that regional areas derive from their skills; as well as exploring the contribution that business operators make beyond the services and produce of their enterprise. These new business operators face many challenges in integrating into the community and running their businesses. Their work and efforts often go unrecognised because they operate in the private sector and there is an expectation that their efforts are rewarded through the profit of their

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business. In this context, innovative community settings that could encourage and support new operators are identified and discussed.

## 16.1 Introduction

Irrespective of their location, new business operators often face significant challenges in their struggle to establish and maintain a business. In regional areas, however, they face additional constraints of competing with local operators, many of whom have long established operations and an intimate knowledge of local customers; access to skilled and educated labour; distance; and the need to form strong connections with the local community to gain acceptance for their enterprise.

A number of challenges must be faced by those hoping to establish a new business in regional Australia.

Over the past 50 years, rural communities in Australia have witnessed the movement of people, particularly youth, toward urban areas. This drift has led to the demise of some communities and stagnation in many others. There has been a number of studies reporting on this phenomena (Eacott and Sonn 2006) and some regional areas have made attempts to take advantage of a counter-urbanisation trend to encourage people back to regional areas (Cini 2012). Other areas have benefited significantly from the 'sea- or tree-change' phenomena, where retirees move to warmer climates or other destinations they have coveted during their period of employment in urban areas.

While the impact of the counter-urbanisation trend has not been explored in Australia anecdotal stories suggest the phenomenon exists. Likewise, people who are approaching the end of their working career may see opportunities in regions, particularly those that have benefited from population increases due to demographic shifts resulting from the mining boom or sea/tree change phenomena. Some of these people may have business or management skills that enable them to undertake new business operations or ventures.

It is in rural communities' interests to attract and retain these skilled workers and business operators, as they represent important financial and social capital, thus enabling them to boost economic activity (Florida and Tinagli 2004) through their ability to build and inspire community development, the introduction of new ideas, their leadership, and ability to attract other professionals so that rural communities can be sustainable. However, there is little research that has investigated the innovations, benefits and challenges of new business operators who establish new ventures in regional communities. This chapter reports on a study investigating how rural communities can gain advantage from these skilled newcomers in their community. In particular it explores the benefits new business operators bring to

a community and the challenges they have faced when entering and establishing their business.

Scant research has focussed on the innovation that new business operators can bring into regional areas, and how this can best be harnessed for sustainable development.

## 16.2 Background to the Project

Within Australian communities, some people choose to adopt a working lifestyle that involves frequent relocation, whether it be to pursue employment opportunities or to improve the lifestyle of their current situation. Lifestyle-driven mobile workers are more likely to have come from further afield, often driven by the natural environment and the attraction of a safe place to raise a family (HallAitken 2007). It is not uncommon for lifestyle mobile workers (including retirees) to have prior knowledge of the rural area because they had spent holidays there (HallAitken 2007; Rodriguez 2001). For some mobile workers, the driving force for their move is not higher income, with some workers taking a reduction in salary, but that this is compensated by better quality of life.

It is not uncommon for mobile workers to choose to settle in areas of regional Australia based on prior visitation – such as family holidays.

Previous research has identified and examined a number of skilled worker types. These include seasonal workers, professionals and retirees. Seasonal workers are largely (but not always) driven by employment/financial reasons while professionals are driven by employment or a combination of lifestyle and employment reasons, and retirees by lifestyle reasons (HallAitken 2007).

At a national level, skilled workers are more likely to migrate to places with low unemployment and high real income, such as mining towns, while older people (over 55) are moving out of such places into high unemployment and low real income areas (National Institute of Economic and Industry Research 2006). This explains the link between high unemployment and rapid ageing that is experienced in certain regions of Australia. Such regions are also likely to have no or limited university or TAFE courses, meaning that many of the skill requirements will need to be met by migration.

The tourism and agricultural industries tend to have a large demand for seasonal workers and much of the research refers to seasonal workers with a lower skills base, and to issues impacting on their work and family life (Kilpatrick and Bound 2005). However, not all people working in these industries are necessarily low-skilled. They may be working outside their area of skill, picking up itinerant work to

assist their own travel or lifestyle motivations. ‘Grey nomads’ are recognised as a new group of seasonal workers and have been identified as ‘sought after’ because they have an established work ethic, their own transport, and mobile accommodation (Onyx et al. 2008; Rural Skills Australia 2005). Early retirees also ‘reinvent’ themselves by moving to a rural community and purchase or establish a business (Curry et al. 2001).

Professional skilled workers include those in the health, education and police services. The shortage of medical practitioners in rural areas has led to research on locums (Hall et al. 2007), as well policy to attract overseas trained medical practitioners and specialists seeking residency in Australia (Han and Humphreys 2005; Wilks et al. 2008). Teachers and university academics have been found to be important in community renewal (Kilpatrick et al. 2002; Organisation for Economic Cooperation and Development 2001; Kilpatrick and Loechel 2004).

In the private sector, many in-migrants have been identified as self-employed households who have created new service jobs and make a substantial contribution to employment growth (Kalantaridis and Bika 2006). Business operators have been found to avail themselves of opportunities for new enterprises and test new ideas in rural areas. Kalantaridis and Bika (2006) report on in-migrant entrepreneurs to rural Cumbria in the UK and found many will remain in rural areas, depending on the success of their venture. Compared with local entrepreneurs, they found in-migrant entrepreneurs have relatively high levels of education, many have come from managerial backgrounds, and have significantly higher level of managerial experience, qualifications and training.

Business operators are a key source of ‘new ideas testing’ in rural areas – a cohort of people with often high education, managerial backgrounds, and a willingness to try new ventures.

### 16.3 Potential Benefits from Newcomers

In terms of new entrepreneurial contributions, Kalantaridis (2010) reported that the success of new venture creations is dependent on an individual’s education level and the networks and the contacts they bring to a region. Further, he found that these human capital resources affected their ability to access external markets and resources; however, entrepreneurial in-migration was found to be more successful in areas where there were already higher densities of successful entrepreneurial in-migrants.

Success begets success? ‘Entrepreneurial in-migration’ is often more successful in areas already having successful, entrepreneurial in-migrants.

The benefits a newcomer can bring to a rural community can be broadly grouped into three categories – economic, social and environmental – acknowledging there is overlap between the categories. The migration of any person to a rural community will have an economic impact through their consumption and demand created for services. Professionals are able to bring new skills and ideas, and in doing so they increase the workforces' diversity and dynamism (HallAitken 2007). Further, they arrest the 'brain-drain' of the young and other dynamic individuals from rural areas, increase the number of business ventures, offer employment and income opportunities and recruit skilled workers from outside the region, and increase the skills base available to the community (Kalantaridis and Bika 2006).

In-migrants facilitate the flow of information into regional areas, by drawing on external knowledge and resources . . . this enhances the chance of trading in national and global markets.

In-migrants, it is argued, also facilitate the flow of information, particularly from external sources, by drawing on external knowledge and resources. This enhances integration of rural economies in national and global markets. In fact, 'it is this "accumulated capital" of networks and contacts, the result of their distinct (non-local) life trajectories, that make new arrivals sources of innovation and change in the countryside' (Kalantaridis and Bika 2006, p. 126).

While past research has examined entrepreneurial and new business venture creation in terms of the effect on the region in which they are established, there is generally little work that has examined the broader impact of new business operators and their families in terms of the other contributions they make to their community. For example, do they introduce innovative ideas and activities to the region they move to and what contributions do they make to their communities? The following section outlines the approach taken in collecting data for this study and provides a profile of seven communities investigated as part of this research.

## 16.4 Methodology

The data reported here are drawn from a larger study that examined the benefits that the mobile skilled workforce brought to rural communities (Kilpatrick et al. 2010). A separate additional analysis was undertaken and focused on 14 mobile skilled workers identified as business operators and who had been included in the initial study. Their inclusion had occurred because they met the criteria of the original research of someone who had entered the community in the past 3–5 years and been noted as having made a significant contribution in that time. Further analysis was

considered appropriate to explore the specific nature and characteristics of business operators in light of the questions outlined above.

The original study utilised a qualitative, case-study approach with data collected from seven rural study sites across six different Australian states and one Canadian site. Sites were selected in consultation with a project reference group, comprising relevant stakeholders from government and industry. Sites had a population of less than 12,000 and represented diversity in terms of community demographics, population, distance from a major service centre, and industry base. Ethics approval was obtained and specified that site names not be reported. Key informants within the selected sites assisted in recruiting 89 mobile skilled workers. Interviews were semi-structured and questions were open-ended with a number of prompts, to elicit deeper responses from participants (Yin 2003). Interviews were audio recorded and later transcribed. Additional background data were collected on written participant checklists from respondents.

Categories or themes were generated from the data, consistent with an inductive analytic approach (Ryan and Bernard 2000) and with exploratory case study (Yin 2003). Analysis did not follow a strict grounded theory strategy (Corbin and Strauss 2008), in that categories were also shaped by the research questions guiding the study, and by the literature (Ryan and Bernard 2000).

A limitation of the study was that most of the sites were seen as desirable places to live, and the mobile skilled workers who participated in the study had all chosen voluntarily to relocate to the particular site.

## 16.5 Summary of Study Sites

Below is a summary of the five sites that contained business operators and included in this study.

Site 1 was a scenic inland rural site, approximately 45 km from the next largest regional centre and 200 km from the nearest state capital city. The site had a population of approximately 2,100 and median age of 42. The local economy relied on agriculture and forestry although tourism had become more important in recent times. There was a strong community orientation that had been developed by having to respond to a number of natural disasters over recent years. There were six business operators included from this site who were involved in retail, agriculture and hospitality industries and were attracted to the town by lifestyle and relatively proximity to the capital.

Site 2 was located on the coast of northern Australia. Its population of approximately 9,000 was steadily increasing. The largest service centre was 190 km away, and the state capital some 1,100 km south. The median age was 42. The local economy was driven by mining, agriculture, aquaculture, tourism, small-scale manufacturing, and a range of support industries. The site was known for a strong sense of community pride. There were three business operators included in the study from this site and they operated in the retail and hospitality industry.



Site 3 was an inland site that comprised two adjacent small population centres, of just under 800 and 300 people. It was a popular destination for retirees from other states. Located approximately 80 km from the nearest regional service centre, and 140 km from the state capital, the site was well known for its heritage buildings and associated tourism industry, as well as fine wool production and forestry activities. There was a strong sense of community pride. Mobile skilled workers included retirees, those from the government sector, and small business operators engaged in tourism and hospitality. Few were younger than 46, consistent with the site's median age of 50. There were three business operators included from this site.

Site 4 was also inland, approximately 120 km from the nearest regional service centre and 200 km from the state capital, with a population of over 4,000 and median age of 41. There were increasing numbers of international migrants from Asia and the Indian subcontinent. The site relied on a mix of mountainous agriculture and tourism, the latter supported by the nearby snowfields and outdoor activities. There was a recognised need for the town to expand, although there was some resistance from conservative elements in the community. Mobile skilled workers were mainly from the small business and government sectors. The site was attractive to younger mobile workers (aged 35 or less), most likely because of its proximity to the capital city and its outdoor recreational activities. One business operator was included from this site.

The Canadian site, Site 5, was on the prairies, just under 70 km from the closest regional centre and approximately 250 km from the province's largest city. The population of 7,600 was decreasing slightly. The median age was 35. The town was considered conservative and residents had strong religious values. The economy was diverse, with the main areas of employment being retail and wholesale trade, agriculture and other resource-based industries, manufacturing and services. Mobile skilled workers had come for employment reasons, or were seeking the lifestyle offered by the town as they moved toward retirement. One mobile skilled worker operated a business from this site.

While there were variations in the number of business operators from each of the sites, no control was maintained to select an equal number. The responses were an artefact of the key informants who provided details of the mobile skilled workers and the willingness of respondents to participate in the study. It is noteworthy, however, that business operators were included in all but two of the sites indicating the prevalence of new business operators as contributors to rural communities.

## **16.6 Findings**

### ***16.6.1 Business Operators' Characteristics***

All business operators interviewed were still living in the community. They ranged in age from their mid-20s to over 65, with slightly more in the 46–55 age group. There were approximately even numbers of males and females interviewed with the

majority having partners/spouses. These respondents were more likely to be without dependent children, either because they had not started a family, or because their children had already left home. The findings partly confirm research by the Bureau of Transport and Regional Economics (2006) which found that workers who no longer had dependent children were more likely to move to rural or regional areas. Just under half the respondents had moved from a large rural or regional community compared to the whole sample which was more heavily weighted to people from metropolitan areas. Around one fifth (20%) of the business operators came from overseas which was a higher proportion than the overall sample.

A large portion of the business operators, while self-employed and operating a business, considered themselves semi-retired. Some had moved to a rural community where they purchased or established a business, consistent with findings from research by Curry et al. (2001). The range of areas where business operators had undertaken training was quite diverse in contrast to the overall sample where prior training had been more in line with employment. The business operators prior study or training included; food hospitality and personal services, health, engineering, agriculture, IT, business and management, creative arts and society and culture. Just over half had tertiary qualifications.

Consistent with the larger sample of mobile skilled workers, the business operators shared several common attributes: an affinity with rural life; a preference or previous experience with a mobile lifestyle; flexibility and adaptability; a broad range of skills and interest in gaining new knowledge.

The common attributes of the studied business operators were an affinity with rural life; a preference or previous experience with a mobile lifestyle; flexibility and adaptability; a broad range of skills and interest in gaining new knowledge. However, perhaps their most distinguishing feature was the high level of risk that they would accept.

A small proportion of those with previous rural experience had family members living in the community to which they had relocated, or owned property there, including a holiday home, which strengthened their rural ties. For many business operators, the reasons for moving were personal but fitted in with their lifestyle. This is consistent with findings by HallAitken (2007), who noted that workers seeking a change of lifestyle were likely to have come from further afield, including metropolitan areas, and were often driven by the natural environment, quality of life, and the attraction of a safe place to raise a family (see also Cvetkovic 2009).

A distinguishing feature of the business operators from the mobile skilled workers was the high level of risk that they would accept. Many moved into a community without a previously arranged job. However, this risk was well calculated with most indicating they had undertaken some type of detailed research before making the move. They had well developed information-seeking skills, and used a variety of sources such as word of mouth, visiting the community, and the

internet. Some used a combination of sources to assess the suitability of the rural community to their own and their family's needs.

A contrasting feature was that business operators were not as volunteer oriented or committed to the community although all were deeply involved in community activities. The reasons for the move were more personal for this group and not necessarily work or education related.

### ***16.6.2 Benefits from New Business Operators***

The new business operators we interviewed contributed significantly to the local communities. In some ways their contributions differed from those mobile skilled workers who were not involved in enterprises, although there were also similarities.

One of the main benefits highlighted by most of the operators was the employment that their enterprises created.

... "so I'm going to give qualification and knowledge and training to someone and I'm looking at expanding and working with more employees." (Site 4 Business operator).

All the enterprises employed local people either on a full-time or part-time basis. In a number of cases, the operators acknowledged the importance of employing local staff as it created goodwill and locals carried with them a knowledge of the local area and knew the local population. As one operator commented about employing locals:

... people look favourably upon it. So it does help your business if you've got locals in your store plus they've got a lot of local knowledge. (Site 1 Business Operator)

An aspect of employment was the associated training that many of the business operators provided. The training and job opportunities provide a boost to young workers confidence.

We've got a girl who's in her early twenties ... she's come out of her shell, she works very hard, she's very polite to all the customers and she's just blossomed since she's been with us. (Site 3 Business Operator)

It became evident from the interviews that the contributions of the local business operators were based on an understanding of business and local economics. They combined these with their management, marketing and organisational skills to undertake activities for the local community. Many of these involved taking on some risk – such as running an inaugural concert for the community or being involved in the local show. Their experience in business provides them with the confidence to take the initiative, or 'first step' (NSW BO) and their enthusiasm for the event spills over to others who enlist even more supporters.

If you inspire enough people to start, one goes to another and it spreads. (Site 1 Business Operator)

In addition to the economic benefits of employment creation and job training, there was also the social benefits. It was apparent that new business operators also bring a new perspective to people's thinking;

I would often discuss world events, current affairs . . . what I'm saying is you bring a little bit of something different in. (Site 1 Business Operator)

These new ideas extend to the way things can be done -

We've opened up the eyes, I think, of the community as to what you can do when you come in with nothing. A lot of people have said that to us. . . . they've said what an amazing job we've done. (Site 1 Business Operator)

And new experiences that had not been available before -

"the response from the customer I heard; Thanks so much, this is what this area was lacking for so many years." (Site 4 Business operator)

The activities of the business operators, particularly those that were seen as being success stories by the local towns folk, brought about a sense of pride and enthusiasm. A number of operators mentioned how their businesses had been noted by others, or had received comments from their customers. A boutique retailer commented after explaining how their store attracted business from outside the region and visitors:

I guess I think people are quite proud, they are proud to have a shop like this in town (Site 1 Business Operator).

Another commented: *we are now viewed by Council as their 'show piece' . . .*

While the business operators did not appear to be as focussed on the community as other mobile skilled operators, they did care for the community. For example, they mentioned donations of money, time, effort, skills and advice on projects in their local community. They became involved by joining local committees and providing skills that others in the community don't have. In addition to their time they do a 'lot of thinking' (Site 1 Business Operator).

A business operator from Site 5 explained that he participated in a men group which cared for a local park and received council funding which the group in turn donated to the community. Their group also assisted in projects for elderly people such as moving or undertaking repairs to their houses.

They are also interested in improving the town. Several of them made mention of support for culture and the arts by assisting in conducting concerts and cultural events. They also promote the town and attract tourists to the town as it brings in business and helps the local economy. This can include maintaining the local infrastructure and buildings, often renovating them.

. . . we just feel, because we're business people we're basically focused on trying to make our town a little bit better than what it is. (Site 1 Business Operator)

They also try to support other businesses in the town. A 'bed and breakfast' operator made sure that their guests were familiar with all the local businesses and encouraged them to visit locally:

we send a lot of guests to different restaurants . . . and tell them where to go . . . [for example] the movie theatre is just a marvellous asset to [the town]. (Site 2 Business Operator)

Supporting local business operators means small towns can maintain ‘a bit of variety in town’ (Site 1 BO). When locals start to travel out of town to go to larger centres they are putting the local retailers in jeopardy. As one retailer explained:

People would come in and they’d say ‘can you put \$5.00 in so I can go to [larger business centre] to fill up’ ... and then the same people would come back and say ‘could you support my kids?’ ... (Site 1 Business Operator)

The new business operators were involved in multiple organisations. While they may have started their involvement in one organisation many of them mentioned they had become involved in another organisation, or their multiple interests led to involvement in other organisations.

I’ve been the church warden ... and I’ve been on every organisation in town. I judge the Christmas lights ... I throw myself into helping youth. (Site 3 Business Operator)

Their involvement with local activities can be developed because they are seen as public figures by the local community. The fact that they are dealing with the public on a regular basis provides them with awareness and exposure to a range of people. Some use their attendance at meetings to build networks and contacts that may assist their businesses. A small number of the business operators indicated they undertake community activities to gain favour for their business’ operations. The development of networks has led to contacts and the opportunity to talk to people about their business. Part of this might involve ‘contra deals’ for example the supply of business services for free advertising or sponsorship rights to an event or activity. Others who indicated they had the time available to contribute to the community did so freely with no expectation of reward.

I do everything free; I do nothing for money. I did work for the church free ... I’m happy to give my time. ‘Cos I don’t have to work here. (Site 3 Business Operator)

One of the other benefits of business operators is that their spouse also become involved or support and assist the operator both in their business and/or community activities. As a Site 3 business operator commented about his wife; *She has joined the hospital board* while another interviewee explained that her husband was on a local *‘futures committee ... and we run the local show for the town’* (Site 1 Business Operator).

### **16.6.3 Problems**

While the benefits are wide ranging, entering a new town with a business proposition does not come without its share of problems and difficulties that have to be overcome. The nature of the problems identified by the business operators largely related to factors that affected the business and included the acceptance of alternative ways of doing business and of new people coming into the town. The operators mentioned examples of bigotry, small mindedness and people who “couldn’t see the bigger picture” (Tasmanian BO). It was suggested that local people became

suspicious of the business operator's motives when they contributed to the community. One operator suggested it may be a case of "tall poppy syndrome" where locals don't like to see new people being too successful or making headway where others have not been able to succeed previously.

It may also be a case of the business operators taking advantage of opportunities that locals had not seen. The operators saw the locals as being risk averse by not taking on these opportunities. As one operator recounted:

They don't seem to see opportunities. Or they're not risk takers. So even with us this [Business] was for sale for months before we purchased it . . . but no-one chose to buy it. And more than one person said to us 'you've taken the jobs of our people' . . . (Site 3 Business Operator)

The business operators also see themselves as *an annoyance to a lot of people* because they ask questions, undertake critical analysis of decisions and challenge traditional practices. For some this led to a perception that it was harder to 'break-in'. Local support for the business operators from local government and the community was considered very important for the survival of the businesses. Several operators thought local government could provide more support and an incentive to contribute to local communities otherwise they will find their business operators will move on.

Business survival is heavily dependent on support from both the local community and local government

## 16.7 Discussion and Conclusion

This study has presented evidence that new business operators who establish themselves in a rural community can have an impact beyond the provision of the goods and services of their operation. The new business operators bring a different service or product to a rural community to those already there, and this is commented on favourably by locals. In a number of cases this also extended to new ideas that have not been tried in the community previously.

While the operators did not appear to have a strong volunteer orientation the importance of attracting people to their town and providing visitors an attractive experience when they visit engages the business operators to become involved in community activities and events. This could be seen as being a good corporate citizen and is an extension of the economic value that their business delivers to the rural community through employment, training and an injection of money into the community.

The contribution of new business operators can be seen as innovative, in the sense that the new business operators introduce new ideas and approaches to undertaking business that may not have been taken up by the local operators. Rather than providing direct competition to existing businesses the use of a different

business model or alternative business ventures can expand the diversity of the rural community. This also extends to cultural and artistic activities undertaken in the community as the new operators attempt to inject and incorporate their interests into the community. This may not necessarily be received warmly by the local community who may see it as opportunism on behalf of the operator.

The contribution of new business operators can be seen as innovative, in the sense that the new business operators introduce new ideas and approaches to undertaking business that may not have been taken up by the local operators.

The cases presented in this study also highlight the precarious nature of business operations in a rural community where the operators are undertaking their operations out of a preference for life in a rural area. They require the support of the community around them to be successful and to maintain their businesses. There was a call from some of the operators for support beyond the individuals in the community to include local government who could make more effort to purchase locally and encourage their community to take an active interest in building the local economy.

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# Chapter 17

## Building Entrepreneurial Culture in a ‘Company Town’: Innovative Initiatives in the Illawarra

John Grace

**Abstract** The Illawarra is an example of an Australian region that has an urgent need to develop renewed competitive advantage. With an economy strongly based in steelmaking and coal mining, recent withdrawals by key corporate industry in the Illawarra has created a region in crisis. The traditional competitive advantage of the region must now be reshaped: this chapter explores an approach for economic strengthening and diversification based on building entrepreneurial culture – via ‘economic gardening’. This path has been taken by regional stakeholders to build framework of conditions for increased entrepreneurial activity, which will allow the Illawarra region (\$12 billion economy) to continue to contribute to national productivity.

### 17.1 Introduction

The Illawarra region is located in the Australian state of New South Wales. The major regional centre, Wollongong, has a population of approximately 200,000 and is located 85 km south of central Sydney. Port Kembla is located within the Wollongong city boundaries and is the centre of one of Australia’s most significant concentrations of manufacturing-related industry.

For generations, Illawarra residents have lived in the metaphorical – and sometimes literal – shadows of steelworks smokestacks, as well as the escarpment that is home to the Illawarra coal mines. Steel-making at Port Kembla had been largely unfettered by environmental controls since its beginnings in 1928 to the introduction of BHP Steel’s first five-year pollution reduction plan in 1976 (BHP Steel 2003).

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At this point I must acknowledge a personal connection to the Illawarra region, having spent most of my childhood in the northern suburbs of Wollongong in the 1960s and 1970s. Despite the fact that my family lived a distance of 7 km from the steelworks, my mother's washing was regularly coated with fine metallic particles.

While we lived with the negative impacts of steel-making, we also had the benefit of access to some of the most beautiful beaches in Australia, and the picturesque cliffs and bushland of the Illawarra escarpment. The community also benefited from the jobs created by the steel industry – my first post-school job was with a steelworks contractor. This experience was fairly typical of the lives of young people growing up in Wollongong between in the 1950s and 1980s, and it offers some clues about the paradoxical nature of the regional economy.

There are both positive and negative impacts on a community whose economy is dominated by steel-making. Wollongong is often portrayed as a dirty, industrial city, despite its surrounding natural beauty. Its working-age residents have come to rely heavily on the wealth generated by one or two industries. The fathers of most of my school-mates worked at the steelworks or in the coal mines. I was one of the few students whose parents ran a business. While the city and region have changed dramatically since the 1980s it can be argued that the legacy of steel and coal still dominate the economy and, to varying degrees, the lives of communities within the region (Carney 2009).

There are both positive and negative impacts on a community whose economy is dominated by steel-making.

## 17.2 A Regional Crisis

The cities of Wollongong and Shellharbour are often described by stakeholders in the Illawarra region as having many of the attributes of company towns. The prosperity of these cities has waxed and waned, largely mirroring the fortunes of the Illawarra region's steelworks and coal mines. Since the first massive loss of steel jobs of the Port Kembla steelworks in the early 1980s, the region has made strong efforts to diversify its economy (IRIS Research 2008).

However, on the 22nd of August 2011, Wollongong received news of the second major downsizing of the steel industry in the city's history (Illawarra Mercury, August 2011). The 2011 announcement foreshadowed BlueScope Steel's withdrawal from the steel export market, the closure of major items of steel-making plant and the loss of some 800 jobs. The impacts of this decision have since rippled across the regional economy, beginning with the suffering of dozens of companies that exist primarily to provide products and services to the steelworks. The reduction in economic activity will ultimately affect a wide range of industries, including retail, hospitality, property and business services.

As with some other economies in the wake of a crisis, I will argue that as the economic inputs of major industries diminish, small and medium sized enterprises (SMEs) are likely to offer the best prospects for economic recovery (Gregory et al. 2002). I will further argue that much of the Illawarra's future competitive advantage lies in the development of innovative, entrepreneurial local businesses. Already, strategies aimed at fostering the growth of entrepreneurial small and medium sized enterprises (SMEs) in the Illawarra region have shown promise but much work remains to be done.

As the economic inputs of major industries diminish, small and medium sized enterprises (SMEs) are likely to offer the best prospects for economic recovery.

### 17.3 A Company Town

The phenomenon of the "company town" has often been discussed in academic literature. The term is used to characterise communities in which the local economy is dominated by a single business, or a small number of big businesses. The term conjures images of the industrial revolution and mill towns, but American labour historian Hardy Green argues that this is 'not simply a phenomenon of the past'. On the surface, company towns vary in appearance. While some are rather grim and lacking in physical amenity, others are designed with utopian objectives in mind, and are well-equipped with social infrastructure (Green 2010).

In Australia, the stereotypical image of a company town is one associated with isolated mining communities in Queensland or Western Australia, in which housing, community services and activities were traditionally provided by single companies. However, it can be argued that many of the cultural attributes of the single company town can also be identified in larger, less isolated communities: here, for many decades, the local economy has been dominated by big businesses in one or two industries. For example, Hardy Green cites Detroit as being under the influence of the Ford Motor Company; similarly, General Motors is spreading far beyond the original home bases of Dearborn and Flint (Green 2010).

The City of Wollongong, while not yet suffering the depths of despair of Detroit in the early twenty-first century, shares some of that city's vulnerabilities to the decline of its major industry. Wollongong has on occasions been described as a company town, with a high degree of economic dependence on the steel industry and its sister industry, coal mining. For much of its history Wollongong has been dominated by the BHP company and its antecedents (Lee 1993)

Wollongong has been described as a company town, with a high degree of economic dependence on the steel industry and its sister industry, coal mining.

In 1982, a crisis in the Australian steel industry led to the loss of thousands of jobs at the BHP Steelworks in Port Kembla. The impact of business decisions made by a single company was devastating to the economies of Wollongong and Shellharbour. In November 1982, the *Business Review Weekly* reported that ‘the economic base in the region, already so disastrously narrow, is being deliberately and permanently reduced by Australia’s biggest corporation. Without decisive intervention by the state, the Wollongong sub-region faces a permanent, massive loss of jobs and deepening poverty’ (Donaldson and Donaldson 1983).

The legacies of the company town phenomenon are sometimes suggested to include the inability of their communities to facilitate change and find alternative means of wealth creation. It is suggested that such towns and cities often experience serious decline, at least in part because of a ‘paucity of local leadership and entrepreneurship to accomplish the transition from one economic setting to another’ (Christensen and Levinson 2003).

## 17.4 Traditional Competitive Advantage

The traditional competitive advantage of Wollongong has resided in its industries’ abilities to make steel and to mine high-quality coking coal. One of the outcomes of the 1982 steel crisis was the decision by BHP Steel to outsource a large percentage of its maintenance, fabrication, construction, technical and engineering support services. The result of this outsourcing process was the growth of substantial new cohort of businesses in the Illawarra region that, in effect, performed many of the functions that had previously been delivered internally by BHP Steel. Some of these businesses were large corporations, such as CSC Australia (IT services), Hatch (engineering and project management services) and Transfield Services (maintenance management).

Throughout the 1980s, 1990s and early 2000s a host of SMEs also emerged to provide engineering, maintenance, fabrication and technical support to the steelworks. The coal mining industry has generated a similar contracting community. Many of the founders of these contractor companies were formerly employees of BHP and its successor BlueScope Steel. A majority of firms in the contracting community have continued to specialise, mostly in providing technology and services to steel-making. Some SMEs have created a range of products and services to respond to the needs of both steel-making and coal mining, while a small segment has moved away from steel entirely, and now focuses on the national or global resources sector.

This growth of SMEs in the steel and coal industries has resulted in the development of an extraordinary collective skill-set. The Illawarra region has become home to group of complementary businesses that provide specialised mining and steel-making technology, metal and mineral processing, engineering design and project management, high quality steel fabrication and construction

services. These deep capabilities form the foundation of the region's manufacturing competitive advantage.

The Illawarra region now has a competitive advantage in manufacturing, with home businesses that provide specialised services in mining and steel-making technology, metal and mineral processing, engineering design and project management, and high quality steel fabrication and construction.

## 17.5 A Business Development Deficit

Despite the development of the remarkable skill-set described above, many of the companies that provide technology and services to the Port Kembla steelworks found themselves in deep trouble following the August 2011 announcement by BlueScope Steel. While the traditional strength of these companies has been based on a high level of responsiveness to customers within the region, they have often neglected to explore the potential to sell to customers outside the region.

While the outsourcing of services to the steel and coal mining industries has helped to create a regional community of highly skilled SMEs, the firms that make up that community have, for the most part, remained heavily dependent on the Port Kembla steelworks and the Illawarra coal mines. After the BHP Steel re-structure in the 1980s, and until 2011, the volume of business activity generated by the steelworks was enough to ensure the prosperity of the contractor companies; albeit with periodic rationalisation.

Another aspect of the company town syndrome is the impact of the dominant companies on the development of small enterprises in the town. According to the stereotypical view of a company town, retail and services businesses in the town are owned by the parent company (Green 2010). While this is certainly not the case for the Illawarra region, retail and services businesses have developed with a strong focus on servicing local communities. There are only a few examples of retail and services businesses that have attempted to enter markets beyond the borders of the region.

Typical of company towns, the private sector research and development effort has tended to centre on the needs of the major company. There has arguably been a form of myopia (Agrawal et al. 2009) driving the technical innovation activities to provide solutions to steelworks problems.

Typical of company towns, the private sector research and development effort in Illawarra has centred on the needs of the major company – technological innovation for steelworks problems.

In the case of the manufacturing sector, while contractor companies are independent entities, their long-standing reliance on a single large customer has led to the adoption of particular management traits and attitudes to business development.

Managers of Illawarra manufacturing SMEs often come from engineering or trades backgrounds. They are excellent technical problem-solvers, and their businesses are usually run efficiently. Their reputations have been built on providing rapid, effective and sometimes novel responses to the needs of the steelworks and local coal mines. However, while the capabilities of these firms have often been in demand in other regions, they have rarely engaged in a sustained effort to explore new markets. In many respects, it could be argued that rather than developing an entrepreneurial culture and vision, they have focused on managing internal performance in a non-entrepreneurial style (Sadler-Smith et al. 2003).

It could be argued that rather than developing an entrepreneurial culture and vision, Illawarra's SMEs have focused on managing internal performance.

## 17.6 Why Has There Been a Focus on Entrepreneurship?

To some stakeholders in the Illawarra region, the concept of 'creative destruction' – the need to bring about change through innovation, and the role of entrepreneurs in bringing this about, seems highly appropriate in the current Illawarra context (Schumpeter 1989).

The approach adopted by some stakeholders in the Illawarra region has been influenced by the increasing international interest in the importance of innovation and entrepreneurship as drivers of economic development, and techniques for fostering entrepreneurial activity. The concept that entrepreneurial activity is essential for productivity growth is important to the understanding of what must occur in a restructuring traditional economy such as that of the Illawarra (Schmitz 1989).

There is increasing international interest in the importance of innovation and entrepreneurship as drivers of economic development.

While assertions that increased entrepreneurial activity automatically leads to improved economic performance are perhaps contentious, there is arguably sufficient evidence of a generalised link between higher levels of entrepreneurial activity and 'higher subsequent growth rates and a reduction of unemployment' (Audretsch and Thurik 2001). For practitioners working in a region such as the Illawarra, this has provided sufficient motivation to implement a pilot entrepreneurship project.

Another motivation derives from the perceived need to create an environment in which knowledge is shared. This is based on the concept that entrepreneurial SMEs have the potential to help generate knowledge-driven innovation in a regional economy (Audretsch and Thurik 2001).

Entrepreneurial SMEs have the potential to help generate knowledge-driven innovation in a regional economy.

It has been the view of those people involved in the Illawarra 'Economic Gardening project' that a determining factor in the success of economic development strategy will be the ability of key stakeholders in a region to:

- (a) Strengthen entrepreneurial skills
- (b) Improve 'framework conditions' with which entrepreneurial activity can thrive.

These two pillars form the basis of many regional entrepreneurship strategies. While it is acknowledged that entrepreneurial activity 'can always be traced back to individuals and their entrepreneurial attitudes, skills and motivations', it is also argued that entrepreneurial activity can be shaped by 'framework conditions'.

(United Nations 2004). The experience of the Illawarra Economic Gardening project has been that local entrepreneurs have regularly been assisted to develop their ideas into more profitable, sustainable business outcomes.

For many years, stakeholders in the Illawarra region have recognised the importance of innovation as an ingredient in the creation of sustainable economic development. What was not well understood was the vital importance of entrepreneurship in transforming the opportunities developed through inventiveness into real economic value (Freeman and Engel 2007). This understanding is essential for the effective implementation of economic development strategies based on business innovation.

Stakeholders in the Illawarra region have recognised the importance of innovation as an ingredient in the creation of sustainable economic development.

In many senses, the traditional industries of the Illawarra region are caught in commodity traps. During the 2002–2007 steel boom, the global steel industry has expanded at a rapid rate. Prices and demand were very high; and the Australian steel industry was able to take advantage of the high prices to increase profitability. However, since the global financial crisis, the implications of increased global production capacity have been savagely illustrated as prices have fallen (OECD 2009). Australian producers must now compete with low-cost, high-volume steel-makers. This contributed to the BlueScope Steel decision to cease exports of raw

steel. At time of writing in 2011, the Illawarra coal mining industry is capitalising on a boom in global coal prices, but past experience indicates that when prices fall significantly the Illawarra coal mines become marginal, at best. In this context, the creation of a framework to foster the growth of innovative, entrepreneurial businesses that possess the skills needed to avoid commodity traps can be seen as one of the building blocks for a future regional economy (D'Aveni 2010).

## 17.7 An Experiment in Entrepreneurship: Economic Gardening

### 17.7.1 *Project History*

In 2004, team members at the Illawarra Area Consultative Committee (IACC) began exploring possible new approaches to the development of the Illawarra economy. The IACC team was interested in approaches to economic development that did not depend upon the attraction of large companies to replace the declining steel industry. The team was attracted to the idea that practical strategies could be implemented to grow the economy from within, and to build competitive advantage by fostering the potential of entrepreneurs. A number of options were explored, including the Ernesto Sirolli approach to 'Enterprise Facilitation' (Scorsone and Powers 2005), the Peter Kenyon Business Expansion and Retention program (Kenyon 2010) and Economic Gardening (Littleton City Council 2006).

Practical strategies could be implemented to grow the economy from within . . . to build competitive advantage by fostering the potential of entrepreneurs.

In 2004, the IACC team had not yet identified a means of funding an entrepreneurship strategy so, in the first instance, the Economic Gardening (EG) approach was appealing because of its apparent low cost structure. A teleconference with Christian Gibbons, the originator of the EG strategy in Colorado, indicated that the Illawarra stakeholders would be able to obtain a great deal of information and a degree of guidance from Chris Gibbons at no cost. Because EG was essentially an open source strategy, a great deal of information was also shared by practitioners around the world.

The IACC team was also attracted by the idea that the EG strategy could be owned by the Illawarra community, without obligation to, or ongoing dependence on an external organisation. One of the key goals was to foster the development of a stronger entrepreneurial culture; so an important feature of any potential strategy was that it could be shaped to meet the needs of the region. The team formed the opinion that Economic Gardening also met this requirement.



The EG strategy could be owned by the Illawarra community, without obligation to, or ongoing dependence on an external organisation.

A decision was made to seek partners to help develop a place-based entrepreneurship program based on Economic Gardening. Consultation meetings were held with a range of potential partners including local councils, the University of Wollongong, the Illawarra Business Chamber, Australian Industry Group, the NSW Department of State and Regional Development and leading businesses.

Because the project was only in its conceptual stage, the level of interest varied amongst organisations. The most enthusiastic initial response came from Economic Development Manager at Shellharbour City Council. Project planning commenced with IACC and Shellharbour Council both directly involved. Planning, ongoing research and discussions with other potential partners continued in 2004 and 2005. These efforts resulted in the formation of a core group of active supporters.

In 2006, an opportunity for an Australian government (AusIndustry) grant arose. The funding application was successful and the first stage of the Economic Gardening entrepreneurship project commenced in November that year. Since that time, more than 200 businesses have engaged with the Economic Gardening program. After initial financial support from AusIndustry and Shellharbour City Council, additional ongoing funds have been provided by Kiama and Wollongong Councils. The NSW government (Industry & Investment) and Australian government (Enterprise Connect) also provided further one-off grants. It must be said that, if not for the tenacity and skill of the Shellharbour Council economic development manager, the Economic Gardening program would not have been implemented.

### ***17.7.2 Philosophy of the Economic Gardening (EG) Program***

Economic Gardening is not a one-size-fits-all program but there are some principles that are common to *all genuine* EG strategies:

- EG focuses on working with growth-oriented companies;
- EG targets innovation, not commodity businesses;
- EG aims to help businesses sell outside the community – to export beyond the local region; and
- EG is about helping entrepreneurial businesses to achieve their potential; it is not about directing business activity through government programs. EG can thus never be just a service providing access to a menu of government assistance programs (Grace 2011).

Those without an eye for detail will sometimes categorise EG as just another business retention and expansion program, or as a competitor to business enterprise centre. However, it is not the primary purpose of EG to facilitate the creation of start-up, micro businesses, or to help struggling businesses just to survive. Rather, the EG strategy concentrates on helping SMEs to avoid the ‘commodity traps’ that plague many businesses (D’Aveni 2010).

The EG strategy concentrates on helping SMEs to avoid the ‘commodity traps’ that plague many businesses.

The term *gardening* arose from the contrast between this approach and the *hunting* methods used by traditional economic developers who focus on tracking down ‘footloose’ companies and attracting them to re-locate to regional areas. The term ‘economic gardening’ was first used by Dr. Philip Burgess in 1996, then Director of the Centre for the New West, in Denver Colorado, who argued the objective should be to build ‘high performance communities’ through a range of measures including local entrepreneurship strategies (Burgess 1996).

It has been the view of stakeholders in the Illawarra program that EG should not be a ‘top-down’ program handed to communities by government. Instead, it should provide a genuine opportunity for the local community to shape an economic development strategy that suits the regional context; one that can be genuinely owned and driven by local stakeholders (Grace 2011).

### **17.7.3 Results to Date**

In the 4 years to November 2011, more than 200 businesses have engaged in the Illawarra Economic Gardening program. In periodic client surveys conducted by the partner organisations, a majority of participating business owners reported that their strategic business skills had improved as a result of the program. Many individual businesses have reported improvements in turnover, profitability and increases in employment numbers which they attribute to the participation in the EG program. Many businesses owners have also described the implementation of successful growth strategies implemented since their participation in Economic Gardening.

Many individual businesses have reported improvements in turnover, profitability and increases in employment numbers which they attribute to the participation in the EG program.

### **17.7.3.1 Examples of Participating Businesses Experiencing Rapid Growth**

#### **Boab Boat Hire**

Boab Boat Hire has grown from a single outlet business to an Australia-wide operation with 19 franchise locations. A spin-off boat manufacturing company, Amara Boats is also growing rapidly.

#### **South Coast Holidays**

This on-line tourism service business has experienced rapid growth since participating in the EG program. Turnover has grown from \$200,000 to \$4 million in 3 years.

#### **Fibre Optic Design and Construct**

This specialist provider of communication technology and infrastructure is developing as an important niche player in the fast growing fibre optics industry.

#### **Pro-logic**

Pro-logic is a specialist business-to-business and consumer marketing company which has successfully exploited a niche market. Between 2006 and 2011 the company has grown from a single person operation to a national provider of services to major corporate customers.

#### **Healthy Earth Fertilisers**

This local manufacturer of organic chemical products specialises in restoring and re-mineralising soil with a large range of eco-friendly fertilisers and other mineral products. The company also produces environmentally friendly dust control products for the mining industry. Healthy Earth has experienced strong market growth and is now a successful exporter.

#### **StoneSet Permeable Paving**

This innovative manufacturer of permeable paving solutions is experiencing growth into markets around Australia. Stoneset continues to develop and commercialise new products to ensure its competitive advantage.

A thorough longitudinal study of participating businesses is yet to be completed, and this is essential for the effectiveness of the program to be fully assessed.

## **17.8 How Has Economic Gardening Engaged with Participating Companies?**

The Illawarra EG team has decided to keep the identification process for participating businesses quite simple, avoiding the use of techniques such as psychometric assessment. The program targets businesses with the following characteristics:

- Established firms employing workers in addition to the owners;
- Firms with owners who express a strong desire to grow their enterprises;
- Firms with owners who can clearly articulate ideas for growing their enterprises;
- and
- Firms that operate in a market sector with apparent growth potential.

The team has been under no illusion that it is able to engender entrepreneurial behaviour in business people. The role of the program in the Illawarra is clearly understood to be the provision of carefully targeted assistance to business people who are determined to grow their enterprises. The core elements of the Illawarra program centre on providing strategic tools to the owners and managers of growth-oriented businesses. Key services relate to:

### ***17.8.1 Business Strategy Formulation: The Deep Niche***

The Illawarra EG program aims to help businesses adopt a more strategic approach to their development. This is not about writing a business plan but rather the understanding and development of in-depth strategy. In order to do this effectively EG team members first try to gain an understanding of the market position of the each company, its capability and product offerings, and its target market.

All EG programs aim to assist businesses identify potentially valuable niche markets, and to develop strategies to exploit those markets. This aim is based on the widely held view that innovative SMEs can grow more sustainably by identifying and successfully entering niche markets rather than competing in highly commoditised sectors (OECD 2004).

### ***17.8.2 Competitive Intelligence and Advanced Marketing Strategy***

Many successful big businesses and many fast growing smaller companies use competitive intelligence strategies (also known as market intelligence). The Illawarra EG program, like its international counterparts, seeks to help SMEs gain access to valuable competitive intelligence. The term refers to techniques used to gather and interpret critical market information, and use it as the basis for strategic planning. Intelligence can be gathered from a range of sources including

publicly available demographic data, direct marketing lists, web directories and search engines, industry directories, industry analytical reports from specialist providers and, more recently, aggregated data from internet sources such as social media.

### ***17.8.3 eBusiness, Search Engine Optimisation and Social Media***

The Illawarra EG program has developed the capability to assist businesses improve their eBusiness capabilities. Important aspects of this have been to help ensure that business owners have a clear understanding of the effectiveness of their web presence, including search engine optimisation. For many local businesses there is value in adopting marketing techniques using social media.

### ***17.8.4 Assistance to Individual Business Owners***

While the program has made workshops available on the topics listed above, and on topics such as customer relationship management, financial management and innovation; the most important aspect of the program has been the one-to-one support for business owners. In the Illawarra experience workshops focused on business growth have been shown to have value; but it is the individual coaching activities that have helped to cement new strategic directions in participating firms.

### ***17.8.5 What Have Been the Challenges?***

#### **17.8.5.1 People**

One of the major challenges has been the long-term maintenance of an effective project management team. As with many place-based, locally-driven initiatives, the task of sustaining leadership and maintaining momentum in the long term has become problematic (Torjman and Leviten-Reid 2003). Difficulties have emerged with changes in team membership, as some of the original leaders moved on to other roles.

#### **17.8.5.2 Funding**

Access to adequate funding is a regular challenge for place-based entrepreneurship programs in Australia. While there is a great deal of academic interest in entrepreneurship as a driver of regional economic development, this has not translated

into consistent financial support by central bureaucracies for place-based strategies. There have been a series of one-off grants from Australian and NSW government agencies, which have been very useful during the development of the Illawarra EG program. However, the Illawarra experience has been that local Councils have been the only agencies willing to commit to longer term funding for the entrepreneurship program.

### 17.8.5.3 Developing Techniques That Are Effective in the Local Context

Economic Gardening, as a practical approach to economic development, is derived from the experience of practitioners in the USA. This presents inherent challenges for Australian practitioners.

EG projects in the US are focused very strongly on undertaking individual research for businesses, especially in relation to the acquisition and interpretation of competitive intelligence. This is an extremely valuable service. However, US practitioners are able to access extensive, very detailed databases of potential customers. These databases are readily available and many are comparatively inexpensive. The data can be used in a number of ways, including with tools such as GIS mapping (Veregin 2011). Australian practitioners have far more restricted access to market data.

While Australia is, geographically, almost as large as the USA (excluding Alaska), its population is only around 7 % of that of the US. This means, of course, that the Australian domestic market is a small fraction of the size of the American market. Local businesses in the US are able to access huge numbers of potential customers nationally, thus providing many more options for selling outside their communities.

Australia also faces the ‘tyranny of distance’ in relation to many of its export markets. Our potential export markets are, for the most part a lot further away than they are for US businesses; especially in relation to Europe, North Asia and Canada. Export is often a much more costly process for Australian businesses. However, the principle of selling outside the community must remain a fundamental concept of EG projects in Australia. The growth potential of SMEs is restricted if their horizons are limited to selling within their own regions.

The growth potential of SMEs is restricted if their horizons are limited to selling within their own regions.

On average, Australian businesses are smaller than those in the US. In 2007, Australia had 894,000 employing businesses, with 90 % of employing businesses employed less than 20 people. Of these, 70 % had 1–4 employees. Only 1 % of Australia’s employing businesses employed 200 or more (Australian Bureau of Statistics 2007).

By contrast, in 2004 the USA had 5,900,000 employing businesses:

- 75 % of employing businesses employed less than 20 people. Of these 62 % had 1–4 employees;
- 3 % of employing businesses employed 500 or more (U.S. Census Bureau 2008).

A logical consequence of this important difference is that EG projects in Australia are likely to be dealing with smaller businesses, on average, compared with EG projects in the US.

## 17.9 Results: Momentum for Entrepreneurship and Future Competitive Advantage

'Measuring entrepreneurial activity ... is elusive and fraught with limitations' (Audretsch and Thurik 2001). While it is relatively easy to identify growth in individual enterprises, it is very difficult to measure the impact an entrepreneurship strategy has had on a 12 billion dollar regional economy. Nevertheless, there is evidence that the process of cultural change has begun. The momentum created by the Economic Gardening program has begun to spread to other areas of the Illawarra community. Economic Gardening is now listed as a strategically significant initiative in regional planning documents such as the Illawarra Innovation Plan (Department of Innovation, Industry, Science and Research) and the Regional Employment Plan (Department of Education, Employment and Workplace Relations). Examples of the direct impacts of EG include the five cases below.

It is exceedingly difficult to measure the impact of an entrepreneurship strategy on a 12-billion dollar regional economy.

### 17.9.1 *The Inspire My Future Program*

Two members from the Illawarra Economic Gardening management team have, independently of the EG program, collaborated with a local community college to develop and deliver an entrepreneurship program for secondary school students. The pilot project, run during the first half of 2011 received strong support from several local schools. Feedback from students was overwhelmingly positive. The Inspire My Future project delivered a range of practical and motivational activities 'aimed to foster innovation, leadership skills, creativity and confidence in our young entrepreneurs of the future' (WEA Illawarra 2011). The success of the pilot program has encouraged the project partners to plan the longer term delivery of the program.

### ***17.9.2 Entrepreneur Club***

In 2011, the University of Wollongong launched the Entrepreneur Club – ‘eClub’ (University of Wollongong 2011b). This business networking and learning initiative engages university and TAFE students who have begun their own businesses or are planning to start a business. Again, Economic Gardening team members are involved in this project, independently of the EG program. eClub delivers a range of practical and motivational activities, but has the added benefit of offering a business development pathway in the form of the *StartPad*.

### ***17.9.3 StartPad***

During 2011, work has begun in Wollongong on the implementation of the StartPad, a business incubator targeting the development of technology businesses (University of Wollongong 2011c). Entrepreneurship workshops and coaching are an integral part of the StartPad model. Economic Gardening team members are directly involved in this project.

### ***17.9.4 iAccelerate***

The two initiatives mentioned above are planned to culminate in the creation of *iAccelerate*, an initiative of the University of Wollongong. The *iAccelerate* will include physical infrastructure to house an accelerator centre for technology businesses, as well as entrepreneurship learning programs delivered in collaboration with the Sydney Business School (University of Wollongong 2011a). Members of the Economic Gardening team have participated in the development of the *iAccelerate* concept.

### ***17.9.5 Illawarra Venture Capital Group***

In January 2012 two Economic Gardening team members convened a group of business leaders from the Illawarra finance, legal and investment community to create the region’s first venture capital organisation. While still in its infancy, this initiative has received an enthusiastic response from business leaders. The development of a regional venture capital entity is seen as a necessary step to assist the growth of innovative, entrepreneurial SMEs.

It can certainly be argued that the emergence of these new initiatives aimed at supporting entrepreneurship would not have occurred at this time without the first



steps taken to establish the Economic Gardening program. One of the significant aspects of these developments is the increasingly active engagement of the University of Wollongong in practical entrepreneurship initiatives. The importance of university engagement in regional economic development is increasingly acknowledged by researchers and government agencies, not just in relation to their economic inputs, but as agents of business innovation (Florida 1999). In the Illawarra region this engagement has not been a by-product of mainstream university operations, but has been influenced by business and community stakeholders who are committed to the growth of entrepreneurship strategies.

The importance of university engagement in regional economic development is increasingly acknowledged ... universities can be important agents of business innovation.

## 17.10 Conclusion: Steps Along the Road

It cannot yet be demonstrated that the place-based entrepreneurship strategies have, successfully created a new dimension of competitive advantage for the Illawarra region. In a 2010 forum post for the Econ-dev group (an international network of EG practitioners), Chris Gibbons, the pioneer of Economic Gardening practice in the USA, issued a note of caution about any expectation that EG programs could deliver short term economic transformation. He argued that place-based entrepreneurship strategy *is a long term, fundamentally different way in which you do business. This is not bypass surgery; it is a change in lifestyle ... You can't solve a plant shutdown with Economic Gardening. You can't build a nurturing environment overnight. You can't change a mindset from being a "low cost, business friendly" commodity environment to an innovation oriented environment overnight. You can't change leadership which chases manufacturing industries to one that grows local exporting companies overnight.* (Gibbons 2010).

The Illawarra experience has reinforced the view that entrepreneurship strategy takes time to exert its influence on a regional economy. However, it can be demonstrated that the idea of growing the economy by fostering entrepreneurship is taking hold in the region. Elements of the new entrepreneurship initiatives emerging in 2011 and 2012 can, at least in part, be traced back to the same stakeholders who began work on the Economic Gardening program in 2004 and who continue to play an activist role, promoting entrepreneurship strategy. The emergence of the University of Wollongong as an active participant has provided an impetus for business leaders to get directly involved in fostering the development of new entrepreneurs.

The Illawarra experience has reinforced the view that entrepreneurship strategy takes time to exert its influence on a regional economy.

Has this effort really been needed; or is it possible for the Illawarra region to build a prosperous future by continuing on its traditional economic path?

In July 2011, Geoff McQueen, an innovator and prominent local business leader, published an opinion piece in the regional Newspaper. He expressed the view that the Wollongong City's economy 'is on a burning platform' stating:

Fundamentally, Wollongong needs to take strong and deliberate action to reshape its economy if it wants to achieve its potential. The alternative is that we will just be a place for commuters to sleep, the disadvantaged to despair and the young to leave. (McQueen 2011)

Like many other stakeholders, Mr. McQueen is now arguing publicly for the adoption of an innovative entrepreneurial approach to economic development. Many business and community leaders are now expressing the view that as a result of the events of 2011 relating to the Port Kembla steelworks, the Illawarra region has little choice but to develop a new, more entrepreneurial business culture. The tentative steps taken since 2004 to foster entrepreneurship in the region may ultimately prove to be a significant factor.

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# Chapter 18

## Innovation in the Desert: The Outback Business Network and Models from Other Regions

Mike Crowe and Brian Webber

**Abstract** This chapter explores innovation in economic development as it applies to desert regions. The material is presented in two parts: firstly, it describes the operations of Desert Knowledge Australia (DKA), a statutory corporation established to explore economic development opportunities for Australia's desert regions. The second section uses a case study focus to examine one of DKA's particularly successful programmes, the Outback Business Networks. This includes a reflection on how the Outback Business Networks project compares to generally recognized examples of best practice internationally, including examples of rural cluster best practice and international benchmarking studies.

### 18.1 Introduction

Desert regions form a very important part of Australia's geo, socio and cultural landscape. Apart from Antarctica, Australia is the driest continent in the world. In total, 70 % of the mainland receives less than 500 mm of rain annually, which classes it as arid, or semi-arid. Approximately 35 % of the continent receives so little rain that it is effectively desert, and the total area formally classified as 'desert' representing 18 % of the total Australian mainland area.

Due to the challenges of climate variability and extremes, desert issues are very different to those of metropolitan or coastal Australia.

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Economic development in the desert functions very differently to metropolitan centres, and even in comparison to other less-remote Australian regions. Clearly, the issues experienced in the desert are different, but so too is the way the desert ‘works’ compared with the less-remote and more predictable metropolitan areas. For example, the variability, extremes and unpredictability of desert climate leads to low and patchy productivity and livelihood opportunities; in turn, this leads to dispersed, patchy and mobile populations with high labour turnover, and a general lack of critical mass. One outcome of this is that desert people have particular characteristics – they are adaptable, flexible, innovative and willing to be mobile, in order to overcome the unique challenges of desert life. Desert institutions and businesses are generally smaller, lack critical mass, struggle to reach economies of scale and complete in a global market, compared with elsewhere in Australia. Accordingly, collaborations across these entities are key in addressing the market challenges that are particular to desert regions.

The desert is challenged by dispersed, patchy and mobile populations; but desert people are unique in their innovation, adaptability and flexibility . . . small desert businesses lack critical mass and the ability to compete in the global economy; strong collaboration is therefore key to addressing market challenges in the desert.

Desert people – and in particular, Indigenous people – hold an important understanding of how to live and work in these challenging environments. By contrast, market setters and political/public administrators based in capital cities generally attempt to apply policies and practices that work in metropolitan areas to the desert context, often without success. Unfortunately, the large ‘distance’ (both in the physical as well as perceived sense) from both markets and political power bases results in desert inhabitants feeling that they have little capacity to influence policy, markets and practice. This combination of drivers and outcomes creates a self-reinforcing ‘desert system,’ that further drives lack of livelihood opportunities and critical mass.

The outcome of this system – almost perverse in a way – is that the role of local (desert) knowledge is heightened. The challenges faced by desert regions has resulted in traditional knowledge being better valued and maintained: ‘necessity as the mother of invention’ has contributed to the development of a high level of innovation and know-how. Thus, desert people often already hold the solutions to their desert challenges; with some of these responses being transferable to regions beyond just the desert.

‘Necessity as the mother of invention’ has contributed to the development of a high level of innovation and know-how in desert regions.

## 18.2 Desert Knowledge Australia

Desert Knowledge Australia (DKA) was established as a Statutory Corporation of the Northern Territory through the *Desert Knowledge Australia Act* (2003). Through this Act, DKA has both a national and international mandate.

Like so many ideas, DKA has had a long and sometimes unclear and ‘organic’ gestation. The flame was first lit at “Alice in 10”, a government think tank held in 1997 with the idea of identifying regional collaboration including economic development opportunities. Here, participants were asked to respond to the compelling question ‘how can we strengthen desert peoples and desert communities?’ Participants recognised that interacting with the knowledge economy was a strong opportunity for desert regions; and that a range of knowledge was already held, but the only way to move forward and capitalize on this would be to work together.

Interacting with the knowledge economy is a strong opportunity for desert regions; but collaboration is required to best capitalize on the knowledge already held by desert people and businesses.

In 2001, a small team including the Mayor of Alice Springs and representatives of key indigenous organizations visited strategic desert towns, inviting communities to support “desert knowledge networks”. These visits resulted in the emergence of an initial collaborative project – a bid for a Desert Knowledge Cooperative Research Centre.<sup>1</sup>

This concept gradually gained momentum, built on the passion of the people working in desert Australia. Soon, the idea of a coalition across ‘the backyards’ of all the states was formed, and initial proposal was presented at the SEGRA 2002 national conference, which results in several others also expressing interest in joining the network.

DKA was based on the appreciation that desert knowledge in itself has value, a resource that can be used to create opportunities and build economic and social values. DKA was established to help build harmony, sustainability and wealth in the desert, and acts as a facilitator of change and advocate for the desert and its people. The entity is now recognised and influential at both national and international levels as an independent and authoritative voice, both in terms of its knowledge and expertise, as well as the processes by which it has empowered desert people to effect positive change through sustainable, respectful, robust and effective partnerships and approaches.

DKA was established to help build harmony, sustainability and wealth in the desert ... it has grown around a culture of innovation, dynamism and collaboration.

<sup>1</sup> The bid for the Desert Knowledge CRC was later successful, and a separate organization made up of the bidding partners was established in 2003.

DKA has grown around a culture of innovation, dynamism and collaboration; and it retains a community-driven focus. The physical face of DKA is located in the Desert Knowledge Precinct including key partners of the Northern Territory government, the Desert Knowledge Cooperative Research Centre and the Desert People's Centre. The precinct acts to form a knowledge community of learning and innovation where ideas cooperation and sharing will be the accepted currency.

### ***18.2.1 Goals and Objectives (3–5 Year Horizon)***

The overarching Goal of DKA is to identify and develop key local national projects that contribute to a social, economic and environmentally sustainable future for desert Australia. Over the next 3–5 years Desert Knowledge Australia has established four key goal areas.

*Goal Area 1: Desert Knowledge Exchange* DKA will be a recognised leader in connecting people to each other and with desert knowledge:

- To overcome the barriers of distance and isolation in the desert;
- To link desert people to use and create desert knowledge, to avoid 'reinventing the wheel, share desert knowledge benefits and create new opportunities; and
- To identify needs and opportunities in the desert.

*Goal Area 2: Partnership Building* DKA will be a preferred and effective broker and facilitator of desert partnerships, that facilitate effective collaboration and partnerships to create opportunities and jointly address strategically-selected challenges.

*Goal Area 3: Strategic Targeted Actions* DKA will pursue strategic and targeted actions that are demonstrably effective, to achieve the greatest impact based on a 'whole-of-desert' system view.

*Goal Area 4: Foster Desert Knowledge* DKA will foster Desert knowledge so that it is recognised, well regarded and effective:

- To facilitate a strong and recognisable Desert Knowledge movement and brand;
- To be a desert voice, articulating alternatives for building harmony, sustainability and prosperity in the desert;
- To build Desert Knowledge Australia so that it is robust, accountable and has the resources and partners to maximise impact; and
- To build a strong local support base and impact.

### ***18.2.2 Current Projects***

Some of the current projects of Desert Knowledge Australia include:

- Desert Knowledge Australia Outback Business Networks (DKA OBN);
- Virtual Meeting Place;

- Desert Leadership;
- remoteFOCUS;
- Desert Knowledge Precinct; and
- Desert Knowledge Australia Commons.

The remainder of this chapter will focus on a case study of Desert Knowledge Australia's Outback Business Networks (DKA OBN) is the case study for this chapter.

### 18.3 Desert Knowledge Australia: Outback Business Networks

The DKA OBN is based around eight host organisations (three Chambers of Commerce and Industry; four Regional Development Australia committees; plus an inter-council collaboration), supported by DKA. In alignment with DKA principles, the OBN is a partnership supported by both federal and Northern Territory government, as well as business including Enterprise Connect, BHP Billiton, Telstra and QANTAS.

The OBN was conceived following a workshop by Ifor Ffowcs-Williams, of Clusters Navigators, at the SEGRA national conference in 2000. Initially, the concepts were discussed through the Desert Knowledge Australia Virtual Meeting Place (a regular desert forum supported by Telstra). A pilot project engaged five desert communities through the support of the Australian Government. OBN also draws on many of the principles developed originally by innovation expert, Michael Porter. For example, OBN adds value for businesses in the Outback by:

- Linking to business opportunities – both income generating and cost saving;
- Connecting members of the network to potential business collaborators;
- Connecting to nine regions of desert Australia offering potential new suppliers and customers;
- Providing contacts within five industries (Mining Services, Sustainable Building, Tourism, Local Produce, Creative Industries) and industry associations;
- Enabling timely access to information, professional development to meet business needs; and
- Providing referrals to relevant business support services.

The OBN serves its 1,350 members by allowing them timely access to information and contacts, opportunities to reduce costs and increase revenue through shared marketing, training and purchasing. It's staff and partners are also holders of significant regional knowledge and connections. Most critically, the group now has a high level of expertise in the use of technology for collaboration.

The staff and partners of OBN hold significant regional knowledge and connections; and the entity itself is based on many of the innovation principles advanced by Michael Porter.



The network operates through direct links with SMEs from across all the regions, each collaborating around areas of interest and specific needs for outback SMEs. A significant example of this has been the development of **Station Stays South Australia** which commenced in 2009, after 13 operators met under facilitation by OBN. At time of writing, the cluster now has 19 members across an area of more than 100,000 km<sup>2</sup>, and participants have pooled marketing resources to develop a website and other collaborative marketing material, thereby securing national and international exposure.

“Station Stays (SA) a winner. I am increasingly confident that the pastoral tourism network is a great asset to us as a point of difference” Peter Calahan, Regional Tourism Manager, Flinders Ranges and Outback.

The Outback Business Networks is also currently facilitating the formation of the **Yamatji Aboriginal Contractors Association**, consisting of seven members across the Yamatji region, Mid-West and Gascoyne of Western Australia. The YACA’s objective is to create a membership-based organisation that develops opportunities into companies of first choice across the region and nurtures business opportunities for Indigenous entrepreneurs.

OBN projects have also included local government collaborations. For example, the **Overlander’s Way** is a 1,500 km highway across Queensland and the Northern Territory. When it was established more than 10 years ago, the cluster focused solely on Queensland shires. OBN took the idea across the border, to link with Tennant Creek in the Northern Territory, thus opening up further funding and marketing opportunities. In 2012, the Overlander’s Way highway is a cluster of eight shires and nine Visitor Information Centres, which has created new wealth opportunities for small towns that would otherwise miss out on major tourism dollars. Today, partners of the cluster believe their marketing efforts (including website, television, signage and Wi-Fi strategies) will lead to a 39 % increase in traveller numbers recorded at Visitor Information Centres over the next 12 months.

The clustering of eight shires for the development of the Overlander’s Way has created new wealth opportunities for small, remote towns that would otherwise miss out on major tourism dollars.

**Individual businesses** also directly benefit from the support of the network. Over time, some of these business members have also gone on to be active participants in planning further network activities. For example, Tina Bryce (Owner, Mallee Girl Designs in Kalgoorlie) has been an long-standing and active participant of OBN. Now, having been part of the Art of Business seminar series and forward planning

for OBN+, Tina has formed a creative business cluster with other OBN members called Fossick Handmade in Kalgoorlie. Fifty artists from the Gold fields region currently display works at these premises.

“The support through OBN has given me a clear vision for the business and steps on how to achieve this” (Matt Cook of Finders Keepers and Kalgoorlie Charters, WA).

Finally, DKA OBN has developed significant expertise in the use of technology for collaboration. Structurally, the OBN is a network of host organisations, national and regional partners. The partners use the networks to develop an understanding of the needs of SMEs in desert environments and assists them to deliver their core business. Here, the two key skills are a good understanding about how to work in partnerships with host and partner organizations, and how to deal with the inevitable, myriad of competing priorities. Ultimately, it is the people skills of members and host organisations that are critical to the success of the operation. These requires time and energy to develop: relationships of trust and collaboration go beyond those of coordination and cooperation; and the time invested in establishing this trust from the very beginning is essential. Clarity of respective roles and expectations is also critical to the institutional framework. OBN plays a critical role in assisting access to the necessary funding for these clusters.

The two key skills sets for innovating in the desert – such as via OBN – are a good understanding about how to work in partnerships and how to deal with competing priorities. People skills are critical to success.

## 18.4 Best Practice in ‘Desert Innovation’

In 2011, DKA OBN contracted Saican Consultants Inc., Strategy Analysis International, Montreal Canada to conduct an independent assessment of how the Outback Business Networks project compared to other recognised examples of international best practice.

The following material draws heavily on project report prepared for this assessment.

### 18.4.1 *Background*

The cluster-based business networking project known as Outback Business Networks was established by Desert Knowledge Australia in response to challenges faced by small business in the Australian Outback. Key features of the Outback are

sparse population and great distances, both within each region and between the regions. The OBN evolved from an earlier pilot project instigated by Desert Knowledge Australia in 2003. The results of this project were very positive and the initiative was expanded in 2008 to offer a broad range of services and support initiatives to members in five industries and nine regions. A recent review found strong support from across the growing SME membership and from regional partners. A renewed business plan is currently being finalized based on lessons learned from the review.

The current funding for the program comes to an end in mid-2012. In preparation for a renewal of funding OBN commissioned a stocktake and preparation of options for a renewed business plan for the 2012–2015 period, and beyond. The renewed focus of OBN, known as OBNPlus, is currently being finalized.

The purpose of this study was to provide an assessment of how the OBN project compares to generally recognized examples of best practice internationally in similar contexts of limited population, across large distances and in linking clusters; followed by an assessment of implications for future evolution of the project.

### ***18.4.2 Data Sources***

Data with respect to OBN was drawn from the considerable body of information available for review including: Desert Knowledge Australia Outback Business Networks Project Quarterly reports; Business Plans and supporting documentation for OBN and OBNPlus; various Survey and Workshop reports. The initiatives used as benchmarking include, but are not limited to the following sources:

- Nordic – German – Poland Cluster Benchmarking;
- Finland Tourism Cluster Support Network;
- Community Futures: Alberta, Canada;
- Baltic Sea Region Cluster Cooperation;
- Ontario Mineral Industry Cluster (OMIC);
- Norwegian Mountain Tourism; and
- The Rural Cluster Compendium.

### ***18.4.3 OBN “State-of-Play”***

The “state-of-play” or comparative advantage of the OBN program, as viewed by OBN can be summarized as follows:

- OBN has a 1,350 strong (and still growing) network of businesses that cover Outback Australia and that support the concept. A recent survey of all members found that 76 % of businesses would recommend participation in the OBN program;

- OBN has demonstrated expertise in connecting businesses to each other for information sharing, industry insights and the development by the SMEs involved of collaborative opportunities;
- OBN has a network of host organisations, national and regional partners who use the network to develop their understanding of SME needs and to collaborate for SME development;
- OBN has developed a set of expertise around the use of technology for collaboration. This allows SMEs to directly link with others from other regions for collaboration around areas of interest. This facilitated linkage service meets a specific need of Outback SMEs;
- Over the 9 years of its development and 3 years of operation, OBN has developed a strong understanding of SME needs and the variety of regional circumstances within which SMEs operate. This informs OBN operations and enhances the growing brand recognition of OBN;
- OBN has developed a good understanding about how to work in partnership with host and partner organisations to deal with the myriad of competing priorities whilst maintaining focus on SME resilience across the Outback; and
- A focus on the key industry sectors of Tourism, Mining Services, Sustainable Building, creative Industries and Local Produce as well as the capacity to evolve industry considerations as circumstances change (e.g. Green energy considerations), has enhanced OBN reach.

#### ***18.4.4 Proposed Method of Operation for OBNPlus***

Based on the lessons learned from the initial phase of OBN, the OBNPlus will have two major components:

1. The Core OBN Service: This will be focused primarily on facilitated cross-regional and cross-industry workshops that directly link SMEs to areas of interest and potential collaboration. Other support activities will include:
  - Facilitated cross-regional meetings
  - Provision of the member database and associated online marketing,
  - Training for regional host organization staff, and
  - Access to the Desert Knowledge Australia Commons.
2. Regional Services: It is proposed to invite regional partners to submit competitive business plans that state how local activities will interact with the core OBN service in a way that reflects local priorities, needs and capacities. Local cluster development activities will build on existing achievements on the basis of priorities set locally. SMEs will be encouraged to join local activities, be part of the national network, and engage directly with cross regional projects and activities.

### ***18.4.5 OBN Position and Operating Horizons***

How is the OBN placed after 3 years in a 15-year cycle? The OBN was established following successful implementation of a limited pilot project. OBN experienced a significant leap in the scale of the overall project between 2009 and 2012, and this has resulted in a number of “lessons learned” that have shaped the recommendations for OBNPlus. These are summarized as follows:

#### **18.4.5.1 Network Development**

The “infrastructure” for the “network” component of OBN has been broadly established; and expertise has been developed in the use of technology for collaboration. This was and is the core mandate of OBN and will position the organization well going forward. There has been considerable learning with regard to staffing and operation of the network, as evidenced by the significant recommendations on organizational structure and funding set out in the OBNPlus Business Plan. Such shift in focus as a result of early years is not uncommon in broad-based cluster development initiatives and indeed should be seen in a positive light.

#### **18.4.5.2 Cluster Development**

The life cycle of a cluster initiative follows an underlying pattern despite the inevitable influence of funding cycles and measurement requirements. There are numerous definitions for the stages of this life cycle but in general they can be viewed as consisting of five stages: Potential Cluster; Latent or Embryonic Cluster; Developing Cluster; Mature or Established Cluster; Declining or Transformation Cluster. The roles of the facilitator and the requirements for and sources of funding also vary with the stage of the cluster.

While generalization is fraught with risk, it is probably reasonable to state that the OBN clusters are positioned somewhere between at the “latent or Embryonic” stage and the “developing” stage. In brief summary, most of the OBN clusters have attracted significant adherents and have achieved the requisite “quick wins” that are required to secure longer-term engagement. This longer-term engagement, and related planning, is critical. To some extent this has been constrained by administrative difficulties including personnel turnover and an over reliance on cluster facilitators as opposed to inputs from cluster members. OBNPlus is moving towards changes that are designed to address these issues.

#### **18.4.5.3 Funding Period**

There is wide recognition that a cluster initiative is not a “quick fix” and that it takes many years to become firmly established, generating solid economic benefit. Despite this, one characteristic of most economic development projects around

the world is the relatively short funding period. The norm would appear to be 2–3 years, a period that is widely recognized as inadequate to fully develop a cluster. Going forward, this requires accessing additional government or corporate funding for the core activities that are required to nurture the cluster to maturity. There are notable exceptions where funding lasts up to 10 years, and, from the cluster developer's perspective, this is the preferred route. OBN has operated under a 3-year funding cycle but under OBNPlus proposes to move to a 3-year + 3-year formula.

#### **18.4.5.4 Flexibility**

There is a strong consensus against the “one-size-fits-all” approach, and towards building in flexibility to take account of the local situation. That OBN has recognized the negatives of the “one-size-fits-all” model and opted for a more flexible funding approach in OBNPlus bodes well for future success.

#### **18.4.5.5 Local Host**

The most frequent model for cluster development is to start in an informal manner under the auspices of a local host organization (business association, university or college, development agency). The longer-term aim is to eventually create an autonomous organization supported by a broad range of stakeholders and with funding from a number of sources. Given the embryonic stage of the outback clusters, the decision of OBN to link with local host organizations follows best practice. Best practice also calls for firm and clear commitment from the local host organization. Such engagement and commitment will be a core feature of OBNPlus.

#### **18.4.5.6 Local Funding Contribution**

The extent of local counterpart funding varies widely. The core funding for the Finland cluster program comes half from the national government and half from the local governments in the concerned region; and separate funding is required for specific projects. The Community Futures program in Alberta, and more generally across Canada, requires a 10 % cash contribution from the private sector; and generally cannot seek outside funding for implementation. The requirement by OBNPlus for “substantial” local funding support fits with best practice. One consideration in evaluation of proposals will be the level of local cash and in-kind support that can be provided in each region. Other funding programs: A key learning from several initiatives is that there are generally a number of programs operating in a given locality. It is therefore incumbent on agencies that wish to effectively lever regional development potential to coordinate activities with the different programs and seek to harness available funding where appropriate.

### 18.4.5.7 Corporate Sponsors

A unique feature of the OBN program is the involvement of corporate sponsors.

## 18.4.6 *OBN Performance: An International Perspective on Best-Practice*

There is a growing international trend towards linking of clusters throughout a country and across international boundaries. The difference in these situations, compared with the OBN situation, is that the clusters generally already exist and strong intra-regional or internal linkages have already been established. For solid business reasons they are at the point where they need to internationalize, or at least expand beyond the local borders. Inter-regional cluster linkages are, for example, a key feature of the French cluster support program, and cross-border linkages are a main thrust of many of the ongoing European Community cluster initiatives. Alternatively, in the case of Finland's competence clusters, the notion of "cluster" is somewhat different, really referring to collaborative ventures between member entities of a network of centres of expertise. The wider linkage, however, is a natural tendency as exhibited by many value chains that surpass local boundaries. A trend has been noted, for example, in Alberta that the partnerships are increasingly outside of the local region.

Developing inter-regional and cross-border linkages and clusters is now a key feature of many economic development approaches in many nations.

A comparison between best practices from other regions and OBN can be summarized as follows:

- Funding in 3-year tranches is considered sub-optimal by international best practice. It is, however, very common. OBNPlus proposes to move from a 3-year period to a 3+3 model;
- The OBNPlus Program will be in line with best practice regarding flexible funding linked to performance;
- More emphasis should be placed on internationalization; or perhaps more pertinently gives the size of the country, cross-state border trade;
- Quality labelling and mutual benchmarking could be an integral and indeed unifying element of the OBNPlus program;
- OBN compares very favourably in terms of capacity building: workshops, seminars, toolboxes and networking between clusters;
- Branding has been launched and this study is an example of formal benchmarking;

- With respect to evaluation, OBN appears to have adjusted indicators to incorporate the critical “soft” factors; and the difficulties encountered in measurement of hard economic performance are clearly not unusual;
- The business planning exercise has essentially served as a formative or midterm evaluation, as recommended by best practice. A review 18 months from the start of OBNPlus might be beneficial; and
- Triple-bottom line (economic, impact, equity and environment) is increasingly adopted in European clusters. Although not formally incorporated into the 2008–2012 OBN the “soft” issues are a mandated concern of Desert Knowledge Australia. OBNPlus performance.

Most initiatives start local and stay local, although recognizing the need for global (or at least extra-regional) marketing. Later, linking centres of excellence, or established cluster initiatives might then become a focus. OBN would appear to be unique in developing local cluster initiatives and virtual clusters at one and the same time. This is a major challenge but clearly sets an example for linking and networking over distance. Indeed, most of the cluster literature and much best-practice focuses on “face-time” and workshops. While “virtual” examples do exist the identification of OBN with this form of collaboration and on such a scale is indeed a first.

OBN would appear to be rather unique in developing local cluster initiatives and virtual clusters simultaneously – pursuing both intra-regional and inter-regional linkages.

The goal of OBN to expand the base of business collaboration while focusing nationally on virtual collaboration between pockets of business activity across the outback is also unique. It also fits with a wider trend, particularly in Europe, to link established local clusters to each other in order to enhance global competitiveness.

In terms of the contribution of OBN to international business clustering practices, the unique characteristic of OBN is the concurrent development of intra-regional and inter-regional linkages; and the implementation of tools and processes to make these work. No other identified network initiative has tackled these two concurrently. The virtual clusters and the dynamic linkages within OBN could set the standard for economic growth initiatives in sparsely populated and geographically challenged localities.

#### **18.4.6.1 OBN Strengths and Challenges**

The most notable strength of the OBN is the expanding base of people and organizations with which OBN has engaged. This is supported by survey results of SMEs and institutional members. Other identified strengths of OBN include the



focus on key industry sectors and the evidence that OBN is “on-the-right-track” in terms of cross-region linkages and the importance attached to “virtual collaboration” initiatives.

The most notable strength of the OBN is the expanding base of people and organizations with which OBN has engaged.

The primary challenge, due to the uniqueness of the OBN program, is to build both local and inter-regional collaboration concurrently. There is thus much still to do to build a strong intra-regional cluster base and internal network. At the same time the inter-regional networking and virtual collaboration activities must be expanded and strengthened. Future success will depend, in large measure, upon the ability to engage with potential local partners and for these partners to hire and retain effective facilitators. There are challenges also regarding internationalization and cross-boundary initiatives as well as to strengthen engagement with education, training and R&D institutions.

## 18.5 Conclusion: A Future for OBN

The review of OBN’s earlier performance has been very thorough and provides a good basis from which to prepare the plan for going forward from 2012. The overall plan is firmly on the right track; but much will depend on the ability to garner strong and effective engagement from potential local partners.

Areas that might become critical as the implementation of the plan advances are:

- Training for internationalization and pan-national business opportunities;
- Clarity of arrangements between local partners and OBN;
- Coordination with and effective leveraging of other business support programs; and
- To hire and retain effective facilitators.

The network focus of OBN should, in fact, facilitate the creation of value chain linkages regardless of geography.

OBN is not just another clustering initiative. It is a bold attempt to expand the base of business collaboration while focusing nationally on virtual collaboration between pockets of business activity across the outback. This is unique. It also fits with a wider trend, particularly in Europe, to link established local clusters to each other in order to enhance global competitiveness. The network focus of OBN should, in fact, facilitate the creation of value chain linkages regardless of

geography. In this context, an area where OBN needs to focus going forward is the strength of linkages to the education, training and R&D membership of the triple helix. This should be done in concert with the expanding R&D activities of DKA.

## Additional Resources

- Commonwealth of Australia. (2010). *Geoscience Australia* <http://www.ga.gov.au/education/geoscience-basics/landforms/deserts.html>
- Crowe, M. (2011) *Outback business networks: Lessons learned and the way forward in connecting small business across outback Australia*. Panel: Rural Cluster Development at the Edge TCI Conference 2011, Auckland.
- Desert Knowledge Australia Strategic Plan 2008–2011. [www.desertknowledge.com.au](http://www.desertknowledge.com.au)
- Saicán Consultants Inc, Strategy Analysis International. (2011). *DKA-OBN benchmarking study Canada 2011*. [www.strategyanalysis.com](http://www.strategyanalysis.com)

## Nordic – German – Poland Cluster Benchmarking<sup>2</sup>

Clusters Are Individuals – Creating Economic Growth through Cluster Policies for Cluster Management Excellence July 2011 ([www.biopeople.dk/fileadmin/filer/Per/NPG\\_Cluster\\_Excellence\\_Handbook\\_2011\\_cases.pdf](http://www.biopeople.dk/fileadmin/filer/Per/NPG_Cluster_Excellence_Handbook_2011_cases.pdf))

## Finland Tourism Cluster Support Network

[www.oske.net/en/oske/](http://www.oske.net/en/oske/)  
[www.leofinland.fi](http://www.leofinland.fi)  
[www.biopeople.dk/fileadmin/filer/Per/NPG\\_Cluster\\_Excellence\\_Handbook\\_2011\\_cases.pdf](http://www.biopeople.dk/fileadmin/filer/Per/NPG_Cluster_Excellence_Handbook_2011_cases.pdf)

## Community Futures: Alberta, Canada

[www.communityfuturespanwest.ca/](http://www.communityfuturespanwest.ca/)  
[www.cfna.ca/about.php](http://www.cfna.ca/about.php)  
[www.ruraldiversification.com/contact-us.phpwww.wd.gc.ca/eng/60.asp](http://www.ruraldiversification.com/contact-us.phpwww.wd.gc.ca/eng/60.asp)  
[www.ic.gc.ca/eic/site/ae-ve.nsf/eng/02868.html](http://www.ic.gc.ca/eic/site/ae-ve.nsf/eng/02868.html)

## Baltic Sea Region Cluster Cooperation

Creating links in the Baltic Sea Region by cluster cooperation (BSR InnoNet.Vinnova. April 2010 – [eu.baltic.net/](http://eu.baltic.net/))  
 Strategic Evaluation of the Baltic Sea Region Programme ([eu.baltic.net/Programme\\_document.98.html?](http://eu.baltic.net/Programme_document.98.html?))

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<sup>2</sup> Information Sources (Used in Principal Benchmarking).

## Ontario Mineral Industry Cluster (OMIC)

Website of Ontario Mineral Industry Cluster Council ([www.omicc.ca/](http://www.omicc.ca/))

Doyletech Corp. Northern Ontario Mining Supply and Services Study Executive Summary prepared for Ontario North Economic Development Corporation (ONEDC). April 2010 (Available at: <http://samssa.ca/files/nomsss.pdf>)

<http://www.investnorthernontario.com>

Catalyzing the Ontario Mineral Industry Cluster: Lessons Learned. Kevin Costante, Ontario Ministry of Northern Development and Mines. International Northern Partnerships Conference, Khanty-Mansiysk, Russia, 2009 (Available at: [www.omicc.ca/doc/2009\\_05\\_07\\_Catalyzing\\_OMIC\\_DM\\_V3.ppt](http://www.omicc.ca/doc/2009_05_07_Catalyzing_OMIC_DM_V3.ppt))

## 3rd International Rural Cluster Conference

Selected extracts from papers presented at the 3rd International Rural Cluster Conference, organized by RegX – the Danish Cluster Academy, Bornholm, Denmark. September 1–2 2009 <http://www.ruralclusters2009.dk/>

Rosenfeld, Stuart. Identifying Clusters in Less Populated Regions. Third International Cluster Conference Bornholm, Denmark 1–2 September, 2009. (Available at [www.ruralclusters2009.dk/fileadmin/user\\_upload/ruralclusters2009/Presentations/Stu\\_Rosenfeld.pdf](http://www.ruralclusters2009.dk/fileadmin/user_upload/ruralclusters2009/Presentations/Stu_Rosenfeld.pdf))

Generating Local Wealth, Opportunity, and Sustainability through Rural Clusters. Volume I & II (Compendium). Regional Technology Strategies, Inc., Carrboro, NC March 2009. (Available at: [http://rtsinc.org/publications/ruralClusters\\_final\\_forWeb\\_NEW.pdf.pdf](http://rtsinc.org/publications/ruralClusters_final_forWeb_NEW.pdf.pdf) and [http://rtsinc.org/publications/documents/compendium\\_final\\_forWeb\\_new.pdf](http://rtsinc.org/publications/documents/compendium_final_forWeb_new.pdf))

# Chapter 19

## Perceptions of Innovation from Australian SMEs: A Regional Perspective

Peter Vitartas and Susan Kinnear

**Abstract** This chapter describes the results of an Australian national survey undertaken in late 2011, with the specific focus of innovation in regional areas. The data reflects information from over 500 respondents from small and medium sized business across the full range of industry categories. The key themes were that innovation is well understood by regional businesses and is practiced across marketing, management and operational processes, as well as (to a lesser extent) the development of goods and services. Where it occurred, collaboration predominantly happened between businesses rather than with other entities, and the primary drivers for innovation were profit motives and the ability to be responsive to customer needs. On the other hand, barriers to innovation included the cost of development, government regulation or a lack of additional funds. As a nation, Australia benefits from regional businesses innovation through stronger productivity and profitability, better networks and links across sectors and community wellbeing. These findings suggest the need to provide support for businesses by providing additional business planning advice and developing links and networks between businesses. There is also the need for government organizations and departments, universities and economic development organizations to find ways to support and foster innovation by businesses, for example, through networking and alliance building. Further strategies for innovation include supporting population growth in regional areas and improving transport infrastructure.

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## 19.1 Introduction

For regional business people, innovation can be the competitive advantage needed to ensure their survival.

For many early rural Australians, innovation was a matter of necessity and survival. Large distances and remote locations meant supplies were delivered irregularly and infrequently. Yet the need for solutions to immediate problems has always existed. Many Australian inventions can be traced back to the ingenuity needed in the face of adversity, such as self-firing guns used in the evacuation campaign of Gallipoli; or before that, the humble billy that was used to make tea made from a jam tin and handle of wire leading to stories of rural folk who were able to *mend anything with a bit of fencing wire*. How does this view of rural and regional Australians continue through to the current day, where deliveries from cities can be made by air within a day; where roads and communications are relatively efficient and solutions can be found at the press of a finger on the Internet?

For business people, innovation can be the competitive advantage needed to ensure their survival (OECD 2011). Yet there have been few studies of rural business operators and views of innovation in regional areas. While the Australian Bureau of Statistics performs routine surveys of innovation in business, to date, there has been little scope to explore these results specifically in a 'regional' operating context. In the United States, the National Science Foundation publishes statistics on business innovation, the most recent of these being published in 2010 (NSF 2010). Here, preliminary data indicate that about 9 % of for-profit companies in the US were identified as 'product innovators' during 2006–2008 and that the same figure were identified as 'process innovators. Manufacturing companies in particular were leaders in innovation activity.

In Australia, there have been few direct surveys of business and industry regarding the perceptions and understanding of innovation. Two recent exceptions have been a benchmarking innovation study undertaken by the Brisbane City Council (2011) and Klass and Turnicov's (2011) innovation benchmarking study in the Perth/South West Corridor region.

However, to date, it appears that one only study has reported on the impressions and value of Australian innovation in a regional context. Kinnear et al. (2011) report on a study of 79 regional business operators in Central Queensland and examined the sources of new ideas, the meaning of innovation, barriers and enablers to regional innovation, and the interactions of regional business with their local university. It is the purpose of this chapter to begin addressing the lack of knowledge about innovation from the perspective of small and medium business owners operating in regional and rural Australia.

## 19.2 Methodology

The results presented in this chapter were drawn from a larger sample of regional innovators and business operators who completed an online survey of innovative activity undertaken by their business or organization. The survey collected data on the individual's views about their organization's innovative activity, performance and drivers for that activity. In addition, questions on collaborative activity, barriers and enablers, and factors that would contribute to greater innovation were explored. Respondents were also asked a number of questions that captured their opinion about innovation along with demographic and classification questions.

The findings presented here are limited to the results relating to 'business to business' operators only, who were drawn from a national panel managed by a market research and public opinion survey company.<sup>1</sup> Additional findings that related to a second database are not included, as checks indicated significant differences in opinions between the two samples. The findings of this second group, consisting of government employees and city-based residents, will be reported elsewhere.

### 19.2.1 Respondent Profiles

The survey was undertaken in the second half of 2011 and was targeted at regional business owners only. A total of 534 useable responses were obtained from across Australia with representative proportions of respondents from each State and Territory. In terms of broad descriptors of the participant cohort, the male:female breakdown of the sample was 57 %:43 % with over half (51 %) of the respondents in the 50–64 years age bracket; 34 % aged 35–49 years, and 11 % indicating they were over 65 years of age. The sample's level of education was comparable to national figures with almost 50 % indicating they had obtained a tertiary qualification of some type. This is slightly higher than the national average for regional areas where tertiary education levels are around 45 % (ABS 2008), however, as the respondents are business operators a higher education level can be expected. Almost 86 % indicated they were employed full-time with the majority in professional or managerial roles.

Respondents came from businesses or organisations that had considerable longevity – almost half had been operating for longer than 20 years. A further 31.5 % were from organizations that had been operating for 10–20 years. Only around 1 % of respondents came from recently emerged entities of less than 1 year. The organizations were generally small to medium in size; 46 % employed between 1 and 4 employees while 30.5 % employed between 5 and 19 employees. Almost 14 % of the respondent's organizations employed over 200 employees.

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<sup>1</sup> Roy Morgan Research.

**Table 19.1** Participant breakdown by industry sector

Industry sector	Sample percent	Sector employment percent <sup>a</sup>
Agriculture, forestry and fishing	9.6	4.6
Mining	0.7	1.4
Manufacturing	7.7	9.5
Electricity, gas, water, and waste	1.3	1.1
Construction	7.1	9.9
Wholesale trade	1.9	5.4
Retail trade	17.8	12.8
Accommodation and food services	10.5	8.8
Transport, postal and warehousing	2.4	5.5
Information, media and telecommunications	3.6	1.8
Finance and insurance services	3.6	N/A
Rental, hire and real estate	5.2	3.6
Professional, scientific and technical services	7.7	9.4
Administrative and support services	1.7	7.1
Public administration, safety and security	0.2	0.7
Education and training	1.7	3.2
Health care and social assistance	9.0	8.8
Arts and recreation services	2.2	1.9
Other services	6.2	4.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: ABS Cat 8155.0 2009–2010

<sup>a</sup>National average.

Table 19.1 presents the proportion of respondents by industry group for the sample and Australia overall. The sample is broadly representative of employment in the Australian industry sectors, with the exception of the agricultural and retail sectors where the sample has higher proportions of respondents and lower proportions in administration support. Again, these differences can be expected given the sample is of businesses.

## 19.3 Results and Discussion

### 19.3.1 *The Meaning of ‘Innovation’*

According to the Australian Bureau of Statistics, innovation is generally considered to be the development, introduction or implementation of new or significantly improved goods, services or processes (ABS 2010). The *Oslo Manual* developed by the OECD in 2005 provides a similar, but more detailed definition of innovation:

... the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations (OECD 2005, p. 6).



**Fig. 19.1** A tag cloud assembled from key words in respondent’s answers to ‘the meaning of innovation’

When participants were asked for their response on ‘the meaning of innovation to their organisation’, many answers were themed by ‘new business’, ‘new thinking’ or ‘new ideas’, and linking these with better ways of doing business (e.g. see Fig. 19.1). This agrees with earlier work conducted in Central Queensland by Kinnear et al. (2011), who reported that although innovation is traditionally defined by outcomes such as commercialization, regional business people are comfortable with a much more holistic view, with innovation being more about ‘novelty that brings new value to the business’.

### 19.3.2 *Implementing Innovation*

Participants were asked to consider the ‘extent to which their organization is innovative’. The results were mixed, with only 6 % of the cohort selecting ‘very innovative’, while 7 % chose ‘not innovative at all’. The majority selected the midpoint and there were equal numbers on either side (Table 19.2). The findings suggest that Australian regional business operators are mixed in their perceptions as to the innovativeness of their organisations, although the extent to which innovation is reported later in the paper suggests a greater extent of innovation exists.

Participants were also asked to indicate whether their organisation had implemented an innovation in the previous 12 months. Here, innovation was broken into categories based on new or significantly improved activities in the areas of product (goods and services), processes (operations, management, marketing) or other innovation.



**Table 19.2** Summary of responses on 'the extent to which their organisation is innovative'

Perceived level of innovativeness of the organisation	Percent of respondents (n = 534)
Not innovative at all	
1	7.1
2	21.0
3	43.8
4	22.0
5	6.0
Very innovative	

**Table 19.3** Types of innovation activity in regional organisations during the past 12 months. Participants were able to select more than one option

Type of innovation	Frequency	Percent
Goods	129	24.2
Services	245	45.9
<b>Total goods and services</b>	<b>305</b>	<b>57.1</b>
Method of manufacturing or producing goods and services	95	17.8
Logistics, delivery or distribution methods for goods and services	91	17
Supporting activities for business operations	201	37.6
Other operational processes (purchasing, accounting or computing)	59	11
<b>Total operational processes innovation</b>	<b>308</b>	<b>57.7</b>
Knowledge management processes	214	40.1
Organisation of work within the business	151	28.3
Relations with other businesses or public institutions	158	29.6
Other organisational/managerial processes	46	8.6
<b>Total organisational/managerial process innovation</b>	<b>346</b>	<b>64.8</b>
Changes to the design or packaging of a good or service	108	20.2
Sales or distribution methods	168	31.5
Other marketing methods	102	19.1
<b>Total marketing method innovation</b>	<b>287</b>	<b>53.7</b>
Other innovation	20	3.7
No innovation in the last 12 months	101	18.9
Can't say	25	4.7

Table 19.3 presents the results of the number of respondents who indicated which type of innovation had been implemented by their organisation in the past 12 months, as well as the total number of respondents who had indicated one of the innovation types for each category. Respondents indicated the most common form of innovation was in the 'softer' elements such as organisational/managerial process innovation (64.8 %), followed by operational processes innovation (57.7 %), goods and services innovation (57.1 %) and marketing innovation (53.7 %). Even amongst subcategories, respondents consistently reported that the innovation activity was likely to be around service and support changes or knowledge management, rather than technological advancement such as product changes ('goods' innovation or design or packaging upgrades). Approximately 19 % of respondents indicated no innovation had taken place in their organisation in the past year.

**Table 19.4** Types of innovation activity indicated as the ‘most significant’ to the organisation

Most significant innovation	Percent of respondents
Goods and services	18.4
Operational processes innovation	21.1
Organisational/managerial process innovation	33.3
Marketing method innovation	25.7
Other innovation	1.5
Total	100

When participants were asked which innovation was ‘the most significant’ for their organisation, the organizational/management process innovation was again the predominant reply. This was followed by marketing innovation, operational processes, then goods and services innovation (Table 19.4).

Regional Australia is indeed a highly innovative landscape.

These suites of questions are broadly similar to the innovation data collected in the 2007–2008 Business Characteristics Survey, undertaken by the ABS. This survey collected information about four broad types of innovative activity undertaken by businesses in Australia: goods or services; operational processes; organisational/managerial processes; and marketing methods. The survey also covered three statuses of innovation: introduced or implemented; still in development; and abandoned. In the 2007–2008 results, the ABS reported that innovating businesses in Australia represented 39.1 % of all businesses. In contrast, the 2011 survey data from regional Australia (this study) identified that 76 % of businesses (i.e., all businesses minus those reporting no innovation or can’t say) were innovating in some way (Table 19.3). This suggests that regional Australia is indeed a highly innovative landscape.

The ABS data also revealed that at the national level, goods and services innovation was the most-common innovative activity, which was slightly different from the findings in this survey, which instead highlighted organisational/managerial process as the most common innovative activity (Table 19.4).

The national ABS survey also illustrated that the proportion of innovating businesses increased with business size, ranging from 31.6 % for businesses with 0–4 people employed, to 65.9 % for those businesses with 200 or more people employed. In this study the proportion of regional business innovating for each employee category appears higher (Table 19.5). The proportion of businesses innovating that have no employees range from 22 % to 37 % with operational processes being the main form of innovation. Innovation among business employing from 1 to 4 and 5 to 19 employees are very similar and utilized organisational/managerial processes as the main form of innovation. In contrast, for the largest employer organizations, the level of innovation was very high with almost all these organizations utilizing organisational/managerial processes.

**Table 19.5** Innovation type by number of employees in organisation

Innovation type	Number of employees			
	0 (%)	1–4 people (%)	5–19 people (%)	20 or more people (%)
Total good and services	31	58	60	70
Total operational processes innovation	37	52	62	86
Total organisational/managerial process innovation	35	64	64	94
Total marketing method innovation	22	55	55	73

**Table 19.6** Collaborative partners for organisations in regional Australia. Participants could select multiple responses

Collaboration with	Frequency	Percent
Other business and industries within the local region	130	31.9
Other business and industries within the state	111	27.2
Other business and industries within Australia	94	23.0
Other part of my organisation	87	21.3
Local government	35	8.6
Regional economic development organisations	27	6.6
State government	26	6.4
Other business and industries internationally	24	5.9
Other	20	4.9
Universities	15	3.7
Commonwealth government	15	3.7
None	90	22.1
Can't say	7	1.7

### 19.3.3 *Collaboration for Innovation*

Collaborative partners in regionally-based business and industry were present in a third of all cases of innovation.

Almost 60 % of participants (58 %) reported that their organisation collaborated with at least one partner in order to implement recent innovation(s). Of these, the most common collaborative partners were regionally-based business and industry, which were present in a third of cases (Table 19.6). Participants also reported high levels of collaboration with other business within the State and Australia. Intra-organisational collaboration were also mentioned frequently. The entities that were least often selected as collaborative partners included the Commonwealth government, universities, and international partners.

**Table 19.7** Summary of responses regarding lack of collaboration (n = 99) respondents could select more than one answer

Reasons for not collaborating	Percent of respondents
Did not need any collaboration	78.9
Commercially sensitive	10.0
Didn't know anyone	6.7
Too much effort/time/cost	7.8

Some participants also identified partners for collaborators in other countries. The most frequently mentioned included (in approximate order of dominance) the United States of America, Europe, the United Kingdom/England, China, New Zealand, South East Asia, India, Japan, Argentina, Africa Taiwan and Canada.

For those 99 participants who indicated that collaboration was not part of their innovation strategy, respondents indicated that that the key reason for this was no need for a collaborative partner. However, at least 10 % also cited concerns about commercial sensitivity (Table 19.7).

### 19.3.4 Innovation Drivers

Understanding the drivers of innovation in regional Australia is particularly important for the development of policy and to identify where support for innovation can be developed. Participants in this survey indicated that the most common drivers were related to profit, as well as responding to customer needs, maintaining competitiveness, increased efficiency and quality of goods and services (Table 19.8). A particularly high value was placed on the ability to increase responsiveness to customer needs and, related to this, to ensure the business is competitive. While developing new markets is rated highly, it was noteworthy that less than 3 % of respondents indicated that innovation was being driven by the opportunity to deliver increased opportunities in exporting. Also of note are the items of lower importance including increasing the capacity of production or services, responding to government regulations or standards and reducing environmental impacts. Questions relating to competition, demand and market drivers were mentioned by respondents slightly more than production and delivery drivers.

For those participants who volunteered examples under 'other' drivers, some of the most striking responses included:

- 'Cost saving';
- 'To decrease my work hours';
- 'Staff satisfaction'; and
- 'Customer service'.

**Table 19.8** Key drivers for innovation in regional Australia (participants could select multiple options). Items in uppercase indicate category groupings

	Frequency	Percent
Profit related drivers	383	71.7
Increase responsiveness to customer needs	321	60.1
Increase or maintain market share	264	49.4
Increase efficiency of supplying/delivery goods or services	250	46.8
Improve quality of goods and services	235	44.0
Ensure the business's products are competitively priced	204	38.2
Establish new markets	199	37.3
Improve IT capabilities or better utilise IT capacity	180	33.7
Be at the cutting edge of the industry	159	29.8
Improve safety or working conditions	151	28.3
Increase capacity of production or service provision	124	23.2
In response to government regulations or standards	108	20.2
Reduce environmental impacts	93	17.4
Increase export opportunities	15	2.8
Other	7	1.3
Can't say	24	4.5
Total competition, demand and market related drivers	458	85.8
Total production and delivery drivers	432	80.9

### 19.3.5 Innovation Barriers and Enablers

Barriers to innovation occur when the risks are not perceived to be as high as the potential returns.

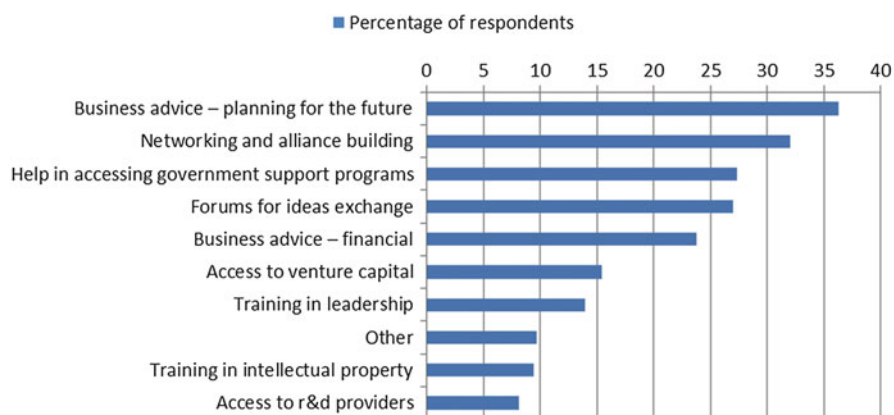
Respondents from regional Australia cited concerns about the cost of developing, introducing and/or implementing innovation, government regulations or compliance and lack of access to additional funds as the key barriers to being involved in innovation activity (Table 19.9). Other barriers mentioned frequently were lack of demand, lack of skilled people and the attitude of staff to change. Fewer than 7 % of respondents stated that there were 'no barriers' to innovation while only 13.3 % indicated that access to knowledge or technology was a barrier to innovation. The findings correspond to the responses in the previous table where profit was identified as the key driver of innovation. It would appear that barriers to innovation occur when the risks are not perceived to be as high as the potential returns.

The mix of open-ended responses contained a range of other issues, but the most common amongst these included:

- Leadership (or lack thereof); conservatism and/or 'old thinking'
- Time;
- Bureaucracy; and
- Lack of support by government (with a predominantly local government context).

**Table 19.9** Key barriers to innovation within regional organisations. Respondents could select more than one option

	Frequency	Percent
Cost of development or introduction/implementation	231	43.3
Government regulations or compliance	180	33.7
Lack of access to additional funds	169	31.6
Uncertain demand for new goods or services	149	27.9
Lack of skilled person within the labour market	120	22.5
Lack of skilled persons within the organisation	99	18.5
Attitude of staff towards change	99	18.5
Lack of access to knowledge or technology to enable development or introduction/implementation	71	13.3
Other barriers to innovation	38	7.1
No barrier	36	6.7
Can't say	13	2.4

**Fig. 19.2** Potential avenues to increase organisational innovation within regional Australia in the future. Respondents could select more than one option

These themes were broadly comparable to those recorded from Central Queensland; where the top barriers for innovation included financial constraints (20 % of respondents); cultural resistance, lack of time and government policy and bureaucracy (Kinnear et al. 2011).

When asked how innovation activity might be best supported within regional Australia, respondents consistently placed a high value on platforms for business advice and collaboration (Fig. 19.2). In contrast, up-skilling in the areas of ‘hard innovation’ such as intellectual property and commercialisation arrangements appeared to be in much less demand. For those respondents who supplied an additional open-ended response, the key thematic areas included:

- Financial incentives (including tax relief);
- A less bureaucratic, less regulated and more ‘free market’ environment;

**Table 19.10** Summary results for action areas that would ‘contribute the most to the development and implementation of innovation in your local region’. Respondents could select more than one option

	Count	Percent
Population growth/regionalisation strategies	246	46.1
Funding delivered by State/Federal government	240	44.9
Improvements to transport infrastructure	212	39.7
Leadership by regional business/industry groups	162	30.3
The work of local government	118	22.1
The rollout of the national broadband network	89	16.7
Growth/development of regional university campus	70	13.1
The presence of Regional Development Australia	53	9.9
The carbon tax, renewable energy targets and other environmental policies	37	6.9
Can’t say	28	5.2
Other	26	4.9

- Increasing resourcing to businesses, particularly the provision of the National Broadband Network;
- ‘Change’ in the context of the government of the day, as well as organisational and regional level (e.g. local government) leadership;
- Greater certainty in terms of business futures.

Respondents were also asked to indicate what they thought would contribute the most to the development and implementation of innovation in their local region. They were provided nine options and were able to indicate up to three items. In reviewing the overall summary of responses (Table 19.10), the most common responses were population growth, regional development funding and improved transport infrastructure, which were selected by more than 40 % of participants. Those options regarded at the least powerful included environmental policies and/or the presence of Regional Development Australia.

Common themes emerging in the open-ended responses included removing bureaucracy and/or regulation, experiencing a change of government, and attracting a higher customer base to regional Australia (e.g. through population growth, enhanced visitor numbers, and better transport options).

### ***19.3.6 Contribution of Innovation to Regional Development***

Over 60 % of respondents thought their region was as-innovative or more innovative than other parts of Australia.

**Table 19.11** Level of innovation in the region, compared with the rest of Australia

	Percentage of respondents
1. More innovative	13.9
2. Less innovative	28.7
3. Or about the same	46.8
4. Can't say	10.7

**Table 19.12** Contribution of innovation to development of local region

No contribution	Frequency	Percent
1	82	20.1
2	94	23.0
3	123	30.1
4	71	17.4
5	38	9.3
<i>Substantial contribution</i>		
<b>Total</b>	408	100

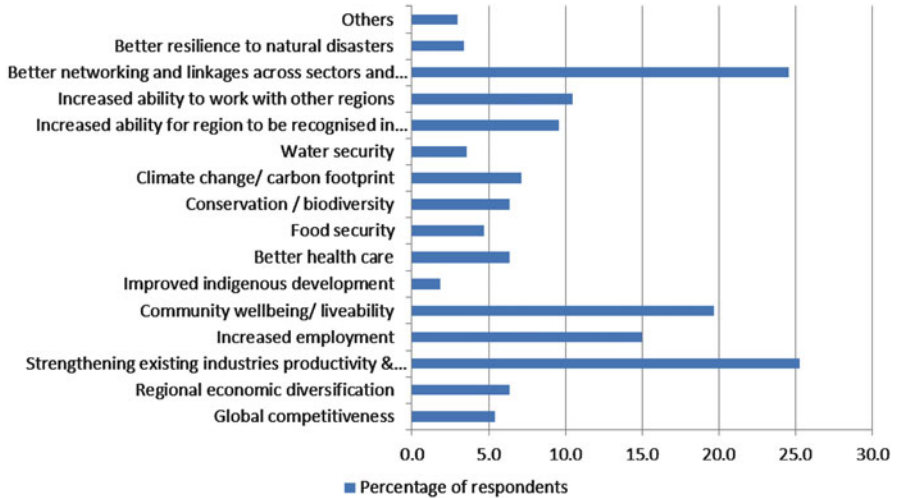
Over 45 % of survey respondents indicated that the level of innovation in their region was 'about the same' as the rest of Australia (Table 19.11). Of the remaining respondents, 14 % thought their region was more innovative than the rest of Australia, while 29 % believed their region was less innovative than the rest of Australia. These findings indicate that over 60 % of respondents thought their region was as-innovative or more innovative than other parts of Australia.

To explore the contribution of innovation to the local region, respondents were asked the extent to which they believe that the innovations they had identified in the earlier questions contributed to the development of the local region. For this sample, it would appear that the majority of respondents did not feel the innovations had a strong impact on the region (Table 19.12). Only 9.3 % of respondents indicated the innovation had made a substantial contribution whereas 20.1 % had indicated 'no contribution'.

Overall, the survey results demonstrated that participants were quite ambivalent about the role of their organisation's innovation on regional development (Table 19.12). However, this result must be placed in context: participants were specifically asked this with respect to the innovation(s) that they had described earlier. As such, it is possible that respondents saw little or no role for their own organization's innovation in terms of the wider region; whereas 'innovation' in the broader sense may have had quite different results.

This question was followed with a more in-depth enquiry as to the specific advantages and benefits that innovation can provide to the development of regional Australia. Of the available responses, the most commonly selected answers included:





**Fig. 19.3** Contribution areas of innovation to the development of regional Australia (Participants could select more than one response). Items in *uppercase* indicate category groupings

- Better networking and linkages across sectors and groups;
- Strengthening the productivity and profitability of existing industries; and
- Contribution to community wellbeing/liveability (Fig. 19.3).

One quarter of the respondents agreed that ‘innovation could help regions to be recognised as delivering national goals’.

In terms of the ‘triple bottom line’ effects, economic benefits were overwhelmingly selected as more likely to flow from innovation activity, when compared with social or environmental outcomes. There were also a suite of ‘other’ answers that provide some useful insight into the value of regional innovation. For instance, one quarter of the respondents agreed that ‘innovation could help regions to be recognised as delivering national goals’, (despite the probability that this was a new paradigm for almost all participants). Collaboration across regions was selected by over half of the respondents as a benefit of innovation activities (Fig. 19.3). Surprisingly, only 3.4 % of participants thought that innovation could be useful in providing increased resilience to natural disasters. This is in agreement with earlier work by Kinnear et al. (2011), which reported that less than half of the regional business cohort in Central Queensland were prompted to innovate as a result of recent natural disasters (extreme flooding), despite the significant economic costs of these events (Table 19.13).

**Table 19.13** Group total results for the areas of regional development to which innovation contributes in Australia

	Percent	Frequency
Total better economic growth	39.9	213
Total better social outcomes	26.4	141
Total better environmental management	13.3	71
Total others	34.8	186

### 19.3.7 Attitudes About Innovation

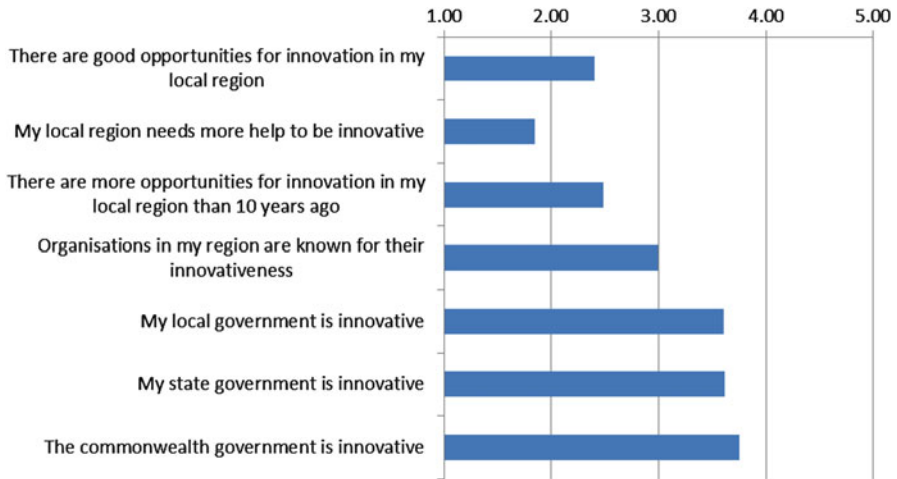
Participants believed that regions need more assistance to help drive innovation; and that regions were good places to realize opportunities for innovation.

To gain further understanding of respondents views on innovation, they were asked their level of agreement to a series of questions. A number of these were framed in terms of the future of innovation in regional Australia. Respondents agreed that there were good opportunities for innovation in their local region but that more help is needed for the region to be innovative. There was also agreement that there are more opportunities in the local region to innovate than in the past 10 years. Respondents were mixed in whether they believed their region was innovative with the sample split between agreeing or disagreeing. In relation to the innovativeness of government, in total respondents disagreed that local, state and federal governments were innovative to similar extents.

The strong signal from these data is that participants believed that regions need more assistance to help drive innovation; and that regions were good places to realize opportunities for innovation. On the other hand, respondents indicated that current innovation activity by the three levels of government was unsatisfactory (Fig. 19.4).

### 19.3.8 Other Comments

At the end of the survey, participants were given the opportunity to contribute an open-ended response with their thoughts on innovation and regional development in their area. Many of the responses featured concerns about the impending carbon tax, and the implications that this would have for business competitiveness and uncertainty. A number of respondents also expressed their approval for the research, with its basis on better understanding and supporting regional Australia, as well as regional business in particular.



**Fig. 19.4** Summary results: Attitudes to the future of innovation in regional Australia. Graph shows the mean score, compiled from the responses of 1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 somewhat disagree, 5 strongly disagree

Some direct quotes from the replies included:

- ‘One of the hardest things about being a small business owner and operator is finding the time to be innovative. government expectations, rules and regulations leave little time for innovation and most small businesses do not have the funding or income to employ outsiders’;
- ‘Development of regional infrastructure such as railways and airports to international level would make the world of difference not only in terms of regional opportunities but nationally’;
- Innovation is usually successful if it is in response to a need; and
- ‘(1) There is not enough incentive for business owners in rewards from government(s). The trend has been more incentive(s) for employees. It should be the other way around. (2) Population growth for Australia is ridiculous There should be a cut-off point . . .’

## 19.4 Conclusion

### 19.4.1 General Trends

The findings from this study of business operators have highlighted the amount and extent of innovation that is occurring in rural and regional Australia. It was encouraging to see that over half of the respondents to this survey identified some level of innovation occurring in their organization with a large proportion of the innovations occurring in organizational and managerial processes in order to be more competitive.

It was also apparent that innovation increases with the number of employees in the organization. However, there were no clear differences between the mid-sized organizations with 1–4 and 5–19 employees. Clearly, economies of scale play a part, although it could also be that the sharing of ideas and resolving risk within an organization is an important factor in the extent of innovation that is undertaken.

Business advice, collaboration and providing business operators the opportunity to network and talk to similar operators is seen as an important consideration in supporting innovation. This can be further supported by encouraging regional growth and providing targeted support for regional businesses.

### ***19.4.2 Opportunities for Regional Innovation Systems***

It is of note that very few businesses directly mentioned research and development (R&D) activity in the context of assisting or driving their innovation activities. The survey itself did not provide a particular question focused on this aspect. However, survey data from the US has illustrated that companies with R&D activity are linked with far higher rates of innovation than non-R&D companies (NSF, 2010). There, approximately 3 % of companies performed and/or funded R&D in 2008.

It appears that one of the opportunities to increase regional innovation activity – and the firm, regional and national level benefits that flow from it – is to explore opportunities for Australia’s regionally-based businesses to participate more fully in R&D activities (DIISR 2011). It is likely that a strong role for regional universities should feature in this; given that these institutions are more likely to be strongly engaged with the business and industry within their footprints.

### ***19.4.3 Harnessing Innovation for ‘Regional Advantage’***

Regional businesses provide the soft infrastructure that supports much of the output that drives the Australian economy. The results presented in this chapter, which are based on a sizeable sample and broadly representative of Australian businesses, confirm that innovation is an important part of supporting the economies of regional Australia. However, there is a clear perception that more could be done to support businesses achieve improvements across marketing, managerial and operational processes and in the production of their goods and services.

The findings highlighted that while collaboration was occurring between businesses to assist innovation, few businesses were collaborating with government organizations, economic development organizations, universities and international businesses. It is those organizations have the capability (and in many cases, resources) to engage and partner with regional businesses to identify opportunities, develop new markets and create efficiencies in business practices that will lead to greater competitiveness among businesses.

**Acknowledgement** The authors gratefully acknowledge the support and assistance of the staff at Roy Morgan Research for being able to access their regional business panel and assistance in the collection of data. In particular they would like to thank Ms. Anne Ballaghy and Mr. Howard Seccombe.

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# Chapter 20

## Solutions to Contested Land Uses and Our Emerging Landscape

Claire Penniceard, Peter Vitartas, and Kate Charters

**Abstract** This chapter explores the role of innovation in responding to the challenges of Australian food security, both in the domestic and global contexts. The chapter explores the challenge to meet increased food demand through innovative production, as well as how best to manage distribution and supply chains. It acknowledges that regional communities based in farming must be able to access new technologies and information to allow them to advance, but so too must there be appropriate innovation in the regulatory environment, to allow novel approaches to be trialled.

### 20.1 Introduction

Australia's historical ability to produce food for its domestic consumption provides some sense of food security for ongoing population growth: approximately 93% of food consumed in Australia (by retail value) is produced domestically (McMillan 2011). Furthermore, the presence of Australia's large agricultural export-industry is also comforting from an economic point of view. It has been estimated that over 60 million people are fed every day by Australian-grown food (PMSEIC 2010). There are, however, two major issues for the future: the first is meeting the growing demand for food production from the rest of the world; the second is managing and distributing the food from where it is produced to where it is consumed. These two factors are of critical importance to Australia and the focus of this paper.

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The two key challenges faced by Australian agriculture are how best to meet growing global demand for produce, and how to best manage the distribution and supply chains from point of production to point of consumption. Both these need innovation to help achieve a sustainable and secure food future.

The challenges to the sufficient production of food arise from a number of sources. If the world population increases from 6.8 billion in 2010 to over 9 billion by 2050, the world will face enormous stresses in supporting the additional dietary needs created by population growth. For example, the increased competition for land and water from human housing introduces multiple land-use pressures, reducing the currently available productive agricultural lands for food production. Other pressures include the need to provide for an increased number of agricultural products as well as mining, energy production, managed forests, carbon sequestration planting, plant and animal conservation and settlement. Already, technical and industrial advancements have led to the diversions of raw materials for food production being switched to other uses, such as biofuels. Added to this mix is also the potential impacts of climate change and the unknown impacts of globalised investment and market relationships as they affect economic development. Clearly, a strong argument can be mounted that the nature of agricultural production will have to rapidly change to meet the growing and changing food demands of the world.

The nature of agricultural production will have to rapidly change to meet the growing and changing food (and other) demands of the world . . . facilitating this change will mean shifts in practice (technological innovation), but also in policy and planning (process innovation).

The agricultural industry has already implemented innovations in response to these known and anticipated changes. Through the pursuit of excellence, the agricultural sector has made productivity gains to meet the demand for a greater volume and variety of produce; yet the outlook is for even further increases in agricultural production. Agricultural intensification is one approach to addressing this problem. In the next 50 years, it is believed there will be significant changes to the rural landscape in Australia as we know it in order to satisfy the growing international and domestic demand for food. Facilitating this change will require shifts in the policy and planning environments as they currently stand.

This paper draws on knowledge obtained from a 6 year multi-sector project that focused on a range of planning and policy areas impacting on the role of agriculture in the emerging environment. It addresses the policy, regulation and legislation changes required to facilitate these changes, and argues that policy and planning requirements need to be adjusted if Australia is to meet the increased demand for food and to have sustainable agricultural intensification.

## 20.2 The Problem with Agriculture Today

Over the past 50 years, Australian farmers and graziers have been under constant pressure to continually improve their production, usually with fewer and fewer resources. As a result, there have been substantial changes in farm numbers and sizes. From 1968/1969 to 2004/2005, farm numbers have decreased 34% while farm sizes have increased 36% over a similar period; although it has to be noted that with more diversity in the industry there is greater variability in farm sizes (Productivity Commission 2009).

It has generally been held that, at a national level in each agricultural industry, the 80-20 rule applies: is 80 % of the national product is produced by 20 % of the enterprises. Yet with structural changes occurring as a result of drought and changing food preferences, this divide is now believed to be approaching 90/10 (Hamblin 2001) for many of the agricultural industry's sectors. For example, in the Australian pig industry 86% of the enterprises are between them producing 14% or less of the product.

In the Australian agricultural sector, the '80/20' rule once applied – yet this is now edging towards '90/10', with a number of significant implications in terms of processing and transport chains.

This radically changes the 'bargaining' position of the 90% of producers generating 10% of the national product – the outcome is that the small farmer does not have 'clout' in the industry and therefore may well not have a commercial future. Processing and transport chains also reflect this change. When many small enterprises, scattered over the country-side, go head-to-head in the market, the cost of transport and on-farm costs becomes prohibitive with quality and profit margins being reduced. In many cases, this may mean that the farmer becomes a price taker and often has to sell out at the bottom of the market. If a farm is part of the regular production system and the owners are factored into the income stream, then one of the mitigating factors in profitability is scale. As soon as an operator increases in size, they are then unable to deliver all the labour themselves and so have to employ people to come into the production system. The larger the scale, the more sophisticated the operation becomes and increases the need for specialised business management skills and practices requiring higher level operators and contractors. Scale also brings about other regulatory requirements, such as certification.

As one example of this, over an extended period, labour supply for intensive pig farm production has incrementally changed to respond to the needs of these new farm practices as the holdings become more opportunity and needs driven. As a further example of this specialisation, a modern grain enterprise will employ separate contractors to prepare the soil, plant the crop, fertilise, spray, harvest and bail the crop. They are all separate businesses with their own machinery that sweep across the country from Victoria to Western Australia throughout the year following the seasons and growing cycles.



### 20.3 Farms of the Future: Ownership, Business Practice, Scale, Regulation, Labour

It is suggested that the beneficiaries of the intensive cycles outlined above are the agriculture corporations (Keogh 2012). While it has been acknowledged that corporations are entering the industry and are larger because of their vertical integration, family farms are still prevalent with many following the larger corporations example by undergoing their own vertical integration and expansion. Currently corporate holdings represent approximately 9.4% of industry revenue in Australia (Sivasailam 2012).

The change in the behaviour and production systems of individual incorporated properties over the past 50 years has radically changed the nature of agricultural business. Farmers are now expected to understand costs, risk factors, what returns are needed and how they will be achieved. Larger scale operations use labour to meet many of their scale requirements. Farm labour, in turn, needs to be trained, educated, and accredited in the practices of the farm. There are also additional demands for workforce management and compliance with Workplace Health and Safety and Industrial Relations Regulations. The change has also required farmers have a broader understanding of the regulatory requirements of each industry. New South Wales legal requirements for small-scale pig farmers (i.e. with fewer than 20 sows or 200 pigs) now require compliance for over 12 Acts and Regulations including:

- *Local Government Act 1993*;
- *Local government (General) Regulations 2005*;
- *Stock Diseases Act 1923*;
- *Stock Diseases Regulation 2004*;
- Rural Lands Protection Boards handle applications for swine brands;
- PigPass National Vendor Declaration (NVD) and PigPass Quality Assurance (QA);
- *Rural Lands Protection Act 1998*;
- *The Protection of the Environment Operations Act 1997*;
- *Environmental Planning and Assessment Act 1979*;
- *The State Environmental Planning Policy No. 30*;
- Local councils may also have their own requirements for the development and operation of piggeries; and
- *Stock (Chemical Residues) Act 1975 and Regulation 2005*.

Source: (Australian Pig Formers, 2012)

## 20.4 The Way Forward: Intensification, NBN and Government Regulation as Enablers

Agriculture is already moving toward intensification. As an example an apple orchard in Victoria established by the current owner's grandfather once had 72 trees to the hectare: it is now run with 4,400 trees to the hectare.

Grain farmers have had to move to multiple crops and multiple plantings to remain competitive and to mitigate the risk of crop failure; most farms now grow three crops per annum that fit the current climatic conditions. This also applies to orchards and vineyards where netting is used extensively to protect crops against the environment. The downside is that undertaking multiple crops increases the regulatory requirements across an increasing number of industry legislations, codes and practices.

In an increasingly discerning and demanding competitive market, buyers are specifying product requirements. The onus of proof for things such as, organic certification or free range certification falls on the farmer and in some cases involves co-operation between adjoining farms to establish chemical application rates to minimise residue in run-off. Furthermore, air quality, information on water quality may be required from local regulatory authorities for necessary accreditation.

One of the immediate impacts of increased operational scale of a farm is the need for more efficient infrastructure. With year round production farmers need three phase power and ideally access to gas. Farm enterprises now demand a lot more inputs and have a lot more outputs than ever before. To be competitive this may mean roads have to be approved to take B-double trucks to ensure deliveries and produce can be transported to and from the farm.

One of the immediate impacts of increased operational scale of a farm is the need for more efficient infrastructure. Greater intensification of the Australian agricultural industry also has implications for land use conflicts, end to end value chains, human resources, settlement patterns and governance.

The farm has become a production system with numerous and often competing requirements. For example, the production system calls for a specific landscape which could go well beyond the requirements of rich soil and running water. In essence, there is a lot going on in the landscape yet there is little planning or management of these activities, many of which are irreversible. The nexus between these unplanned, unmanaged but consistent trends (of greater intensification) have significant implications for infrastructure, managing land use conflicts, end to end value chains, human resources, settlement patterns and governance.

The choices of where and how agriculture and intensive agriculture production may take place are also more and more constrained by competing land use issues – such as mining, wind farms and solar power. So many of these alternate uses take up

the landscape and some are not compatible with neighbours. For some enterprises in small communities, meeting the requirements of expansion may be out of the question due to local Council budgets, priorities or regulation co ordination across Councils. In other instances, farmers may battle conflicting water treatment standards, non-integrated pest control strategies, and regulations across Council and State boundaries.

There are currently no adequate mechanisms for applying a value judgement whereby society broadly and communities more specifically, can quantify the criteria used to support one piece of land use over another. Yet clearly the production of food is the one thing we can't do without. In terms of landscape use food has to be the priority. Competing land use decisions mean many lands are now degraded beyond the ability to produce food or that they will require extensive time to be rehabilitated.

In the following section, we explore some possible solutions and policy issues that will support innovation and outcomes that will support intensive farm production in a sustainable manner.

### ***20.4.1 NBN's Role in Intensive Agriculture***

Modern computing and monitoring technology, combined with the connectivity to the internet, is allowing Australian farmers to innovate in more ways than ever.

Today's technology enables farmers to gain information on all parts of their property through the use of sensors and GPS location devices. It can mean that when it comes to harvesting their crops the farmer can make detailed digital maps of their land plotting slope, soil type, moisture, historical yield, weed and insect problems. These maps can then be programmed into computers, attached to variable rate equipment that modifies the application depending on the conditions. Inputs such as tillage, seeds, fertilizer, herbicides and irrigation can all be controlled. Precise application will reduce water and improve yield. Future innovations will enable computer driven harvesters with wheel sensors and a video camera so it can harvest a field without a driver or a remote operator. Computers will help producers monitor and respond to weather variability on a day to day basis. Solar-powered weather stations in the field can be hooked up to a farmer's computer or relay information about current air and soil temperature, precipitations, relative humidity, leaf wetness, soil moisture, day length, wind speed and solar radiation.

Internet access will allow farmers to manage finance, marketing and production with greater certainty as they can track volatile production and prices, financing risks, interest rates and the availability of credit. Processors will also be able to provide guidance on feeding rates and production practices, customer needs and preferences.

For farmers, the NBN offers opportunities for staff training and monitoring. Employees who have to care for animals are required to hold certificates requiring elements of theoretical knowledge, training, testing and re-testing to ensure they meet and maintain set standards for certification. For enterprises that have quarantined and secure facilities this training process can be further extended by having to allow for decontamination. A 1 day training workshop may, in addition to travel, require a day on either side of the workshop for decontamination i.e. 3 days of resources are required for 1 day of offsite training. Likewise the assessor also has to go through this same process of decontamination.

The NBN offers the offsite employee the possibility of seeing, hearing and interacting with others online. The demonstration of skills can be undertaken online through the use of video and personal interviews avoiding travel and decontamination. It can also fit within mutually agreed time schedules. So in a small amount of time you can achieve exactly the same certification process effectively with zero biohazard.

### ***20.4.2 The Role of Government Regulation in the New Landscape***

A range of government organisations are directly involved in many of the decisions that would deliver pathways to regional areas that are seeking intensive farm production. Organisations such as Councils and the Environmental Protection Agency have a direct impact on the use of land and the environment. Because intensive farm production is so different to traditional operations, it is necessary to engage them in a process that informs and provides them with information and an understanding of the farmer's needs for intensive production. However, this may mean significant changes to current practices. For example, settlement patterns may need to be changed so that employees of these enterprises could live in adjoining towns rather than on-site. This reduces risks of contamination and permits more intensive land use. Farmers may also require their food processing chain to be co-located near the source of production. It is possible, for example, to manage biosecurity and maintain high quality health requirements if you have your production processes and infrastructure located near to each other because of reduced transaction costs and to obtain economies of scale. The next step would be to have more enterprises attracted to productive precincts because the infrastructure has been developed.

Because intensive farm production is so different to traditional operations, it is necessary to engage them in a process that informs and provides them with information and an understanding of the farmer's needs for intensive production. However, this may mean significant changes to current practices.

Such intensive farming footprints could be made possible with 99 year tradeable leases. The whole area would be owned by a landlord, who could establish and sell the sites meeting the needs of the incoming enterprises. A tradable lease system would be more flexible and overcome restrictions and limitations of a subdivision arrangement where there are facility, access and other local Council requirements.

Innovating the regulatory regime of Australian agriculture has much to offer in terms of food security as well as on-farm risk reduction.

### ***20.4.3 The Need for New Regional Boundaries***

In addition to local government support for intensive industries, an examination of regional boundaries could facilitate greater clustering of food production areas. The current State boundaries, which were developed over 150 years ago, are ill-placed for rational separation of agricultural production. The climate of a landscape is believed to be a better marker for regions (Morgan and Terrey 1992). Climate, and to a lesser extent the topography dictate the type of agricultural output of a region. As an example, the New South Wales/Victorian border runs through the middle of a landscape with similar productive capacity. Yet there are different rules and regulations, infrastructure suppliers and local government practices. It would be more sensible to create a number of productive regions based around capacity, land type, soils, rivers and/or uses rather than having the current State boundaries with their different approaches to regulations. This would provide a level of scale smaller than a whole State, but with an inherent uniformity that pulled the region together. It would also provide economic efficiencies because the cost of managing those entities would be less than the cost of trying to put up enterprises within a State whilst still trying to run a State. It might take some of the adversarial actions around competing States issues and build local pride. If you manage the region as a unit, this would avoid the problems currently being experienced with the Murray Darling Basin and the allocation of water licenses.

There also needs to be innovation in the way a region is viewed (defined) and managed, to provide economic efficiencies and reduce adversariness.

### ***20.4.4 Intensive Farming Case Study***

Work has already been undertaken by the lead author on the development of a plan which includes the co-location of biocompatible industries on the smallest footprint and as close together as possible. The plan involved consultation with local Council

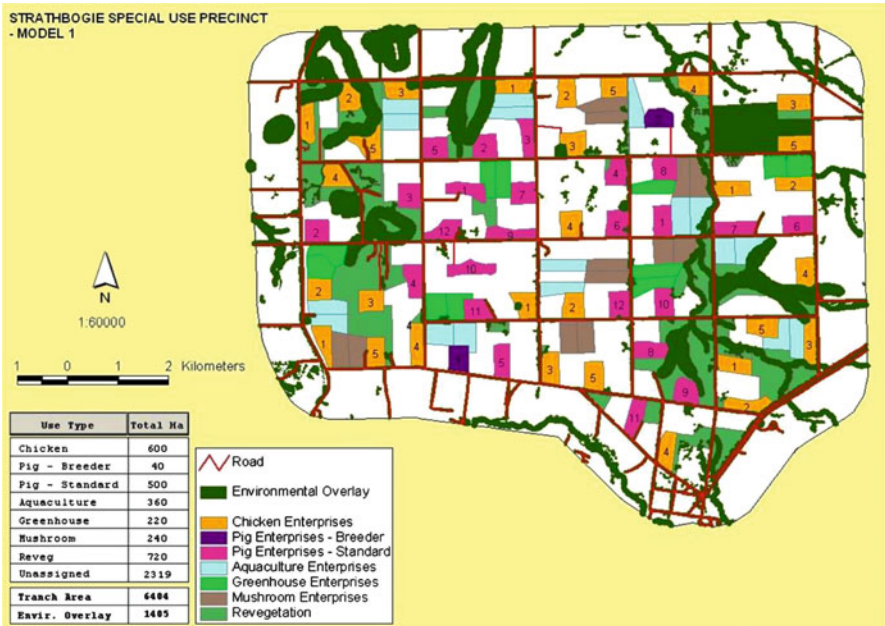


Fig. 20.1 Land use mapping for the Strathbogie Special Use Precinct

planners, the EPA and an industry panel who worked on how a sustainable high intensive agricultural precinct could be developed. The approach is not dissimilar to the establishment of manufacturing businesses in cities or the centralisation of retail centres.

Figure 20.1 presents an area of poor land that has been used to graze sheep in central Victoria. The tract of land is triangular; on two sides are two different freeways with a railway line north south and one west – two intractable barriers. On the southern side is an airport with no curfew. We identified and mapped every environmental resource we could find on the land and specified them as green areas of native vegetation. Corridors were included to allow movement along them and to come out of future production use. The white areas are the existing roads and then a handful of other enterprises. The model allowed the group to plan an intensive landscape taking into account the type of production, existing resources and to identify infrastructure needs. Co-location has the advantage that there are similar interests shared between producers. For example, a chicken enterprise can be co-located next to a piggery and both enterprises will have the same interest in keeping the land clean and manage bio-security issues.

## 20.5 Conclusion

Accrediting bodies and government agencies have a role in developing and fostering an examination of farm practices that will be suitable to meet the demand and changes that will be impacting our environment and into the future. It has been argued in this chapter that a new approach is necessary. Some may say it is innovative. In reflecting on current practice, it is believed a process of excellence should be developed among agricultural communities. Many organisations undertake a policing role rather than identifying and advocating excellence. By changing their perspective they can become change agents in their field to sell a vision and provide plans and goals for their area of specialisation. By finding and disseminating examples of excellence, organisations such as the Department of Primary Industry, Environmental Protection Agency and Department of Agricultural and Forestry can in turn foster and motivate other organisations to improve their practices and voluntarily set higher standards. This approach can be characterised as a pursuit to normalise excellence. The significant point about doing so is that it naturally facilitates the change management process. If people are actively pursuing excellence then they are conscious that “there’s got to be a better way”. This is truly innovation – instead of tolerating the current conditions, innovators look for opportunities to flex the structures and components of their operations, and constantly review and reset their operational goals and aspirations.

Australia is wrestling with a number of intractable paradigms in agriculture. To secure our future in food, we need to restructure our approach to agriculture. Specialisation will provide returns and this may mean excluding some practices or activities. We have infrastructure and land available that can permit intensive production be undertaken in a sustainable way however, it will be necessary for appropriate planning to permit its implementation.

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# Chapter 21

## Establishing an Innovative, Community-Based Decentralised Water Service: Challenges and Benefits

Cr Debbie Blumel, Peter Henderson, and Peter Waterman

**Abstract** In Australia, the innovative management of water resources and water infrastructure is of critical importance, given that the continent is characterised by scarce water resources, a burgeoning population, and is already experiencing the pressures of climate change. In examining how regional Australia can play a role in managing water supply/demand issues, this chapter addresses three objectives. Firstly, it explores the regional advantage to be gained by moving towards the delivery of decentralised water services, particularly in peri-urban settings. Secondly, the key features and advantages of these services are illustrated through a case study example from Queensland's Sunshine Coast, where novel, community-based infrastructure has been installed, based on the principles of Integrated Water Cycle Management (IWCM). The case study highlights the implications of such systems for both water security and sustainability, including how the latter can be assessed. Thirdly, commentary is provided on the challenges and barriers to be overcome in establishing new arrangements for water entities, such as 'Community Water Limited (CWL)'. Through this case study, this chapter raises the argument that innovation for water security involves both technological and structural innovation. Indeed, it requires a paradigm shift, with major changes in thinking, attitudes and behaviour. Most importantly, as a new market mechanism with distinct value in regional settings, the establishment of community-based water companies needs specific policy and legislative support, if regional Australia is to be able to innovate for sustainability, water security, and climate change adaptation.

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The establishment of community-based water companies needs specific policy and legislative support, if regional Australia is to be able to innovate for sustainability, water security, and climate change adaptation.

## 21.1 Regional Advantage and Decentralisation

Many people argue that dependency on centralised power, water supply, sewage treatment and municipal waste services is a major constraint to economic development in peri-urban, rural and remote regions. Furthermore, public and private-sector service providers alike are now confronting serious challenges in the delivery of essential services in regional Australia. Here, operating within a carbon-pricing economy is placing additional strain on an already pressured environment. Not surprisingly, Australia's regional communities and businesses are thus facing rapidly increasing charges for energy and water provision, wastewater treatment and the management of solid wastes.

Fortunately, there are a range of practical measures that can be adopted in regional Australia to mitigate greenhouse gas emissions, adapt to changing climatic conditions, and increase the security and cost-effectiveness of water supply. For example, a range of new hard and soft 'sustainability technologies' are helping to equip regional Australia to better address extreme storm events, flooding and prolonged droughts. Often, these are delivered by governmental and commercial enterprises; in many cases, these technologies look to reduce dependency on centralised supply systems. In doing so, this technological innovation can provide a positive, proactive response by which regions can not only tackle their supply/demand pressures through tailored and integrated systems, but also exploit regional advantage and enjoy opportunities for further economic growth.

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However, decentralisation of essential services in regional areas will require an amalgam of hard and soft sustainability technologies to provide the mechanisms necessary to achieve advantages at regional, local and site specific scales. In the case study described below, a practical example is given to show how the dual challenges of rapidly-growing settlements and populations, as well as changing climatic conditions, are being addressed using sustainable water services delivered by a community water company. This exemplar is from the Sunshine Coast region of Queensland, but the model is replicable across rural and regional Australia and elsewhere.

## **21.2 The ‘Ridges at Peregian Springs’ Project: Merging Multiple Best-Practice Models**

The Ridges at Peregian Springs Project is located on the Sunshine Coast of Queensland. This greenfield site has been designed to accommodate urban development that will embed sustainable, decentralised water services. For the Ridges project, this includes a roofwater harvesting system; as well as treatment, storage and reuse infrastructure that provides for the water demands of the whole community. The decentralised water system at Ridges can be operated independently from the traditional mains supply. Water services are provided through a dual reticulation system, hybridised with traditional water mains and sewage infrastructure.

The Ridges model embeds the core elements of Climate Change Adaptive Urban Development (CCAUD), along with those of ‘Triple Bottom Line’ (TBL) assessment tools. The Ridges approach is also firmly aligned with the principles for Total Water Cycle Management (TWCN) and Water Sensitive Urban Design (WSUD), which are now being widely acknowledged as best-practice models in the water sector.

### ***21.2.1 Climate Change Adaptive Urban Development (CCAUD)***

The core elements of the CCAUD approach and how they apply to the Ridges project are summarised in Table 21.1. Specifically, this involves an integrated climate adaptation approach with two objectives: firstly, to enhance the sustainability and capacity of new Australian communities; and secondly, to minimise ongoing environmental impacts.

## **21.3 Triple-Bottom Line**

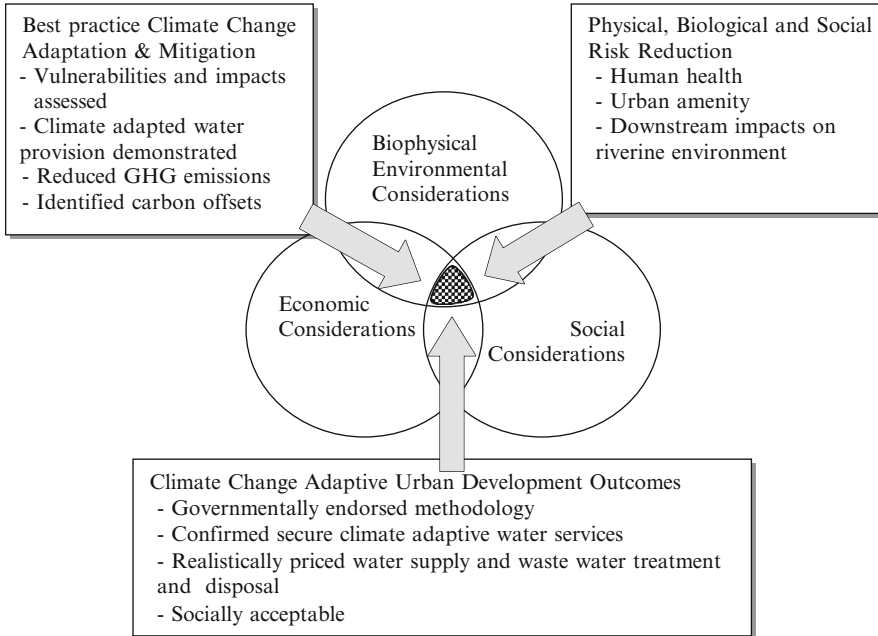
The Ridges project has also provided an opportunity to conduct a sustainability assessment and, in the process of doing so, to develop an assessment methodology that could be used to evaluate future regional urban community water supply proposals. Almost a decade ago, Environment Australia (2003) recognised that using a ‘Triple Bottom Line’ [TBL] approach has governmental, industry and civil society support. The TBL approach is now applied globally, and it was on this basis that a TBL framework was used to focus the structure of the sustainability assessment for the Ridges CCAUD Project (). The product of this assessment was a “sustainable water provision infrastructure model” that applies risk-reducing climate change adaptation methodology for urban residential developments at local and regional scales.

**Table 21.1** Delivery of CCAUD elements through Ridges project. (Source: Adapted from Holbrook (2007))

CCAUD element	Ridges at Peregrine Springs Project
1. Application of climate proofing	The implications of regional climate change projections have been assessed in terms of assets, infrastructure and communities; appropriate suggestions have been made for risk reduction
2. Additionally in infrastructure sizing	Roof surface catchment area is maximised Water storage is enhanced through community rainwater tanks
3. Diversification of supply sources	Hybridised system with mains supply, roofwater catchment and sewer services Potable water supply is provided by a roofwater harvesting scheme and commercial trading is enabled through connection to the mains supply Non-potable water supply is provided from water mining system
4. Diversification of demand sources	Recycled water is provided for toilet flushing, laundry washing and external use
5. Co-location at the demand point of treatment and supply infrastructure	Water treatment and storage facilities are located in the Ridges urban community
6. Renewable energy production	Possibly a future addition.
7. Biodiversity friendly carbon sinks	Landscaping will be in accordance with local planning scheme requirements
8. Delivery sourced from local/regional expertise, labour and training	Specific engineering and technical expertise will be developed through employment of engineers and technicians to operate treatment facilities and reticulation systems Local industry is supported (via water storage tank construction) Professionals involved in developing the project gain knowledge and experience in sustainable development strategies Professional and technical training for the workforce will be provided through local/regional institutions

Laves et al. (2010) note that this sustainability assessment (along with other independent assessments) provides a sound biophysical, socio-economic and environmental underpinning for a climate change adaptive approach. According to the TBL approach, Ridges illustrates the intersection of the biophysical, social and economic conditions, as follows:

- The application of best-practice climate change vulnerability and adaptation assessment tools and techniques in addressing climatic variability and its implications; as well as carbon foot-printing to examine potential mitigation strategies (e.g. alternative energy sources and carbon sinks);
- Adoption of a risk management framework to identify and manage physical, biological and social risk. For example, applying risk reduction adaptation approaches might include assessing water security from roofwater and water mining sources; and



**Fig. 21.1** Addressing the triple bottom line

- Achievement of key climate change adaptation urban development outcomes. This is illustrated at Ridges by criteria such as governmentally endorsed methodology; confirmation that climate adaptive water services can be secured; achievement of a realistically-priced water supply; and waste water treatment, utilisation and disposal that is viewed as being socially acceptable (Fig. 21.1).

## 21.4 Decentralisation and Integrated Water Cycle Management

In the Australian water sector, sustainability, climate change, affordability and resilience are cited as the driving forces for change, with greater cost pressures, market liberalisation, technological innovation and shifting community values all playing enabling roles. The benefits of decentralised systems (such as Ridges) include cost reductions and reduced resource use, in turn leading to further cost savings. Hence, while economies of scale are lost, distributed systems can produce water at a lower cost than centralised systems due to supplying water at the use-standard required and co-location of supply and demand points. New services can also be scaled and built in response to real-time demand. For example, Bonacci Cullen (2010) reported that decentralised systems were characterised by up to a

30 % reduction in developer holding costs, achieved because developers did not have to wait for centralised systems to be built or up-scaled before new development can proceed.

Integrated Water Cycle Management (IWCM) systems are approaches to managing water in which all elements of a system are integrated in order to optimally use precious water resources. In decentralised or distributed water systems, the IWCM system integrates all elements of the water cycle including water supply, sewage and stormwater management in order to maximise community, financial, economic and environmental benefits. In an IWCM model, infrastructure, resources and critical services are positioned close to demand points and linked within networks of exchange. Services are tailored to location but are nonetheless able to transfer resources across wider areas.

At Ridges, the key driver for IWCM is the need to achieve sustainability objectives, particularly in terms of responding to ‘normal’ rainfall patterns, as regional climate change projections indicate that these are likely to be increasingly variable. This challenge is brought into even sharper focus given that increasing urban demand is being caused by population growth in the Sunshine Coast region. Fortunately, IWCM systems are particularly useful in responding to climate uncertainty in regional areas, with the capacity to:

- Reduce costs and resource use;
- Improve service security and reduce risk of failure;
- Strengthen local economies;
- Enhance community well-being;
- Regenerate and protect the natural environment; and
- Redefine the reliance on traditional water systems.

The deployment of IWCM in regions could therefore represent a critical change in Australia’s relationship with water resources: shifting from a mindset of control and reactivity, to instead an innovative model based on creativity, sensitivity and adaptivity. However, it is important that decentralised IWCMs (such as Ridges) be managed in harmony with the regional water system supply chain, where a mixture of centralised and decentralised operating systems can prevail.

The deployment of decentralised and IWCM-based supply models in regions could represent a critical change in Australia’s relationship with water resources: shifting from a mindset of control and reactivity, to instead an innovative model based on creativity, sensitivity and adaptivity.

## 21.5 Establishing Community Water Limited: Overcoming Challenges; Jumping Hurdles

In addition to its technological innovation, Ridges at Peregrian Springs represents an innovative approach to corporate ownership, management and governance. Prior to 2009, ownership and responsibility for Queensland's water infrastructure rested with Local Government Authorities (LGAs). However, in 2009, water infrastructure was taken over by the Queensland Government and responsibilities were reallocated under new ownership arrangements. Now, Queensland-based LGAs own the distributor-retailers, whilst the state owns the remaining entities, as summarised in Table 21.2. Established under the *Water Act* 2000, the Queensland Water Commission (QWC) presides over these entities as the independent, statutory authority responsible for achieving safe, secure and sustainable water supplies in South-East Queensland. Specifically, the QWC is charged to ensure sustainable water supplies through long term strategies, establishing the regional water grid, water restrictions, managing demand, reforming the water industry and providing advice to government.

Within this context, advancing the innovative Ridges project was not a simple process, with 'business-as-usual' and conservatism being firmly entrenched in the attitudes and behaviour of many local-government elected representatives and officers, as well the instrumentalities of the State Government. In illustrating the challenges faced in order to operationalise Ridges, the following is a chronology of major milestones on the path to the establishment of a community water company.

Innovation is a disruptive process, and advancing the Ridges project has certainly not been a straightforward journey: it required the challenging of many conservative and 'business-as-usual' attitudes and behaviours.

In 2006, Maroochy Shire Council was keen to show its commitment to sustainability and innovation, and so resolved to become the proponent of the Ridges CCAUD. This was done on the understanding that Ridges would be an important national demonstration project; and the endorsement was subject to funding being made available from the federal government. In order to demonstrate its commitment, Maroochy Council agreed to underwrite \$1 million for the early construction of additional pipe networks. This amount was to be reimbursed by Council to FKP (the developer of the Ridges Project) if the project did not proceed. Additionally, if required, the reimbursement would be by way of waiving infrastructure charges.

During 2007, an engineering feasibility report was prepared demonstrating the capacity of the scheme to achieve leading-edge water sustainability outcomes. Funding applications to the Federal Government were made, but these were not successful. Following a change of Federal Government in 2007, the incoming

**Table 21.2** Water entities in Queensland's South-East corner. (Source: Adapted from the Queensland water commission)

Entity	Responsibilities
SEQwater	Catches, stores and treats water by managing catchments, storages and water treatment plants and supplies water to the SEQ Water Grid Manager
Watersecure	Supplies desalinated water to the Water Grid and supplies purified recycled water to power stations and other customers
Linkwater	Manages, operates and maintains SEQ's potable bulk water pipelines and moves water from dams and other sources through bulk pipeline networks
SEQ water grid manager	Operates the SEQ Water Grid and oversees the flow of water around the Grid and purchases the services to store, treat and transport bulk water to sell to the distributor-retail entities
Distributor-Retailers (AllConnex, unity water and Queensland urban utilities)	Sell and deliver water to customers, collect, transports and treats wastewater

Labour Government granted \$4.6 million for the project in its first budget (mid-2008). Significant changes had also occurred in Local Government by that time, with three shire councils amalgamating into the Sunshine Coast Regional Council. In March 2008, a new Council was elected on a so-called 'sustainability' mandate.

Throughout 2009 and into 2010, political and bureaucratic will was put to the test. On three occasions, the project came before Council; and on three occasions it was not supported by a majority of councillors. Additionally, Sunshine Coast Water (a commercial arm of the council) produced a series of reports to Council that raised grave concerns about cost, health risks, and regulatory approvals from the State Government. On each occasion this advice was tested and found wanting. These delays seriously tested the commercial viability of the project by driving up the cost of the retrofitting task for house lots that were approved on the old water system.

Initially, Sunshine Coast Water advised that State regulatory approval would be a significant roadblock to the innovative project. However, stakeholder meetings involving the State Government demonstrated a high level of goodwill and cooperation. A subsequent Sunshine Coast Water report to Council declared that as the project was 'experimental'. In this report no provision had been made to reduce the sizing of future head-works constructed by the developer. This meant a significant duplication of infrastructure which would have to be funded by Council. The officers' report also noted that it was anticipated that the Ridges scheme would produce water at a higher cost than grid water, and that the entity would seek to recover an ongoing Community Service Obligation (CSO) payment from Council.

With the assistance of the State Government, Council resolved to proceed to Stage 2 concept design and sustainability investigations at a cost of \$410,000. Three assessments were conducted under the direction of officers from Sunshine Coast Water:



- Parsons Brinckerhoff produced a concept design report, recycled water management plan and a drinking water quality plan (Parsons Brinckerhoff 2009);
- The University of the Sunshine Coast prepared a sustainability assessment report (Laves et al. 2010), based on the specifications provided by Parsons Brinckerhoff; and
- AEC Group provided financial modelling, based on the specifications provided by Parsons Brinckerhoff in 2009.

During the course of these investigations, the Queensland Water Commission (QWC) initiated third-party reviews of the reports. This was assessed by Sunshine Coast Water and led to changes in the final report by Parsons Brinckerhoff, as well as the sustainability assessment report. In particular, technical changes were required leading to over-engineering and flow-on cost increases.

Council also commissioned a further third party review by Bonacci Water in association with Cullen Capital. The Bonacci Cullen (2010) review resulted in improvements to the design and understanding of the IWCM strategy and identified that the magnitude of the previously identified benefits had been somewhat obscured by the assumptions and reporting process in the Parsons Brinckerhoff (2009) report (as modified by changes suggested by the QWC commissioned reviews). Specifically, the Bonacci Cullen (2010) report identified that the Ridges project would produce more water than it could use. As such, it would be a net exporter of water into the grid. As well, it would be resilient to variable climate and climate change. Additionally, it would avoid the requirement for certain costly infrastructure required under a *business-as-usual* approach. Bonacci Cullen (2010) concluded that the Ridges project would be 99.98 % self-sufficient. Additional water security could also be achieved by including water efficient buildings.

At the regional scale, two significant benefits were noted in respect to water security. First, though small, the Ridges project itself would defer the need for the Marcoola desalination plant. Second, the adoption of IWCM strategies in all new growth areas across the Sunshine Coast would eliminate the requirement to augment the regional water supply system with either desalination plants or new dams.

Following design innovations, the Ridges project was evaluated at being 99.98 % self-sufficient – resilient to variable climate and climate change, and a net exporter of water into the grid. Furthermore, introducing this model would provide for whole-of-region benefits to water security – deferment of the Marcoola desalination plant, and the potential to eliminate the need for augmentation of regional water supply if IWCM was adopted in all new growth areas.

There were also substantial economic benefits associated with Ridges – both at the project and at the regional level. Bonacci Cullen (2010) found that the IWCM would provide water security for the project, eliminating the requirement for a

contribution to head works charges for regional water security. This saving could be spread across the cost of each allotment and, in turn, contribute to improved housing affordability at the regional level.

Bonacci Cullen (2010) concluded that the Ridges project was superior to business-as-usual in both economic analysis and financial feasibility. In short, it was described as potentially commercially viable for either private or public sector investment. This finding was subsequently presented to Councillors at a 'Strategic Discussion Forum' (a compulsory but non-statutory Council meeting) by eminent water researcher Dr Peter Coombes and the former Chief Executive Officer of the Australian Bankers' Association Alan Cullen (now of Cullen Capital). The report was well received and all questions raised by Councillors were answered with reference to the evidence and findings of the Bonacci Cullen (2010) report. However, this did not reduce the debate. A motion to Council to authorise a report on corporate structure options for a water company, independent of Unity Water, to own and operate the Ridges CCAUD scheme was rejected. Sunshine Coast Water argued hard against the Ridges project. When doing so, it introduced material focusing on a previous project at the nearby Gold Coast, which had encountered cross connections between recycled water and potable water.

To further progress the project, the Chief Executive Officer of the Sunshine Coast Regional Council formalised an agreement with Regional Development Australia Sunshine Coast (RDASC). This agreement had the purpose of managing a proponent transition project which would provide for the creation of a water company to which Council could transfer its proponent role. RDASC subsequently incorporated a public unlisted company, Community Water Limited (CWL), on 30 July 2010. The Chair of RDASC provided a consensus-building role during the proponent transition project, at the request of the company. This included liaising with the three levels of government, industry and the community and building goodwill, understanding and an open-minded approach to innovation in the clean-technology industries sector. CWL assumed responsibility for its own business planning and water service provider registration. Collectively, these tools will enable CWL Limited to demonstrate that it has the legal, technical and financial credentials to meet the due diligence requirements of the Australian Government and enable the company to apply for the grant as the new proponent.

The project was described as potentially commercially viable for either private or public sector investment; and with the help of Regional Development Australia, a public unlisted company, Community Water Limited (CWL), was incorporated on 30 July 2010.

## 21.6 Supporting Regional Innovation: Policy and Legislative Settings for a New Market Mechanism

Decentralised and IWCM-based systems are a promising, technological solution to water security and sustainability concerns in regional Australia. However, the missing link is a market mechanism to develop, own, operate and maintain IWCM in a way that benefits the community rather than exploited. Prior to the development of the CWL, the only market mechanisms were government-owned corporations and private companies, typically owned by off-shore interests. However, CWL, Company, as a new market mechanism, now has the capacity to:

- Operate in the commercial environment;
- Provide for integrity in financial reporting and ensure timely and balanced disclosures;
- Ensure the rights customers and shareholders and recognise and manage risks;
- Engage in responsible and ethical decision making; and
- Provide for solid foundations with respect to the management and oversight of its business planning and operations.

Operationally, CQL will provide water that is as safe and affordable than alternative offerings, in a region with rapidly escalating water prices. CWL will operate with a smaller carbon footprint due to locating the treatment and supply infrastructure in the community it serves, and this will also enable appropriate and responsive water services infrastructure sizing to accommodate additional population. Operationally, CWL will use multiple water supply sources (water harvesting, water mining and beneficial re-use), and provides water treatment and supply that is tailored to drinking and non-drinking applications. Overall, the approach is one of innovation for sustainability, including for climate change adaptation.

CWL was established as an unlisted public company that can operate as a robust commercial entity capable of inviting external private capital investment, if later required. The beneficial interest in its assets and undertakings will be held by the community. This meets an inherent desire of communities to retain control of water as a public good, while ensuring that the asset is managed in accordance with the commercial competence, accountability and transparency expected of public companies or public utilities. CWL is unique in terms of its conceptualisation, design and structure; and the approach has significant potential for replication or adaptation for application in other situations in South East Queensland and beyond.

However, for the emergence of novel, community water entities such as CWL to continue, there is a need for appropriate legislative policy to support the water entities that will bring these new water products to market. Without doubt, the translation of this vision in other regions for a commercial and community focused entity will require the establishment of new policy and regulatory frameworks. These tools are essential to provide fledgling water companies with an opportunity to establish and grow in response to the communities they serve. So equipped,

community water companies will be able to fully demonstrate their worth in terms of:

- Sustained economic and community wellbeing through the innovative and cost effective provision of essential services;
- Proactive societal responses to climate change adaptation and population growth; and
- Enhancing regional advantage by reducing dependency on centralised water supply and treatment services.

There is already recognition within the Queensland Water Commission and the Queensland Department of Environment and Resource Management (DERM) that there is little in the current legislation that specifically enables or facilitates companies like Community Water Limited. Many of the entities in this legal space are only beginning to become aware of the gaps in the legal matrix to which IWCM projects will need to find solutions. For example, this will necessarily include considerations such as the implications of the *Water Supply (Safety and Reliability) Act 2008* for private water providers, property law (e.g. access for maintenance and repair; integrity of the treatment and distribution systems) and consumer law (e.g. consumption restrictions in dry times, impose penalties for overuse or misuse, or recover debts for unpaid consumption).

The legislative support for decentralised systems is also largely undeveloped in South East Queensland, and will need to be initiated through politically-championed progressive policy and resourced by the water institutions described previously as ‘path dependent’. That there is a body of consultative and developmental work to be undertaken by State and Federal government, and clearly, a collaborative, consensus-building approach must be fostered between the various regulatory agencies. This is essential for rolling out decentralised water services in Queensland as well as metropolitan, rural and remote regions across Australia

## **21.7 Technological Innovation for Sustainability in Regions: Other Considerations**

Ridges at Peregian Springs is of course only one example of technological innovation for sustainability, but one that clearly demonstrates that barriers that regions face in developing and introducing new ways of supplying essential services. At a recent practitioner’s workshop,<sup>1</sup> participants identified the following common concerns with regard to delivering innovative initiatives in regions:

- Policy uncertainty and conflict with respect to where innovation should be driven from: top-down, bottom-up, or a hybrid approach that accommodates

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<sup>1</sup> SEGRA Sustainable Technologies Workshop, Geelong, 2011.

commercial and community expectations, regional realities and governmental policy settings and programs;

- Bureaucratic obstacles apparent in grant application and approvals processes for project funding; and
- An apparent lack of a clear understanding of the scope and scale of innovation and the professional development and skills training needs in the field of sustainability technologies.

Participants agreed that such a co-operative approach between all spheres of government, regional bodies and business should be used to help articulate the steps from innovation to roll-out and illuminate flexible pathways for fostering and maintaining regional sustainable industries and work forces. Most importantly, participants were in full agreement that it is essential to:

- Physically showcase suites of technologies for cost effective the provision of water, energy and waste management services at regional hubs;
- Provide vehicles for the dissemination of information on the availability and performance of different sustainability technologies; and
- Foster the formation of collaborations (commercial or co-operative) for the integrated delivery of decentralised water, energy and waste management services at regional, community and site specific scales.

Workshop participants also noted that:

- There is a strong role for local government to help facilitate on-the-ground delivery of sustainability technologies;
- There is a need for innovative approaches to getting qualified people into the regions to help research, install, operate and manage decentralised systems;
- SMEs need support in bringing near-to-market solutions to regions; demonstration hubs can bring technologies together and lift confidence and investment; and
- Embedding the development and delivery of sustainability technologies should be collaboratively supported by in-kind and financial assistance by governments and industry through regional development initiatives by way of programs and grants.

## **21.8 Regional Development Benefits**

Community Water Limited was established with a positive and radical vision to provide safe, affordable and sustainable water services for Sunshine Coast communities. The Company was created to implement and showcase the Ridges project as a model for sustainable and climate-adapted future urban development on the Sunshine Coast and elsewhere.

Arguably, the provision of water services at Ridges at Peregrin Springs through a community-based enterprise demonstrates how governments may defer

the need to augment existing supplies from new dams and desalination plants. Community-based decentralised water services can help to provide greater regional resilience to water shortages due to changing climatic conditions. Importantly, they also add to the suite of water technologies available to governments and developers and provide a viable alternative to the high cost and highly carbon-intensive desalination technology.

The Ridges project aligns with the ecological sustainability and innovation themes of the Sunshine Coast Council's corporate plan. This project will be undertaken in cooperation across the three levels of government and an industry partner, at an estimated cost of \$AUD20 million. At the regional level, the project benefits associated with this innovation will include:

- The generation of new jobs in integrated water cycle management;
- The development of new business opportunities around the intellectual property associated with the CCAUD approach; and
- A significant contribution to the vision of the Sunshine Coast Council to become an Australian model of sustainable region.

## 21.9 Conclusion: Innovating a Paradigm Shift to Decentralised and Community-Owned Water Supply

In his 1962 work *The Structure of Scientific Revolutions*, Thomas Kuhn argued that scientific research processes are defined by the dominant paradigm, which shapes the questions scientists ask, the issues they focus on, and their thought processes. This fosters an entrenchment of the dominant paradigm. However, eventually, internal contradictions or inadequacies emerge, requiring the dominant paradigm to be replaced with a new one – in effect, a paradigm shift. Kuhn makes the point that change happens when paradigms are shown to be inadequate, rather than when accumulated knowledge leads us in a linear fashion to a better approach. In short, as stated by Kuhn: *paradigm shifts result from revolution, not evolution*.

Change happens when paradigms are shown to be inadequate, rather than when accumulated knowledge leads us in a linear fashion to a better approach. In short: 'paradigm shifts result from revolution, not evolution' (Kuhn 1962).

In his 2008 work *Troubled Waters – Confronting the Water Crisis in Australia's Cities*, Patrick Troy identified "path dependency" in the way water services are supplied in Australia, and the attitudes towards them. Specifically, Troy (2008, p.5) points out that Australian cities "*have reached the point where there are no further 'natural' water resources available to be exploited but . . . by acknowledging that*

*residents have an inalienable right to potable water, and that protection of public health remains the highest priority, it is not only feasible to develop water services that do not increase environmental stress, but highly desirable”.*

In South-East Queensland (SEQ), however, the water path dependency is being challenged by the compounding problems: the increasing expensive of centralised systems means costs will need to be spread over a larger population to remain affordable, and/or the State Government will have to heavily subsidise the price of bulk water leading to market distortion and a further entrenchment of path dependency. The gap between water supply and demand is also widening, and increasingly, there is public dissatisfaction about the choices and decisions made on water infrastructure. The Queensland Water Commission’s *SEQ 2009 Draft Water Strategy* (QWC 2009) states categorically that there are no more suitable dam sites in SEQ and that the future is desalination plants at Marcoola and Lytton – but there is community outrage about unfettered population growth due to the environmental impacts on the highly valued regional landscape and waterways. Community concerns are also compounded by energy price increases associated with the large water grid system, which relies on energy to pump water over hundreds of kilometres. With carbon pricing added to the mix there is a compelling reason to pause and consider any viable alternatives. There is a real crisis of confidence in the traditional water approach in the face of escalating water prices and a sense that the water institutions are unable to implement the necessary changes because they too are victims of path dependency.

The Ridges project is truly an example of how regions can benefit from innovation: it has provided for the development of a sustainable water provision infrastructure model, together with the use of a community water company to deliver a self-sustaining water supply. Fortunately – as Ridges at Peregian demonstrates – new alternatives are now emerging that promise safety, affordability and sustainability. However, it seems likely that a paradigm shift in water resource management will be prolonged rather than sudden (i.e., it will be a “paradigm transition”). This is because the majority of the population is tied to an in-built, interconnected system that must be paid for, and from which they cannot disentangle until the system becomes obsolete.

Introducing the notion of a sustainable water service at a community level requires more than just technological innovation: it requires a lateral shift in entrenched bureaucratic attitudes and professional behaviour. Specifically, it needs officers of government and utility service providers to change their thinking from the large dam and large water mains supply to a more sustainable localised system. Arguably, this paradigm shift in water service provision (together with the factors driving change) is best viewed as an opportunity rather than a threat.

The Ridges project is truly an example of how regions can benefit from innovation: it has provided for the development of a sustainable water provision infrastructure model, together with the use of a community water company to deliver a self-sustaining water supply.

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**Part IV**  
**Discussion and Conclusion**

# Chapter 22

## Innovation for Regional Advantage: A Reflection

Susan Kinnear and Kate Charters

**Abstract** This final chapter re-examines the weight of evidence for a new construct in regional development, that of ‘innovation for regional advantage’. It coalesces the collection of case studies, situation analyses and policy reviews by exploring the critical issues for regional development, and then for innovation, before exploring the points at which these two agendas converge. The recurring theme is that strategic innovation throughout regional business, industry, government and the community sector can unlock, as well as offer significant value-add to, the considerable human, physical and economic asset bases already held within regional Australia. Indeed, innovation itself could be considered the most powerful ‘regional advantage’, with innovative regions better able to deliver on a diverse range of national objectives as well as achieve increased global relevance. The policy implications of this is for Australia and its states to begin a ‘relationship’ with regions for mutual benefit, rather than continuing to ‘transact’ with them as a series of disconnected communities. There is a compelling business case for ongoing private and public investment in innovation for regional advantage, as this can deliver dividends across sustainable population growth, a strengthened economy and protected natural assets.

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## 22.1 Commentary and Case Studies: A Reflection

It is the purpose of this chapter to explore the multifaceted theme of ‘regional advantage and innovation’ – the evidence base; the operating context in the discrete discipline areas of regional development and innovation; and the policy implications.

This collection of case studies has shown a strong evidence base for regions to drive national innovation. It is clear that regional Australia has a well-developed capacity to innovate. The inhabitants of regional areas of Australia are resourceful and community-minded (Chaps. 8, 9, 11 and 13); and regional Australia can be an ideal ‘proving ground’ for a diverse range of new possibilities with global export implications (Chaps. 15, 17 and 18). There is also a strong evidence base for innovation to be a driver of regional development – to allow regions to overcome the challenges they face (Chaps. 6, 20 and 21). There are a number of specific opportunities to advance the innovation capacity of regional Australia (identified in Chaps. 2, 3, 4 and 5). However, realising these will require a significant paradigm-shift (e.g., Chap. 7).

This book emphasises that regional development issues are complex, and that they are so because of their interconnections. Yet from undergraduate texts to practitioner’s handbooks, regional development issues are often dissected into one-dimensional economic, social and environmental blocks (hence, the ‘triple bottom line’), and treated as if addressing these sequentially will somehow arrive at a holistic solution. This approach is flawed, as problems such as waste management, energy systems and transportation modes, labour flows and regional population issues, governance and policy, and industrial ethics show. Rather, regional development theory ought instead to reflect the complexity and interconnectedness of regional systems, where thematic lines are blurred and issues are treated in ‘multidimensional parallels’. This ideology might be favourably compared with innovation, which is about problem-solving by collaboration, and bringing forth solutions that reach across all stakeholders and discipline areas. The ability to develop productive and dynamic relationships with appropriately skilled and motivated individuals (and groups of individuals) is a critical factor for success in regional development initiatives. Innovation systems encourage this kind of thinking – bringing together ideas and resources from across discipline areas: such is the value of applying innovation to create new solutions to regional dilemmas. In this way, it seems innovation and regional development both share a need for a multi-disciplinarian approach and complex, adaptive systems (e.g. Cooke 2012) thinking.

The case study contributions also demonstrate that significant amount of innovation already occurs in regional Australia as a result of specific regional advantage. Regions already feature the preconditions for innovation, such as trust, leadership, liveability, resilience and network strength (for example, Chaps. 10, 11, 12 and 13). Creative thinkers and doers already exist in local government, regional business, regional universities and regional communities themselves; but they require a supportive and enabling habitat to flourish (for example Chaps. 17 and 18).

## 22.2 Some Critical Issues in Regional Development

Two of the strongest shifts in regional development policy have been to mobilise regional assets for growth, and to recognise the regional dimension in national innovation strategies (OECD 2011).

Each year, delegates of the national SEGRA<sup>1</sup> conference have been polled on the key issues affecting regional Australia. Over the past 15 years, four central themes have emerged from this process:

- Demographic change;
- The environment and natural resources;
- Economic drivers and trends;
- Infrastructure and
- Regional governance.

These are each large and complex agendas, with many interlinked themes, as is typical of the challenge of regional policy development. Each is described in more details below.

### 22.2.1 *Demographic Change, Liveability and Social Cohesion*

In the last two decades, Australia has experienced one of the most important demographic changes since the post-Second World War immigration boom that saw over 2 million people enter Australia from 1946 to 1970. Growth in ‘coastal commuter’ areas has generally been double that of the national rate of growth between 1996 and 2001, and growth in ‘coastal getaway’ destinations has also been significantly higher than the national and State rates in recent years. In 2005, ABS data showed that 27 % of Australia’s population lived in coastal settlements other than the capital cities; it also identified substantial population increases in many of Australia’s coastal communities over the past two decades, both in proportion to existing population bases and in overall numerical terms (Gurran et al. 2006).

This trend has been driven by a range of factors including high living costs in capital cities, lifestyle choices and retirement (Australia, like most other industrialized economies, is grappling with the challenges of an ageing population). This ‘sea change’ has had significant impacts on the social, environmental and economic aspects in the regions absorbing the substantial population shifts. In particular, it has (and continues to have) concomitant impacts on infrastructure

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<sup>1</sup> Sustainable Economic Growth for Regional Australia.

provision such as housing and commercial activities. It also creates compounding problems for those regions seeking to maintain basic standard of services whilst they experience population decline. The rapid move of people from regional Australia has also challenged the viability of the patterns of settlement in some regions. More recently, this population shift has also included ‘tree changers’ who move to coastal hinterland regions.

The rapid move of people from regional Australia to the coast has challenged the viability of some settlement patterns . . . meanwhile, the use of mobile workforces is disrupting the population base of regional Australia.

The ageing population, together with the resource boom of regional Australia, has also exacerbated a range of labour force planning issues, such as the challenges of staff attraction and retention. There are a number of examples where regional skills demands need to be met with a different approach, principally the recognition of more flexible life-long skill development opportunities. It is particularly difficult for some regions to address these issues because of their perceived distant location and lack of facilities. This has led to the practice of flying staff in for long shifts and then flying them back to larger cities for commensurately longer breaks between shifts (fly-in, fly out; ‘FIFO’). ‘Drive-in and drive-out’ (DIDO) is also being adopted as a way of addressing housing and amenity shortages in resource-based communities. These practices are disruptive to establishing stable population bases in regional Australia.

The peculiarity of the situation, however, is that regional Australia clearly has much to offer in lifestyle benefits: such is the success of the innovative Evocities campaign, and the stories emanating from regions such as Katanning and Mildura (Chaps. 9, 10 and 11). These, and similar regions, are thus well placed to further ‘strengthen Australia’s social and economic fabric’, in alignment with the national research priority of that name. Furthermore, if managed properly (and innovatively), the liveability of regions will be key in helping to resolve Australia’s population growth issues through regionalisation (as discussed by Jamie Quinn and Sonia Kirby, in Chap. 3).

### ***22.2.2 Economic Drivers and Trends***

The shift from protectionism to market-based policy has fundamentally underpinned the restructure of rural and regional Australia . . . but it has not addressed the transaction costs in the social and environmental spheres (Hogan and Young 2012).

Australia, and many other countries besides, is subject to the growing impact of globalisation. This is having a profound impact on the way in which regional economies operate. Whilst many regions in Australia are unable to offer critical mass in local markets, regional Australia is an ideal ‘proving ground’ for a diverse new range of global exports. A strong and diversified economic base stands at the core of all competitive economies, and is key to regional business success, as well as broader regional (and national) prosperity.

Economic diversity can be measured in a number of ways, but regional diversity has commonly been defined as the presence, in an area, of a great number of different types of industries, and the extent to which the economic activity within the region is distributed across categories. It is from this base that measures such as locational quotients are prepared. However, a common criticism of these metrics relate to their absence of consideration for inter-industry linkages (thus, collaboration and exploration of ‘adjacent potential’), as well as for the relative size of the regional economy.

Taken on its own, diversification is insufficient as indicator of sustainability and wealth generation: it does not properly capture the ongoing capacity of regional industry and their value chains.

Diversification alone is an insufficient indicator of sustainability and wealth generation, as it does not readily capture the ongoing capacity of regional industry and their value chains. The latter can be enhanced by increasing education levels, attracting and retaining new talent, optimising new financing schemes and enhancing technology and knowledge, with the aim of entrenching innovation. Two further elements that are key to growing the economic prosperity of regions are advancing human capital and governance. The case studies provided in this volume – especially those from the Illawarra and Outback Business Network (Chaps. 17 and 18) – have demonstrated the regional advantage in the ability to recognise and support endogenous resourcefulness and entrepreneurial capacity; to activate latent abilities; to appreciate and replicate best practice at both organisational and institutional levels; to mobilise business firms to maximise the full range of regional attributes; to encourage the diffusion of ideas, and to facilitate supporting industry. All of these activities significantly contribute to the capacity of Australia’s regions to develop strong, integrated and diversified economic bases.

Innovation in human capital and governance can significantly contribute to the development of strong, integrated and diversified regional economies.

Several economic drivers within regional Australia warrant particular attention. These revolve largely around mining, agricultural and manufacturing industries. Whilst there are good reasons to look for the development of more diversified

economies in regional Australia, it also needs to be recognized that the diversification in its own right may not spread risk more evenly. Indiscriminate diversification does not necessarily bring economic growth and stability (Smith 1998). Other factors to be considered include capacity constraints, type of employment offered (low wage or high wage, degree of technical expertise, opportunities for further career pathways), and effectiveness of the broader innovation environment. This has led to greater interest in ideas of regional constructed advantage. For example, within Tasmania, the agri-food sector is seen as having the capacity to add-value to existing comparative advantage in climate, soils, expertise and products and build a platform of sustainable competitive advantage by moving from commodity-based production to niche market products; from low price, high volume to instead high price premium products; from market ignorance to market intelligence, and from a production focus to a consumption focus (McCall 2005).

Regional Australia is currently experiencing a high and continuing overseas demand for minerals, driven largely by the expansion of the Chinese and Indian economies, and the rise of their middle classes. Economically, mining typically requires large initial expenditures on non-relocatable assets with efficient capacity utilisation taking years or decades to develop. There is also a need to examine whole-of-life planning for individual mining areas and minerals stewardship. For example, how sustainable are the current levels of resource export and what will happen in the mineral regions should there be reduced demand? How should the immediate impacts of sudden closures and/or down-sizing be managed? What sort of strategies can be taken to encourage commercial entities in the resource sector to invest in the regions where they operate?

Manufacturing in Australia is being impacted on by the continuing demand by Australians for overseas manufactured goods. This is intrinsically related to a range of economic realities related to the increasingly free market across national boundaries. This places acute pressure for regional Australia to consider the best response to these pressures. Fortunately, there is some support for the growth of research and development partnerships between industry and universities for advancing manufacturing expertise into adjacent knowledge expertise. John Grace's contribution in Chap. 17 illustrates this particularly well.

As part of this broader global shift there is increasing dominance of key industry sectors by a few large firms. This is a readily observable trend that can exercise considerable impact on regions (for example, food supermarket chains). Likewise, greater overseas ownership of enterprise coupled with more off-shore decision-making further undermines the local and regional autonomy. Any discussion on regional economic conditions must include a place for small to medium enterprise (SMEs). For example, the OECD (2009) concluded that regional development depends on the interplay between physical capital, human capital and the business environment. Too often, this conversation focuses on larger, more visible industry (such as the energy and resources sectors), at the expense of the enabling supply-chain SMEs that make it possible for the 'big end of town' to trade.

Regional areas in Australia are increasingly being connected to the global economy; those who do not innovate frequently discover that 'business as usual' actually translates to productivity losses and threats to business sustainability from competitors who are continually innovating (Kinnear and Ogden 2011).

There needs to be additional efforts focused on identifying and developing self-sustaining and diverse business and employment opportunities for people in rural, regional and remote communities. As one example, many large infrastructure projects are occurring in locations where there are relatively large Indigenous populations that are characterised by low Indigenous employment. Government and business must optimise the opportunities for Indigenous groups and individuals to participate in major projects as sub-contractors, suppliers and as business owners. A number of mining firms (for example, in Western Australia) have made clear commitments to Indigenous employment commitments to good effect. Indigenous Business Australia has had success in supporting the establishment of a number of successful Indigenous owned and operated businesses. There will also need to make fundamental changes to property rights for Indigenous people to allow clear individual property rights in relation homes and businesses, communal ownership and land held by native title to ensure access to finance and other business development essentials.

### ***22.2.3 Natural Resources and the Environment***

In terms of boosting national outcomes, the natural resources sphere is perhaps the space where regional areas truly come into their own. Ecologically, vast amounts of regional Australia are of high biodiversity value. Regional areas provide ecosystem services that are essential not only to the immediate environ, but which also service the highly urbanized areas of Australia. The physical proximity of regional populations their natural environment encouraged a higher level of environmental awareness and citizenship, given that the impacts of environmental mismanagement are experienced directly. Regions are therefore a natural place to explore the interface between humans and their surrounds (unlike the built environs of cities). Regional Australia also has vast primary industry and mineral assets. However, there is an increasing need to address conflicts over appropriate land use activities across Australia, and to achieve the right mix of urbanisation, agriculture, aquaculture, forestry, mining, recreation, tourism, defence, forestry, conservation and infrastructure.

Sustainability in regional Australia relies on foresight, predictions and measures of environmental change. To manage these responsibly, a range of environmental,



regional wellbeing indexes and related socio-economic tools need to be brought to bear on the subject. The shift in environmental discussions is increasingly focusing on the importance of sustainable practices and emerging sustainable technologies. Likewise, there will be a need to continuously assess and respond to anticipated decreases in peak oil and water in regional Australia. This should include consideration of what sort of preparation needs to be made in anticipation of the impact of peak oil upon the mobility of goods and people (see also the comments made by Geoff Edwards in Chap. 7).

It will be critical that decisions about regional natural resource use are made to optimise regional advantage and create opportunities.

These issues serve to heighten, not diminish, the role of regional Australia. It will be critical that decisions made now optimize regional advantage and create opportunities through different approaches, rather than recreating the problem elsewhere. Regional areas cover vast geographic areas with major potential to develop low emission and/or renewable energies in solar, wind, and geothermal. It is anticipated there will be an increased focus on intensive cropping and grazing capacity in line with changes to water availability, viability of irrigation, community views on water diversions and dams, acidification, demand for reduced nutrient loads (and associated erosion issues) and chemical inputs into soil and waterways. The settlement patterns in regional Australia mean that decisions about urban design have great potential to maximise environmentally sustainable planning standards. Furthermore, Indigenous Australians have a very particular relationship with land, and this should be used influence government land-use planning and business decision-making.

#### ***22.2.4 Regional Governance and Collaboration***

'Innovation involves changing the minds of leadership figures, rather than them changing the facts' (Cooke 2012, p. 8, after Keynes).

Governance includes those processes by which organisations, governments and of course, regions, make decisions, incorporate leadership, community engagement, networking and accountability. Governance has been a recurring theme at SEGRA conferences, particularly in relation to local government amalgamation, regional organisations, federal-state relations, consultation processes, regional leadership, and Indigenous people's issues. The tension between the natural inclination to

centralise decision-making to achieve order and consistency has led to renewed calls for changed regional organisation structures with a statutory basis. There is a good deal of evidence that indicates decisions made in cities a long way from regions will have some disconnect in intent, implementation and outcome. Sometimes these are quite unintended and perverse. Collaborative regional priority setting that includes a broad spectrum of stakeholders has been successfully applied in New Zealand and is now embedded in the current Regional Development Australia model introduced in 2010. It is important the industry, government and communities work together in whole of life planning for regions. Nevertheless, Chap. 8 in this book highlighted that regional governance for innovation outcomes must be balanced against the potential for diminished local representation and the equity of strategic approaches across regions.

Across regional Australia, there is strong feeling that more arrangements need to be put in place to ensure regional Australia can play a greater role in the broader development of Australian social and political culture into the next decade, as well as to ensure that the economic and strategic importance of a regional Australia is recognised. This position was framed in terms of the need for local leadership, and the danger that lies where communities rely too heavily on government for the development and implementation of responses to regional challenges. While there is on-going dialogue about the need for governments to reconsider their approach to regional and remote Australia (for example the remote FOCUS initiative, see Huigen 2008), community responses are also vital in developing long-term approaches that address regional issues in a systemic and systematic way.

There is a vast capacity for regional Australia to contribute ‘citizenship services’. The way in which this is captured needs to be transparent and accountable and give recognition to the wealth of talent in regional Australia. There is also a particularly compelling case for the ongoing engagement of the large Indigenous populations in regional Australia and Northern Australia in the future of regional Australia.

### 22.3 Some Critical Issues in Innovation

‘The strengthening of Australia’s innovation system offers the potential to address challenges across a range of environmental, climate, water, land use, urban planning and food security issues’ (Department of Sustainability, Environment, Water, Population and Communities, 2011, p. 48).

In 2009, the Australian Government released a report named *Powering Ideas: An Innovation Agenda for the twenty-first century* (DIISR 2009). This report described seven National Innovation Priorities to focus the production, diffusion

and application of new knowledge. It also outlined the key principles for determining National Innovation Priorities to shape innovation policy and funding programs, as follows:

1. Leveraging Australia's natural endowments or built strengths;
2. Supporting areas where there is a distinctively Australian challenge or an advantage in developing solutions to globally relevant challenges or markets;
3. Supporting areas where there is scope to transform or reinvent existing industries and service delivery, competitively;
4. Internationalising Australia's innovation system through global integration; and
5. Investing in national capabilities, facilities and innovation

Of the seven innovation priorities identified for immediate action, a majority of these such as agricultural and food security, climate change mitigation and adaptation, population health, tropical solutions, and broadband applications, translate directly into regional Australia. These applications are relevant in terms of direct locational advantage (agriculture, food security, resource development, marine industries); availability of Greenfield space and land use planning allowing opportunity unfettered by existing settlement patterns; and innovative, bottom-up applications of sustainable technologies (e.g., Chap. 21 of this volume). Many of these opportunities are implicitly recognised with policies on clean energy (for example, wind farms, carbon sequestration, space research including satellites monitoring and sensing capabilities).

Encouraging innovation is not about the simply the number of researchers, or levels of R&D investment, but how the innovation system as a whole functions... this requires a new approach ... more complex and nuanced than before (OECD 2009).

State Governments, too, are increasingly recognising the value of applying innovation policy in regions to address priority objectives. In 2010, Queensland, for example, established a 'strengthening our regions' platform, which includes the development of the state regionalization strategy in order to share the economic growth with regional areas, and to alleviate growth pressures in the south-east corner. In late 2010, New South Wales also introduced a *Regional Innovation Strategy*, based on an approach that 'local innovation makes a difference' and the recognition that 'innovation is relevant to regional businesses as it increases competitiveness through the development of new, or significantly improved, products, services, systems and processes'.

### 22.3.1 *Incremental, Related and Disruptive Innovation*

By 2020, the Australian Government wants a national economy in which businesses of all sizes and in all sectors embrace innovation as the pathway to greater competitiveness, supported by policies that minimise barriers and maximise opportunities for commercialisation of new ideas (DIISR 2011).

The OECD (2009, p. 29) claim that ‘innovation is a longer-term process which has a positive effect on regional growth only after a 5 year period’. However, this may only be true in the ‘traditional’ sense of innovation, where commercialisation benefits can take years to realise (and may not, in fact, be realised in the region of their birth).

In contrast, Ian Ogden<sup>2</sup> has provided the following insight on how regional innovation systems can be conceptualised in three different horizons:

1. *Incremental innovation* – the small changes that are made to enable regions (and their business and industry) to ‘extend and defend’ their status quo. For example, this may involve low-level process or product interventions in the sense of ‘continuous improvement’. It usually deals with innovation that is undertaken without a conscious linkage to higher regional goals. This is the most common and lowest-risk form of innovation; but it is reactive, can be undertaken in isolation, and exists only to ensure comparative and competitive advantage are maintained.
2. *Related or linked innovation* – the introduction of new activities that complement the strengths of existing core industry; thus delivering ‘constructed’ advantage. This may feature the transferability of products and processes amongst sectors, including high-technology options. For example, ‘second horizon’ thinking might include the provision and support of emerging industry infrastructure, greater access and connectedness of knowledge providers with knowledge exploiters, policy reform and detailed analysis of future opportunities through research into industry, society and environmental sustainability. This form of innovation is simultaneously reactive and proactive, with investment highly influenced by policy direction as well as market externalities. It is also highly dependent on collaboration and connectedness across regional stakeholders.
3. *Transformational (or disruptive) innovation* is characterised by forays into completely different or emerging industries, ‘breakthrough’ technologies, and may result in the development of a new regional profile (e.g. Silicon Valley). This is underpinned by substantive new knowledge creation, is proactive, and is

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<sup>2</sup>The author and co-author of Chaps. 8 and 5, respectively.

the highest risk form of innovation, but which offers the potentially greatest return on investment. Operating in the third horizon requires a region to have a critical mass of innovators, strong leadership and deep engagement with the knowledge economy.

The challenge for regional development and innovation practitioners is thus to find a balance across these three horizons, in order to deliver regional value, sustainability, and the ability to respond to emerging challenges (including policy objectives). Moreover, practitioners and policy-makers must recognise that the impact of innovation on regional development is governed by both policy (which reflects the public motive to pursue something) as well as markets (the economic opportunity in doing so). However – and this is the critical point – it is only in circumstances where the *regional dividend*<sup>3</sup> outweighs the *market value*, that there should be a motive to pursue regional development – thus providing regional value as well as the national objective of overall prosperity. That is, an appropriate mix of innovation should deliver flourishing regions, as well as an Australia that flourishes. This is the surely the ultimate goal of innovation-based sustainable regional development.

An appropriate mix of innovation should deliver flourishing regions, as well as an Australia that flourishes.

### 22.3.2 *Legislation and Regulation*

Enjoying ‘favourable rules of the game’, usually quoted in the context of supportive tax structures, regulatory regimes and other conventions, has been identified as a key dimension by which successful regional innovation systems can develop (Erber 2010). Certainly, legal and regulatory frameworks are simultaneously a barrier and an enable for regional innovation systems. For example, stringent regulations (particularly in the environmental field) can spur innovation to meet compliance targets; whilst at the same time, rigid structural frameworks can stifle innovation through resistance to change (Kinnear et al. [in preparation](#)). Navigating ‘red tape’ bureaucracy can also be a barrier to innovation, particularly for SMEs who are driven by profit margins: time is money, and new technologies and processes take time to develop as well as to be accepted into existing frameworks. For example, Heldeweg and Kica (2011) have already noted the challenges of regulating technological innovation, because of the need to develop and implement frameworks that can keep pace with the needs of the ever-changing technology and innovation fields.

<sup>3</sup> That is, the balance of social, economic and environmental outcomes deriving from the change.

Existing literature on the nexus between the innovation system and the regulatory system is generally focused on commercialization law, patents, property rights, and contract enforcements (Kinnear et al. [in preparation](#)). It is widely recognized that the weakest link in Australia's innovation chain is the commercialization stage (Eslake and Walsh 2011). Furthermore, it has been noted that regulation needs to be flexible and adaptable to encourage enterprise development, also need to recognize multi-skilling and prior learning and experience. Dodgson et al. (2009, p. 33) have argued that 'modern innovation policy has to recognize, explicitly, that market mechanisms can be used effectively... as devices that permit flexibility, selection and change in a complex evolutionary economic system.'

These points are certainly important in any discussion of the national innovation system, but for the purposes of this book, it is particularly useful to examine them in the specific context of regional innovation systems. For example, SMEs may have uncertainties about the regulatory environment of export partners – both domestic and offshore: this is particularly relevant to innovation in regional settings, where there is often a focus on exporting product outside of the region to overcome a low local customer base.

In Chap. 7 of this volume, Ian Ogden described the need for innovation to be of truly regional construct and aspiration; embedded in regional planning and governance as well as the business community. Australia has been ranked as the third-fastest place in the world to start a business (ATC 2011); but what is not clear is that there is sufficient support for those businesses to establish in regional Australia. Here, in regions, innovation can flourish because of the regional advantage in raw resource availability; collaboration; the presence of regional universities with a motivation to work closely with industry; and the possibilities of less-congested infrastructure and cheaper business tenancies (leaving more funding capital for risk-taking). However, as noted by Kilian Perrem in his opening remarks (Chap. 2), regional business have distinct needs to be better supported to innovate – to overcome problems of low human resource base and a lack of innovation assets. For innovation policy, then, regions may need different consideration in terms of regulatory, incentive or subsidy regimes (Cooke [2012](#)).

Innovation needs to be of truly regional construct and aspiration; embedded in regional planning and governance as well as the business community.

## 22.4 Regional Advantage and Innovation: A Synthesis

In naming this volume, the editors arrived at the title 'regional advantage and innovation'. This was intended as a widely-ranging descriptor, designed to capture a readership across regional (economic) development, innovation systems and regional policy. An alternate title may have been 'regional assets and innovation', placing greater emphasis on the natural and human capital endowments of regions and how

this shapes their value to the state and nation; as well as to the role of innovation in helping to unlock these qualities. However, the ‘regional assets and innovation’ phrase was inferior, because it does not convey what needs to change – that is, for regions to be given a policy environment that allows them to exploit their ‘advantage’. Indeed, in synthesising each of the contributed chapters, it became clear that the ‘advantage’ title could have many definitions. Whilst many readers may have identified with ‘regional advantage’ in the context of the competitive, comparative and constructed advantage nomenclature, there are also several other entirely separate interpretations. For example, ‘regional advantage’ can refer to:

- The *advantage* that already exists for regions to deliver on national goals, based on their mix of economic, social and environmental assets and functioning; or
- The further *advantage* that could be conferred by intelligent policy that benefits regions and limits the (unwanted) further development of metropolitan areas (which otherwise leads to congestion).

Advantage (noun): a beneficial factor or combination of factors; superiority or ascendancy.

Advantage (verb): to give special consideration or benefit to.

Public policy designed with the intent of reducing regional *disadvantage* has been evident for well over a decade (Simmie 1997). Largely, this revolves around a ‘regional deficits’ model and how such challenges might be overcome. However, the imperative has now become for government to realise that regions need to be proactively *advantaged* – that is, promoted, favoured or furthered – in order for a regionalised Australia to be able to realise its full value.

The second element, innovation, is also a term with multiple meanings. In Chap. 1, we noted that a holistic definition innovation look beyond the traditional, ‘entrepreneurship’ aspects of innovation, to include the wider scope of any activity that creates new value – be that economic or otherwise. Traditional case study examples of innovation often depict significant changes brought about by the formal and ‘hard’ elements of innovation – for example, the application of science and technology through intellectual property, spending on R and D, and technological advancements; and how these realise economic benefit through new product patenting and/or additional sales revenue. Certainly, these are all valuable innovation dividends, with the ability to help secure long-term economic prosperity for regions, via value-adding process such as the export of skills and training, and the generation of income from research-related intellectual property, royalties, licences, consulting services and other areas (Kinnear and Ogdén 2011). However, this book has also demonstrated the value of innovation in its ‘softer’ forms: new social and environmental benefits created by engaging with skilled migrants and cultural riches (Chaps. 11 and 12) as well as novel approaches in agriculture and water security (Chaps. 20 and 21). These reiterate the importance of using a broad definition

of ‘innovation’ when dealing with regional systems. Another good reason is that purely ‘technological’ innovation can reduce jobs – not necessarily a favourable outcome for regional Australia – whereas social innovation may help capture the knowledge base and entrepreneurial skills of migrant or mobile workers (Chap. 16), thus enriching regions; whilst radical innovation can open up new markets and industry, and provides footholds for new SMEs in regional Australia, is.

So what evidence exists for the tenet of ‘innovation for regional advantage’? The 21 chapters in this volume demonstrate three separate lines of evidence that innovation for regional advantage can be a useful construct for both policy and practice:

1. Innovation is a precondition for regional advantage, because it can help *identify and unlock* that advantage – for example, R and D can help provide new ways to exploit natural and human resources with greater profitability, and with less environmental and socio-economic pitfalls (e.g. the Pig Pen in Chap. 20);
2. Secondly, and equally importantly, innovation can help to *build or expand* regional advantage – that is, to encourage regions to trade in new, niche areas not necessarily related to their spatial or biophysical features (e.g., Evocities), or to protect against single-sector shocks; and
3. Thirdly, innovation *in itself* can be a regional advantage in its own right. Borne of the particular characteristics of regions – strongly collaborative; pressured and therefore needing to embrace change – innovation (and innovation dividends) can be a commodity that regions can trade on (e.g. Illawarra). It can also be a tool for overcoming risks and challenges (e.g., Katanning; natural disasters in Central Queensland).

Due to space constraints, it was not possible to include case studies that highlight other aspects of regional advantage and innovation. Material on Indigenous affairs, rural health, biodiversity and land protection, marine resources, the role of ports and of transport infrastructure more widely, are notable in their absence. The editors also acknowledge that whilst this contribution goes some way to suggesting a new and potentially important paradigm, it compares mildly with the much more considered and sophisticated models that have been proffered by others renowned in the field of regional development and innovation, including Asheim, Cooke, Porter and Storper. Nevertheless, acknowledging these constraints, an analysis of the material contained within this volume reveals that:

1. Regional development theory and practice is currently insufficient to allow regions to develop in a truly sustainable manner – that is, simultaneously across the social, economic and environmental realms;
2. All regions are not currently delivering to their potential: they are failing to achieve the dual outcomes of retaining (even growing) regional value, whilst also contributing to national outcomes; and
3. There is an obvious role for innovation in helping regions address challenges and exploit opportunities for their own benefit, whilst simultaneously responding to



national policy, research and innovation imperatives. This is not simply confined to product innovation or ‘commercialisation’, but also process innovation for social outcomes, and eco-innovation for sustainability gains.

Regions are essential for national growth. The recognition that regions can and do deliver growth and prosperity for Australia as a whole, has been evident for some years (e.g. Charters et al. 2011). Figures from the OECD show that Australia ranks third (behind only the Slovak and Czech Republics) in the extent that regions contribute to national growth. In Australia, in the decade 1995–2005, regions<sup>4</sup> contributed more than 60 % of national growth, even though the regions themselves had a GDP per capita below the national average (OECD 2009, p. 20). This dispels the myth that is it only a few, highly productive regions that generate the lion’s share of national wealth and, by extension, that regional policy ought only to be tailored for these standout performers. Rather, it shows that regions overall are key to national productivity – and that they deserve a policy environment that recognises, further enables and rewards this.

All of Australia’s regions – not just those with high gross regional product – deserve a policy environment that recognises, enables and rewards their contribution to national productivity. . . investing in regions for the purposes of bolstering innovation can assist regions of any nature.

This is at odds with recent reporting in Australia by the Grattan Institute, which suggested that the Commonwealth was sacrificing overall productivity and economic growth by continuing to invest in slow-growing regions (Daley and Lancy 2011). The Grattan report suggested that Australian’s regional development spending ought, in many cases, to be clearly tagged as ‘subsidization on social or equity grounds’, because service and infrastructure spending in lagging regions was unlikely to ever be effective in terms changing the economic fortunes of these (largely agricultural) communities. Hence, the authors concluded that this regional subsidization should be cut, in favour of increased investment in bolting (fast-growing) regions.

Certainly, the OECD (2009b) has acknowledged that ‘regional policies are increasingly tested on their capacity to fuel growth, rather than simply reduce disparities’. The line of thinking presented by Daley and Lancy, however, reduces investment decisions to ‘picking winners’ – an approach which is already frowned upon in the emergent regional policy debate (Kourtitt et al. 2011). By contrast, investing in regions for the purposes of bolstering innovation can assist regions of any nature: for those that are lagging, innovation can help them overcome decline. For those that are booming, innovation can assist in unpacking and addressing the pressures of rapid development. In this way – and as so succinctly put by OECD

<sup>4</sup>TL2 (territorial level 2) regions.

(2009b), ‘policies to support lagging regions are not only targeting disadvantage for reasons of social equity, but can also be tools to generate growth that is important for national prosperity’.

From an international perspective, the use of innovation as a key mechanism to advance regional development goals is by no means limited to the Australian context. Many of the challenges that are being faced by Australian regions are common across regional areas globally; and the nationally significant areas in which Australian regional areas could be expected to contribute are similar to those of other developed economies. For example, the European Commission has already a number of priority areas for the development of EU nations, under the *Europe 2020* growth strategy. These include ‘smart growth’ through improvements in education, research and innovation, and the digital society; ‘sustainable growth’ through the development of a lower-carbon economy, green technologies, smart grids and stronger (SME) business networks; and ‘inclusive growth’, with economic and social cohesion achieved through improved skilling, training and employment opportunities. Targets within these areas are focussed on employment, R and D and innovation, climate change and energy, education, and social inequities (exclusion) (European Commission 2011). An important facet of these, as noted by the EU, is that such areas are inter-related, and mutually reinforcing. For example, this includes the use of innovation to stimulate the economy and create cleaner technologies, to combat climate change and other issues of environmental sustainability, all whilst creating new business and job opportunities and improving global competitiveness and productivity (European Commission 2011).

The potential for these growth targets to be achieved through pressing ‘regional advantage’ is strengthened by the EU’s position on regional policy: this is based on the principles of the concentration of resources, effort, and investment into key geographic locations (i.e., regions) for nationally beneficial outcomes. EU regional policy is also strongly focussed on building strategic partnerships – echoing the formula of ‘collaboration and connectedness’ for innovation that is currently being implemented in Australia.

The use of ‘regional advantage’ is also increasingly being recognised in developing nations. For example, a recent article from China has highlighted that solely ‘place-based’ advantages by themselves can no longer be relied upon to drive regional development, because competitiveness from other, like regions is growing stronger. Rather, a truly unique offering must be available: in the case of the Weihai region, this was developed by finding innovative ways to explore sustainability and social and economic development (Ning and Hoon 2011). Here, traditional coastal-based tourism was no longer sufficient to set apart Weihai from its many other competing regions. To address this, the local government ‘connected and collaborated’ with Korean trading partners to produce an ‘exotic culture’ product, which encouraged new foreign enterprises to establish in Weihai and contribute to its regional development. Essentially, this has allowed Weihei to value-add to its existing place-based advantage (a coastal city with proximity to Korea), by adding a new resource (access to Korean culture, business entities and tourism models) (Ning and Hoon 2011).

### 22.4.1 *Delivering Innovation for Regional Advantage*

Dr John Kapeleris, head of the Australian Institute of Commercialisation, has relayed how important innovation is in providing Australia with a competitive advantage internationally: “Innovation is the last competitive advantage that this nation can have when we take the primary industries and the mining sector out of the equation. The only thing we’ve got left is innovation, our creativity and our ability to take these wonderful ideas that Australians have to successful international markets.”

Achieving truly sustainable regional development will certainly require new ideas, practices, processes, behaviours and technologies: this is all about innovation. However, it is also true that the regional advantage and innovation effort must span a range of activities in order to be effective. As noted in Kinnear and Ogden (2011), these might include:

- Knowledge creation, comprising activities related to internal or external research and development, including applied and translational research, commercialisation and IP;
- Capacity building, comprise activities related to skilling, training and professional development;
- Implementation of on-ground activities;
- Linkages and engagement, comprising activities related to communication, promotion and business support, and will largely be the remit of REDOs, business groups and industry associations, as well as government; and
- Policy development and regional planning.

What are the incentives for regions to innovate to their advantage? Firstly, innovation is a way for regions to create wealth without drawing down on their natural resource base. Trading in ideas and collaborating with make for more cohesive communities that work together on their goals for the future. Secondly, human capital and innovation positively influence regional growth. This has already been described by the OECD (2009). The case material in this volume suggests that this is true not only in the sense of economic growth, but also in terms of allowing regions to ‘mature’ and take their place in the national landscape. For example, initiatives such as those written about by Ian Ogden (Chap. 8) and John Grace (Chap. 17) demonstrate that regions can (and are) using collaborative innovation not only to generate economic value, but also to help create a shared vision of regional futures. Both regional development and innovation are wide and complex agendas, with many actors. In Australia, the key stakeholders include Federal Government (especially Regional Development Australia), State Government, Local Government, Regional Economic Development Organisations (REDOs), NRM Groups, local business and industry, and regional universities.

Implementing ‘innovation for regional advantage’ will require these stakeholders to interact in new and different ways, with greater emphasis on the role of knowledge producers and providers in enabling on-ground innovation by business and industry, and government receding into a support function.

At a more practical level, some useful examples of how ‘innovation for regional advantage’ can be delivered might include:

1. Promote opportunities for building new market combinations, particularly in terms of supply and information chains;
2. Make regulation and funding more flexible to encourage and enable revaluing, repositions and reconfiguring of existing physical assets;
3. Establish a range of mechanisms that encourages, enables and mandates long-term collaboration across sectors and across regions;
4. Review the balance of government funding and financing proportions in regions to support a shift from a needs-base to a future-building based model. This kind of innovation would help to transition regions into places of high value-add, driven by the private sector;
5. Consider enhancement of current procurement strategies to build capacity for wealth to be retained within the regions;
6. Explore ways that encourage and enable an institutional culture that promotes/ enables experimentation and innovative practice;
7. Explore ways of developing entrepreneurs in conjunction with innovative capacity building;
8. Embed regional development into those research and development corporations that are themed on issues related to regions, rather than single industry based. For example:
  - (a) Develop a greater understanding of cumulative causation and feedback loops in the development process and their contribution to both regional disparities and industry specialization;
  - (b) Identify ways to increase investment by local firms in their own activities or complementary enterprises;
  - (c) Consider ways to encourage local procurement in tendering processes that don’t compromise fiscal responsibility.
9. Continue to value regionally-based tertiary education services to retain a skilled labour force in regional Australia; and
10. Assist researchers in regional universities in making links with other regional researchers and developing cross regional multi-disciplinary projects in innovative practice. Businesses are interested in working with universities, however work needs to be done on building relationships. There is a need to recognise and provide funding allocations against the time that is required for the building of trust in order to have collaborative innovation.

### 22.4.2 *Achieving National Outcomes and Regional Value*

Constructed regional advantage should intersect with regional and global innovation imperatives . . . but so too, should regions aim to deliver on wider national goals.

It is through innovation – new connections and relationships; new products, processes and technologies; and new business models and practices – that regions can achieve sustainable regional development. Furthermore, creating social change through innovation can create better equity, liveability and services in regional communities. Innovation strategies can also be used to blend multiple regional agendas and better integrate regional planning instruments and improve regional decision-making. But for what reasons should regions strive to align themselves with national (or state) objectives? Clearly, one is to attract policy favour and the public investment that goes with it. Secondly, and equally importantly: grand challenges are future markets (Cooke 2012, p. 2020). With every opportunity that a region has to deliver on a national policy goal, so too has it the chance to build an economy through private interest, involvement, and investment in regions. Thus, there exists a dual motivation to innovate solutions for spaces such as healthcare, energy efficiency, crime reduction and more.

It is important to note that the discussion in this book (and particularly, this concluding chapter) has been largely cast against current federal Australian policy objectives. However, the intent here has not been to further politicize the regional development debate. Rather, this collection of writings acknowledges that key policy areas are almost always linked with recurring issues requiring non-partisan consideration. Indeed, in many ways, these ‘national objectives’ are not dissimilar to the ‘grand challenges’ as described by Cooke in his words on complex adaptive innovation systems (=regions): for example, sustainability, decarbonisation, transport systems, healthcare. These same themes appear time and time again, with the *Picture the Future* report claiming climate change, demographic change, urbanisation and globalisation to be the top four ‘megatrends’ the world over (Siemens 2011).

‘A more innovative and productive population will have much greater awareness of, and be better prepared to tackle, many of the challenges for a sustainable population . . . energy efficiency . . . decouple[ing] economic growth from greenhouse gas emissions and energy use’ (Department of Sustainability, Environment, Water, Population and Communities, 2011, p. 47).

**Table 22.1** Key government policy areas and action domains in Australia

Government policy Agenda/Domains for action	Economic prosperity	Liveable communities	Environmental sustainability
Building our skills base and enhancing participation	✓✓✓✓	✓✓	
Planning and infrastructure investment for connected communities (incl. NBN)	✓✓✓✓	✓✓✓✓	✓✓✓✓
Liveable urban communities	✓✓✓✓	✓✓✓✓	✓✓✓✓
Meeting our housing needs (Housing supply and affordability)	✓	✓✓✓✓	
Social inclusion and service delivery reform for stronger communities	✓✓	✓✓✓✓	
Embracing our diversity for vibrant communities	✓✓	✓✓	
Indigenous Australians: closing the gap and strengthening our future	✓	✓✓	✓
Healthy people: healthy communities	✓	✓✓✓✓	
Resilient landscapes and communities	✓	✓	✓✓✓✓
Climate change: decoupling emissions from population growth	✓✓✓✓	✓✓✓✓	✓✓✓✓
Water for liveable communities, our environment and industries	✓✓✓✓	✓✓✓✓	✓✓✓✓
Securing food production for our communities and the world	✓✓✓✓	✓✓	✓✓
✓✓✓✓ Highly significant impact			
✓✓✓ Moderately significant impact			
✓ Relatively minor impact			

Source: Reproduced from the *Sustainable Australia – Sustainable Communities* strategy (Department of Sustainability, Environment, Water, Population and Communities, 2011, p. 44)

Table 22.1 describes twelve of the key government policy areas and action domains in Australia, as at the end of 2011. Regional Australia – and particularly innovative regions – have a key role to play in delivering of each of these. There are also a range of further policy domains in which regional Australia has a leading role. For example, under export futures, regional advantage can be used to provide exporters with the ability to leverage resources from regional and rural areas and maintain competitive positions in the global market place. Regional areas can provide manufacturers and industry with pockets of specialization that overcome transport, labour, and material supply that are not necessarily economical across all geographical areas. By building on their strengths through innovation, regions obtain components of specialization for competitive advantage. In the areas of health and liveability, this book has demonstrated the regional advantage of small community living and the inherent attraction of rural areas by all Australians was explored by examining the role and contribution of migrants, and the natural advantages of living and working in regional areas.

Transitioning away from centralised provision of water, power, waste management and other services is important in allowing regional Australia to realise its

regional advantage. Decentralisation reduces dependency and helps foster new innovations – especially those tailored for regional settings (in the sense of economic, social, environmental, technological and ownership approaches). The National Renewable Energy Target mandate provides the framework for 20 % of Australia’s electricity supply to be sourced from renewable sources by 2020. Renewables-based generation plants are highly likely to be located in regional areas, given that these are the locations in which many of the necessary inputs and raw materials are available (e.g., solar intensity, wind, wave, geothermal and biomass feedstocks). Regional areas are also likely to represent good value for renewables projects because decentralised, small-scale generation plants can lift a substantial burden from the National Grid infrastructure, which faces difficulties in the transmission of power along many hundreds of SWER<sup>5</sup> lines.

With respect to food security, Beddington et al. (2012, p. 6) noted that: ‘agriculture is at the nexus of three of the greatest challenges of the twenty-first century – achieving food security, adapting to climate change, and mitigating climate change while critical resources such as water, energy and land become increasingly scarce’. The 2010 PMSEIC report noted that ‘regional Australia currently produces 93 % of our nation’s daily food supply while exporting enough food to feed nearly 40 million others’.<sup>6</sup> Furthermore, given that urban sprawl decreases the availability of arable land for food production close to metropolitan centres, it is reasonable to expect that the importance of regional Australia’s contribution to food and water security will only be magnified in future years. The overall productivity of the Australian agricultural sector is declining, with less exports and more imports resulting from a combination of challenges including a rapidly diminishing investment in R and D, land use tensions, an ageing and poorly skilled rural workforce, the scarcity and rising costs of fertiliser and water, and the necessary adaptations to climate change (PMSEIC 2010). However, a number of strengths have been identified in achieving food security in Australia, and regional communities will be essential in bringing to fruition the goals identified by the PMSEIC report. For example, these include:

- Securing food supply and reducing wastage;
- Developing and transforming low-input farming systems that are adaptable and resilient; and
- Exporting our expertise to the world.

The *Commitment to Regional Australia* document carried an agreement to establish a National Food Plan, which will examine the role of regions in growing more food, more sustainably. It also noted the impacts of development on regional agricultural land and water availability as critical assets for delivering domestic and

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<sup>5</sup> Single-Wire Earth Return.

<sup>6</sup> *Australia and Food Security in a Changing World: Preparing for the Future with Foresight*, Report to the Prime Minister’s Science, Engineering and Innovation Council, 2010.

international food security.<sup>7</sup> A renewed role for agricultural innovation in regional areas – largely through research and development efforts – was recognised.

In terms of water resources, the ‘big issues’ identified for the Australian water sector for the period 2010–2015 include sustainability, security, scarcity and planning; ageing infrastructure, adapting to climate change; regulation and reforms; and water allocations, market development and water pricing (AWA and Deloitte 2010). Australia’s regional areas will play a critical role in ensuring reliability and quality of supply to the broad suite of Australian water users.

In terms of biodiversity and conservation, Australia’s ‘Caring for Country’ 5-year investment outcomes are built around many thematic areas in which regional areas have considerable capacity and responsibility/control. Regional areas are the homes for many of Australia’s significant natural endowments – that is, natural icons and assets with high ecological, social, cultural and/or recreational values. For example, consider the placement of many World Heritage Areas (such as the Blue Mountains, Tasmanian wilderness, Purnululu National Park, Queensland wet tropics and Willandra Lakes) significant aquatic ecosystems (e.g., the Paroo, Barwon-Darling and Lower Glenelg River systems), and areas where Environmental Stewardship programs are already being progressed (e.g., the Central West, Namoi, and Border Rivers-Gwydir NRM regions of New South Wales). Northern and remote Australia is also given special attention, particularly Indigenous lands and projects where collaboration across regions can be demonstrated. Given the close affinity of regional communities with their natural surrounds, it could also be expected that the target to increase participation in natural resource management (NRM) through volunteering and other engagement vehicles would be more successful if staged in regional areas of Australia.

The 2011 review of Caring for our Country already asks questions about how national priorities and local action be better linked and aligned to achieve national goals. Unsurprisingly, making best use of regional (local) knowledge, and the use of regionally-based management strategies are being called for. The roles of regional NRM plans is also being increasingly recognised for their importance in linking local, regional, state and national NRM goals and aspirations.

A final example of the value of regions is in the area of climate change adaptation and (disaster) resilience: in late 2009, the Council of Australian Governments (COAG) agreed to adopt a whole-of-nation resilience-based approach to disaster management, which recognises that a national, coordinated and cooperative effort is needed to enhance Australia’s capacity to withstand and recover from emergencies and disasters.<sup>8</sup> This recognised that Australia’s ability to cope with natural disasters is due in no small part to the characteristics of self-reliance, resilience to hardship, an ability to innovate and adapt, and a strong community spirit. It could be argued that each of these virtues are particularly well-developed in regional areas. In addition, the use of a proactive planning, a united focus and

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<sup>7</sup> The Australian Labor Party and the Independent Member’s agreement, [http://www.minister.regional.gov.au/files/Regional\\_Agreement.pdf](http://www.minister.regional.gov.au/files/Regional_Agreement.pdf).

<sup>8</sup> COAG National Disaster Resilience Statement, Public release 7 December 2009.



a shared sense of responsibility was considered vital to improving resilience. The COAG document recognised that one of the key characteristics of a resilient community was one where ‘people work together with local leaders using their knowledge and resources to prepare for and deal with disasters. . . they use personal and community strengths, and existing community networks and structures . . . a resilient community is enabled by strong social networks that offer support’. This is by no means limited to the Australian context: Cooke (2012) describes regions in Sweden that have developed particular strengths in disaster management, through the use of strong network links and innovative mingling of business/industry capabilities with civil protection systems, resulting in the emergence of ‘training regions’.

### ***22.4.3 Policy and Investment to Create Innovation Dividends***

Published works already abound on policy recommendations for regional development, for innovation, and for the development of innovation in regions (for example, works by the OECD and European Commission, as well as by academics such as Cooke (2012)). Concepts and models for the latter have traversed through technological districts, innovative milieu, learning regions and regional innovation systems, followed by new regionalism (Uyara 2007) and, most recently, the idea of ‘related variety’ explored by Cooke and Asheim. The OECD (2011, p. 19) explicitly examined the question of what is needed ‘to maximise the impact of, and recognise limits of, innovation policies by, in and for regions’. There are also a range of new policy measures being undertaken in various locations, which may be useful for case study learning. For example, in 2011, Japan embarked on an intensive ‘regional innovation strategy promoting regions’, on the basis that places where innovation can make use of regional characteristics are expected to offer the potential to explore overseas markets in the future.<sup>9</sup>

The intent is not for this chapter to recount these works in any depth of detail. The authors are also careful of the warning by Cooke (2007), that it is unjust to immediately move from a new theoretical outlook into policy ‘implications’ or ‘recommendations’, unless evidence to support the model has been presented. It should also be recognised that the widely diverse and disperse nature of Australia’s regions represent an especially challenging case for effective policy making. For example, Charters et al. (2011) already identified a range of policy and planning conundrums peculiar to regions, including equitable and accessible service delivery, infrastructure provision, and equal opportunity to benefit from current and future economic growth. Nevertheless, these are a number of insights relevant to regional and innovation policy development that emerge from the commentary and analysis presented in this book.

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<sup>9</sup> Japanese Ministry of Education, Culture, Sports, Science and Technology, ‘Project for Developing Innovation Systems’, Fiscal 2011.

Regional policy developers must avoid using ‘cut and paste’ and instead discover that a new function exists: one called ‘cut and paste special’ (Piccalauga 2006).

Firstly, there is heterogeneity of regions and regional performance, in Australia as well as globally (OECD 2009). Good policy must recognise this – it must respond to the ‘patchwork’ of regions to which Simon Crean<sup>6</sup> refers – and avoid the cookie-cutter, one-size-fits-all approach, which fails to recognise different spatial settings (Asheim et al. 2011). In the (adapted) words of Andrea Piccalauga, regional policy developers must avoid using ‘cut and paste’ and instead discover that a new function exists, called ‘cut and paste special’ (Piccalauga 2006). It must also respect the best definition of ‘regions’ – accepting that these complex and dynamic spaces often suffer if placed under an interpretation based on closed and artificial boundaries (Uyerra 2007). Further, it is necessary to accept that Australia’s context is quite different from northern European and Asian regions, on which the bulk of academic enquiry into regional innovation systems has been focussed. Ultimately, regional Australia is characterised by an enormous diversity of scales, economic structures and landscapes; and by disparate communities that often lack the proper tools to identify their commonalities with other regions. In the current settings for regional Australia, this makes it extremely difficult to marshal like regions together for mutual benefit, and creates an inherent tension in the way in which we consider regions and regionalism. Policy decisions that are favourable to a particular region may not benefit another; nor may that decision-making necessarily advance the broader agenda of regionalisation, or support regionalism as a conceptual framework for delivering the national outcomes.

Policy change is required across multiple domains, not simply those of ‘innovation’ or ‘regional development’ . . . such is the whole-of-government approach.

Secondly, one of the most important messages is that policy change must happen not only within the regional development and innovation arenas, but also via a more pervasive shift across numerous other domains. As noted by Mitra (2012), making progress in this space will not be about working to effect change in solely silos of government innovation policy or regional development policy, but rather, to shift the broader industrial and fiscal arrangements that impact upon regions, to enable better decision-making and investment around the large agendas (‘grand challenges’) such as health, transport and resource security. Indeed, Hogan and Young (2012, p. 5) acknowledged that ‘rural and regional Australia . . . is a multifaceted space made up of a matrix of policies resulting from often independent processes’. It follows, according to Cooke (2007), that ‘the key trick in constructing

regional advantage is designing appropriate policy platforms that mix variable policy instruments in an integrated and judicious manner’.

The OECD (2009, p. 34) acknowledged that regional policy has been ‘evolving from short-term subsidies ...into long-term development policies’. This has included a paradigm shift from ‘compensating locational disadvantages in lagging regions, to instead focus on tapping underutilised potential in all regions’. Indeed, historically, it could be argued that Australia’s regions have been viewed with an attitude that of being a ‘burden of service and infrastructure provision’ in the eyes of both Commonwealth and State governments. One of the strongest themes that should be developed from this book is the need to transition the region-national regime from a ‘transaction’ base to instead being one of a ‘relationship-based’ model – where both parties give and receive, in a model that is sustainable over time. As with any relationship, this will require investment by both sides in terms of both dollars and effort; a concerted effort to communicate and form a deep understanding of each other’s aspirations and needs; and a healthy ‘interdependence’. In this way, a national-regional ‘compact’ could be formed (as it is in other contexts, such as universities).

Perhaps one of the strongest themes in this book is the policy implication for national and state governments to stop ‘transacting’ with regional Australia, and instead start having a ‘relationship’ with it.

There has been a call for a ‘whole-of-government’ as well as a ‘whole-of-governments’ approach to fund priorities that fit with regional structures and benefits and increase the efficiency of government spend.<sup>10</sup> However, regional Australians won’t have adequate space to innovate if they are instead concerned with grossly inadequate services and infrastructure provision. Whilst *Investing in Australia’s Regions* had the promise to deliver \$4.3 billion of initiatives to ‘ensure that individuals and communities across regional Australia share in the nation’s prosperity’,<sup>11</sup> what is also needed is investment to allow regions to *drive* that prosperity – that is, investment that supports innovation.

Give regions the ‘policy advantage’ – decouple their value from per capita metrics and instead reciprocate to the contributions they make in national arenas.

<sup>10</sup>The Honourable Simon Crean, Minister for Regional Australia, Regional Development and Local Government, address to the SEGRA National Conference, Geelong, 26 October 2011.

<sup>11</sup>*Sustainable Australia – Sustainable Communities, a sustainable population strategy for Australia*, 2011.

Regional investment is a tight space. The challenge for regions is enormous: they must build the infrastructure base for tomorrow's population, but do it using today's ratepayer base. According to David Adams,<sup>12</sup> investment principles for maximising regional advantage include:

- Pursuing diversification and sustainable developments;
- Shift from grants to pooled investments;
- Use of a place-based investment model (and place-based evidence to support it), to maximise regional value and wealth creation, with positive cumulative impacts through regional multipliers;
- Maximise regional value creation and wealth retention (national objectives; regional return);
- Support development of regional capability and leadership; engage around local knowledge co-production;
- Promote collaboration, clustering to overcome silos, and encourage access to science and technology, finance and knowledge; and
- Capitalise on region-specific assets stocks and flows.

According to Cooke (2007, p. 30) 'innovation, talent-formation and entrepreneurship have to be considered in triplicate to construct regional advantage in ways that intersect profitably with regional, national and global innovation imperatives'. However, the commentary and case studies presented in this volume demonstrate that this should go further – that innovation-based regional advantage should deliver on not only innovation, research and entrepreneurship goals, but also, contribute to wider aspirations across the social, environmental and particularly economic fields. The OECD (2009, 2009b) has noted that effective regional policy can have enormous national benefit in, for example, periods of recession, where harnessing regional knowledge, funds and capital becomes even more important.

European nations are already under a cohesive policy push toward making innovation 'a priority for all regions', supporting 'the creation of knowledge-based jobs and growth not only in leading research and innovation hubs but also in less developed and rural regions' ((European Commission 2011, p. 3), p. 3). Innovation through cluster policies remains a popular response (OECD 2009), although increasingly, it is becoming evident that these are only one of a series of ingredients that can help build effective habitats for innovation, and that they must be deployed properly (right sector, right region) ((Rodríguez-Pose and Comptour 2012); Asheim et al. 2006).

The importance of public policy in reinforcing regional innovation systems has been examined by Fiore et al. (2011). Much of this repeats recommendations already made in other works, including the usual suspect of policies to create the creation of clusters, and to foster cooperation between universities and firms.

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<sup>12</sup> Professor David Adams, *Keynote address – constructing regional advantage*, Fifteenth National Conference of SEGRA, Geelong, October 28, 2011.

A novel aspect was the treatment of ‘policies to ease brain circulation’: that is, understanding the mobility of highly-skilled individuals, particularly migrants. The approach suggested was that of a diaspora – allowing people to come and go, as this helps build wide and complex networks. This is in contrast to traditional models that promulgate retention of skills and knowledge to stem the ‘brain drain’. In addition, recent work such as that by Cooke (2012; Asheim et al. 2011) has now explored the potential not for clusters (which occur within a sector or region), but instead, for the instruments that allow exploration of the adjacent possible (which occur across industries). This resonates with the ideas put forward in Chap. 5 of this volume, where ‘regional collaboratives’ could be used to bring together people who share proximity.

The policy environment in Australia is currently centred on ‘creating strong, creative communities with diverse, robust economics ... supporting regional projects which leverage other investment’.<sup>13</sup> Transitioning away from centralised provision of water, power, waste management and other services is important in allowing regional Australia to realise its regional advantage. Decentralisation reduces dependency and helps foster new innovations – especially those tailored for regional settings (in the sense of economic, social, environmental, technological and ownership approaches). Another key message is that innovation in regions need not be limited by lack of critical mass. Indeed, the *Harvard Business Review on Innovation* (2001) identified eight key pathways for innovation: all of these can easily operate in regions; in fact, they may be more easily seeded there. These include tactics such as capturing good ideas, developing points of differentiation, mobilizing latent capacity in the social sector and experimentation, amongst others.

The rhetoric of “regions in transition” indicates that innovation is at play. . . as regions shift forward, so too does the nation.

Rhetoric in current the Australian political landscape is often around the concept of ‘regions in transition’ – evoking the notion of regions being dynamic and evolving. This is innovation at play, and as regions shift forward, so too does the nation. National policy ought therefore to pay attention to the direction of regions, allowing co-evolution of regions, of national policy, and of the dynamics between the two. It is necessary for regions to move away from the extremes of either dependency or autonomy, and instead become interdependent with the national policy agenda.

What would such regional ‘husbandry’ look like on the ground though? A good strategy would be for policy reform to be aimed at assisting regional small business:

<sup>13</sup>The Honourable Simon Crean, Minister for Regional Australia, Regional Development and Local Government, address to the SEGRA National Conference, Geelong, 26 October 2011.

the vast majority (some 96 %) of Australian businesses are SMEs employing less than 20 people.<sup>14</sup> Regional policy practice could be improved by ‘creating structures that facilitate both vertical and horizontal knowledge transfer amongst regional business and industry’ (Cooke 2012, p. 74). A possible solution to this – ‘regional collaboratives’ – was described in Chap. 5. Essentially, these are built on the basis that the geographical proximity of business and industries – that is, the region being the common operating environment, regardless of sector – gives sufficient grounds for productive relationships to form. According to Cooke (2012), such regions will be advantaged in terms of competing in the globalised knowledge economy.

The *Picture the Future* report identified a number of pathways essential for Australia to lift its productivity, urging for ‘collaborative innovation that with connect Australia’s greatest talents with global networks and convert this into sustainable local value’ ((Siemens 2011), p. 8). Enabling policy should also be used to encourage cross-pollination. Shared resource and infrastructure use ought to spur this along; it is also a favourable strategy from the perspective of equipping regions – achieving one spend, but multiple users and uses. This might occur between multiple industries, multiple communities, or multiple regions, for example, through the integration of freight, transport and communication networks for multiple outcomes from key infrastructure. It is also expected that the advent of new telecommunications and information technology infrastructure (through the National Broadband Network) will multiply the capacity of regional Australia to be innovative and create substantial lifts in productivity (Chap. 14). Regions need to develop a portfolio of strengths upon which they can contribute to the nation. Regional advantage and innovation thus becomes about a type of ‘strategic niche management’ by and for regions (Geels 2006 in Cooke 2012). However, as noted by the OECD (2009b), regional advantages are ‘not static but evolve, sometimes rapidly, over time’, with the example being a region whose competitiveness changes markedly when trade barriers are reduced in neighbouring countries. This means the policy targets of ‘innovation for regional advantage’ must also be changeable.

Regions need a supportive policy environment to allow value creation from new connections and relationships; new processes, products and technologies, and new business models and practices.

In which regions should this process be started? Would measures such as identifying regions with the highest gross regional product be useful in directing new policy deployment? Certainly, this was not the rationale for the introduction of the national ‘regions of innovation’ (see Chaps. 2, 5 and 8).

<sup>14</sup> Australian Bureau of Statistics, catalogue 8165.0 Counts of Australian Businesses, including Entries and Exits, release January 2012, available online at [www.abs.gov.au](http://www.abs.gov.au).

Cooke's words suggest that strengthened information and communication exchange between the 'nation' (here, federal and state policymakers) and its regional entities will allow for greater 'system change'. This creates disequilibrium – which, perhaps counter-intuitively – brings about rich benefits: that is, perturbation of the national-regional *milleux* can open the door for radical, disruptive innovation. When Courvisanos (2009) suggested a new 'eco-sustainable' framework as a mechanism for using regional innovation to achieve sustainable development, he noted the possibility for regions to input into a national 'perspective plan' with regional targets and the creation of strategic niche regional markets to implement them. Conceivably, this kind of policy framework that allows strong exchanges between regions and the nation will create the habitat for increased adaptation and resilience at both ends, thus increasing the chances of succeeding when facing policy or environmental shocks such as decarbonisation or the global financial crisis.

National regimes are crucial in providing frameworks that allow . . . exploitation of the 'adjacent possible' – that is, the innovation that lies hidden at the margins (Cooke 2012, p. 140).

A final, but important, point is where this material sits compared with the existing regional development approaches. Many of these remain confused; see, for example, Rob Hopkins' treatment of localism compared with localisation.<sup>15</sup> In truth, the compound argument of 'regional advantage and innovation' plus 'regional value and national objectives' borrows elements from several existing paradigms. For example, this book doesn't seek to diminish the role of state and national government in regional development, which is espoused in paradigms such as Stoker's (2007) 'new localism'. Rather, it asks for the opposite – an increased interest and investment by the nation in regions. 'Regional value for national objectives' doesn't argue against the 'subsidiarity' of regions; it recognises that issues such as the tyranny of distance and low critical mass are unlikely to ever be overcome by regions themselves (even those with strong private investment), and so there will necessarily be a role for the state/nation in supplying services and infrastructure. This book *is* about the emergence of a quite different policy – where the governance roles of the state and nation are maintained, but they operate on the basis of preference (or *advantage*) given to a locality (a *region*), based on a region's actual or potential contribution to national outcomes. Whether this contribution remains latent or realised, and how that impacts on the region, as well as the nation, depends on the correct application and facilitation of innovation (including across each of the three horizons described above).

<sup>15</sup> Rob Hopkins, 'Localism' or 'localisation'? *Defining our terms*, available online at <http://transitionculture.org/2010/07/30/localism-or-localisation-defining-our-terms/>.

### **22.4.4 Research Gaps, Monitoring and Evaluation**

Ongoing research is critical to maturing the innovation for regional advantage paradigm.

In Australia, as in many OECD countries, governments have been providing substantial support for R and D and innovation in their national budgets over many years. The ability to better account for the effectiveness of these expenditures and to improve policy coordination across government requires a deeper understanding of the dynamics of the innovation process than can be provided by a few commonly used stock indicators. Five decades of innovation-related data is now available to inform policy makers as they undertake contemporary policy formulation, measuring and monitoring. New challenges and changing policy priorities drive the need to supplement traditional innovation indicators with new indicators that better reflect innovation as a system of interacting activities. The future challenges for innovation metrics, shaped by the economic characteristics of Australia and its regions, include:

- Policy development based on relevant metrics that tell the full story of how innovation occurs in business and public sectors (for example, expansion of the work reported in Chap. 19);
- New metrics to evaluate knowledge flows; and
- International benchmarking needs to be undertaken carefully, as the regional context for Australia is quite different compared with European and Asian nations.

The value of innovation to regions is to new connections and relationships; new processes, products and technologies; and new business models and practices. The emergence of this must also be supported through the design, development, implementation and monitoring of regional development models based in innovation. It is essential that regional research be user-driven, with the objectives of

- Using innovation as the key mechanism by which multiple goals in sustainable regional development can be understood and achieved;
- Understanding and optimising the processes, practices, scholarship and outcomes of innovation as these relate to regional growth;
- Creating social change through innovation that leaves regional communities with better equity, liveability and services;
- Establishing a range of eco-innovations (e.g. clean technologies) as a pathway for achieving environmental, economic and social benefits in regional areas;
- Supporting and growing the competitiveness of regional business and industry through innovative investment and entrepreneurship;



- Documenting and assessing regional innovation systems, developing models to predict where innovation success will occur, and producing tools to accelerate innovation and its uptake; and
- Exploring the role of regional universities in supporting and driving regional innovation. For example, Analysis by Etzkowitz (2008) stated that the ‘triple helix of university-industry-government interaction is the key to innovation in increasingly knowledge-based societies’, yet little is known about the specific ingredients for success in these partnerships, nor the best platforms by which relationships can be nourished.

Examples research questions on regional advantage and innovation:

1. How can regional communities develop themselves to better navigate the global economy?
2. What hard and soft infrastructure investments will have the greatest impact in terms of developing sustainable industries in regions?
3. How does the landscape of cluttered regulatory regimes impact on business innovation in regions?
4. How can the economic stimulus from resource activity be best maximised to enhance natural capital?
5. What innovation dividends can flow from collaborative partnerships in regional governance?

## 22.5 Conclusion

There is now a global need for regions to take their place in delivering a sustainable future for the world’s population . . . innovation is the ‘fulcrum’ of regional development – the lever by which regional strength can be applied to national challenges.

The use of innovation as a key mechanism to advance regional development goals is by no means limited to the Australian context. The global drivers for innovation have never been greater; there is now a global need for regions to take their place in delivering a sustainable future for the world’s population. Australian regions can, should, and already are, fulfilling a key role in reaching key national goals. The base from which regions operate makes them uniquely placed to contribute to sustainability, water and food security, innovation, and strong and healthy communities. Regions also represent excellent case study areas in which further research and innovation, based on national priorities, could be located.

Innovation is about biotechnology, nanotechnology, and advanced computing infrastructure and connectivity – to so-called ‘platform technologies of the future’ (DIISR 2011). However, it is also a discussion about people working closely together, finding novel ways to maximise the applications of minimal resources – physical, financial and human. Given their operating environment, this is the kind of innovation that Australia’s regional areas have a distinct advantage in.

Innovation is the fulcrum of regional development: the lever by which regions can realise their advantage; the pivot point by which regions can respond to the challenges of sustainable development; and it is how they can help move the nation forward. This book invites everyone concerned with regional development – from academics to practitioners; from students to policy-makers – to consider where and how innovation might be injected into regions for the benefit of local communities, as well as the nation. The 2011 ‘Commitment to Regional Australia’ in the Independents’ Agreement articulated an intention for the government to improve outcomes for regional Australia. It is now the task for regions to reciprocate by contributing to national policy objectives, as by increasing the productivity, amenity and environmental performance of regional areas, the whole nation benefits. Australia – and indeed all nations, both developed and developing – must identify how to make best economic use of available physical, natural and human capital, and do so whilst simultaneously working toward a sustainable and liveable future. This book has highlighted the crucial role that regional advantage and innovation – as a new construct for policy, investment and practice – can play in achieving this goal.

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