A place-based agriculture development framework
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Foreword

This project aimed to explore agriculture’s economic contribution at a regional level and by understanding this contribution, identify ways to improve regional development and planning. The Wet Tropics of North Queensland was used as a focal area to research agriculture’s contribution to place-based regional development.

The Wet Tropics region has recently gone through significant change as a result of industry deregulation and globalisation. The tobacco industry has disappeared, the dairy industry has more than halved in size and the sugar industry has experienced significant reform. In response, the region has sought to diversify, with the emergence of new horticultural industries, and a developing agri-tourism sector. In the past decade, the region has also been impacted by two severe tropical cyclones, highlighting the increasing risks of climate change to agriculture. Governments have responded to these pressures through a range of industry adjustment, environmental and regional development programs. This diversity of regional industries and experiences, and the region’s position in northern Australia (where both governments and industry have prioritised growing agricultural production) made the Wet Tropics an ideal location to focus this research.

The research is well placed to inform debates on the development of northern Australia, and inform regional development processes where agriculture is a key contributor to a regional economy. A framework has been designed to support the development of a new regional vision for agriculture; one focused on maximising agriculture’s contribution to overall regional development based on a region’s competitive advantage.

It is hoped that the report will be useful to regions seeking to develop their own place-based strategies, in order to maximise agriculture’s contribution to regional development. It is also hoped that the report provides useful information in order for government, industry and communities to better consider ways to maximise agriculture’s overall contribution to regional development.

This regional study was completed in parallel with a similar study, which focused on the North West region of Tasmania. This project was funded by RIRDC core funds, which are provided by the Australian Government. The report is in addition to RIRDC’s diverse range of over 2,000 research publications and it forms part of our National Rural Issues RD&E program, which aims to inform and improve policy debate by government and industry on national and global issues relevant to agricultural and rural policy in Australia.

Most of RIRDC’s publications are available for viewing, free downloading or purchasing online at www.rirdc.gov.au. Purchases can also be made by phoning 1300 634 313.

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Associate Professor Allan Dale is the Research Leader in Tropical Regional Development and James Cook University’s Cairns Institute. He also holds an adjunct position within Charles Darwin University’s Northern Institute. Having grown up in Far North Queensland, as well as having played senior executive roles within the Queensland Government, Allan has a keen interest in the governance of northern Australia and agriculture in particular. His doctoral work explored rural development in remote Indigenous communities. He has research, management and policy experience in regional development and natural resource governance, including in the north’s pastoral, fishing, forestry, tourism and mining sectors. As the inaugural head of the Queensland Government’s Social Impact Assessment Unit, he was involved in decision making from national to local levels, including major agricultural and water development projects. Allan is Chair of Regional Development Australia (Far North Queensland and Torres Strait).

Dr Connar McShane has particular experience conducting research on the working environment of farming families of Australia. This research was conducted as a part of her PhD, which received a Cum Laude academic award. Recommendations of that research focused on issues of work-life balance and rural/farming sustainability. The work made particular reference to the issue of retaining and attracting young people into agriculture. Conducting this research has equipped Dr McShane with the skills and knowledge of effectively recruiting participants and collecting data in rural and farming populations of Australia. Dr McShane has experience in both qualitative and quantitative methodologies and data analyses, for example, grounded theory, content analysis, predictive modelling, and measure development.

Michelle Thompson is a PhD candidate at James Cook University in Cairns, Queensland, investigating the development of agri-tourism in regional areas of Australia. She aims to develop a planning tool that regions may use to guide the development of agri-tourism. Michelle’s interest in agri-tourism, particularly food and wine tourism, began while running farm tourism workshops as an Extension Officer for the Sustainable Tourism Cooperative Research Centre (CRC). Her Honours project identified a demand for food and wine tourism experiences among visitors to Cairns, where the nearby agricultural region of the Atherton Tablelands has an emerging food tourism sector. Michelle also works at James Cook University as a research assistant, and is currently researching tourists' reef and rainforest experiences in a project funded by the National Environmental Research Program (NERP).

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Abbreviations

ABARES Australian Bureau of Agricultural and Resource Economics and Sciences
ABS Australian Bureau of Statistics
ACCC Australian Competition and Consumer Commission
CEF Clean Energy Future
CFI Carbon Farming Initiative
CFOC Caring for Our Country
COAG Council of Australian Governments
CRC Cooperative Research Centre
DAFF Department of Agriculture, Fisheries, and Forestry
FNQ Far North Queensland
GBR Great Barrier Reef
GFC Global Financial Crisis
GVAP Gross Value of Agricultural Production
IAG Industry Advisory Group
ICM Integrated Catchment Management
JCU James Cook University
LGA Local Government Association
MSC Major Supermarket Chains
NERP National Environmental Research Program
NFF National Farmers' Federation
NHT Natural Heritage Trust
NRM Natural Resource Management
OECD Organisation for Economic Co-operation and Development
PADF Place-based Agriculture Development Program
PMR Partial Mixed Ratio
RD&E Research, Development & Extension
RDA Regional Development Australia
RFN Regional Food Network
RIRDC Rural Industries Research and Development Corporation
SoE  State of the Environment
TAFE  Technical and Further Education
TNQ  Tropical North Queensland
TSA  Tourism Satellite Account
WHA  World Heritage Area
WTR  Wet Tropics Rainforests
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Executive summary

What the report is about

This project develops a theoretical framework that enables consideration of agriculture’s broader contributions to place-based regional development. The Place-based Agriculture Development Framework (PADF) developed by the project combines and integrates:

- agriculture’s traditional contributions through food and fibre production marketed as bulk commodities (agri-industrial model);
- an emerging emphasis on the management of ecosystems services and amenity within the production system (post-productivist model); and
- agriculture’s broader socioeconomic contributions to regional diversification, value adding and niche marketing (rural development model).

The framework aims to support the development of new regional visions for Australian agriculture, founded on competitive advantages that can be better maximised at the regional scale.

Australian agriculture is changing, driven by globalisation, industry deregulation, declining terms of trade, technological innovation, supply chains, consumer preferences and an ageing farm population (Productivity Commission, 2005). To remain competitive, Australian agriculture has continually made productivity improvements within the agri-industrial model, and this standardised approach continues to dominate Australian agriculture.

This focus on agri-industrial agriculture is causing a cultural shift towards a larger corporate business model of agricultural production, making many smaller family farm businesses uncompetitive and forcing them to leave the industry. Those family businesses that have remained have had to either develop new income streams and/or increase their scale of production, adopting more business-like approaches and structures. Family members are now often working off-farm, while new income is alternatively sought through diversification, value-adding and niche marketing, or a combination of these strategies in what is described as a rural development model of agricultural contribution.

Another major driver of change has been the increasing value being placed on environmental sustainability and rural amenity, which has supported the emergence of a post-productivist model of agriculture in Australia.

Despite these changes, community, industry and government still overwhelmingly focus on the contribution that agriculture can make to regional development through the agri-industrial production system. However, agriculture has substantively changed, and there is a need for new policy and program frameworks that support these multiple contributions, inclusive of the agri-industrial, post-productivist and rural development approaches. Such a framework would be important to support the ongoing sustainability and productivity of both corporate farms, and many smaller family farm businesses.

This project identified a range of physical, human, governance and institutional factors that are important to maximising the multiple contributions that agriculture can make to regional development. Regional assets such as social and human capital, natural resources, infrastructure/technology, and environment/amenity provide the foundations for regional development. Strong regional governance and institutions are important to balancing competing interests and making the overall system work, so as to maximise the opportunities presented by the different models.

For example, the Wet Tropics region has always had strong environmental values but these have only recently been combined with agriculture to generate new income streams for farmers through regional
supply chains and tourism. This has required new entrepreneurial thinking and investments along the supply chain, and the establishment of a new regional marketing organisation. Governments have provided some support, but this has tended to be disjointed and uncoordinated. This has highlighted the need for changes in roles and responsibilities within community, industry and governments to maximise agriculture’s contribution to regional development.

The proposed framework builds on a growing body of evidence internationally, showing that maximising a region’s potential is best achieved through place-based approaches to regional development, that leverage a region’s innate competitive advantages (Barca, McCann, & Rodríguez-Pose, 2012; OECD, 2006, 2012). These approaches need to be supported by higher level policies, but should be driven locally and focus on entrepreneurial innovation within business, industry, government and community sectors. While such approaches may benefit from government policies and programs to support agriculture’s ongoing contribution, their focus is on building regional capacity.

As part of a process of developing the framework, this research builds on this international experience by exploring these issues and agriculture’s contribution in the Wet Tropics of North Queensland (Figure 1). This approach contributes to our understanding of how agriculture is changing, and how its multiple contributions can continue to be developed through a place-based regional development approach. There is, however, a need for further research, development and extension into place-based approaches if these opportunities are to be fully realised.

Who is the report targeted at?

It is hoped that communities, businesses, industry, regional development bodies and Commonwealth, State, Territory and local governments use this report to better understand the varying contributions that agriculture can make within a region. These contributions are not mutually exclusive and can be successfully combined within a place-based approach to regional development.

The framework can enable and inform a national discussion about agricultural, environmental and rural development policy reform. It can also be used as a planning tool to assist regions and local communities to consider how agriculture might be supported to develop as part of a broader regional vision. The framework has been developed using the Wet Tropics of Far North Queensland as a case study, but the principles embodied in the framework and critical factors identified have been developed to be applicable to other regions.
Background

Place-based approaches to development encourage collaboration between a range of different actors, including industry, community, businesses and government, to tackle complex social, economic and environmental problems within a defined geographic location (Cantin et al., 2010; Tomaney, 2010).

These approaches provide an alternative to tackling what, in many regions, has become an entrenched problem of agriculture and rural community decline due to globalisation and economic reform. They do not involve a winding back of market reforms, but do suggest market failure does occur and the impacts need to be managed.
They also suggest that agricultural adjustment processes should involve a broad range of actors in a region or local community, depending on the scale of the unfolding change. This can be complex because industries and rural and regional communities have histories and cultures that can make change difficult. Addressing power and relationship issues among industries and communities can be critical to long term success (Campbell-Ellis, 2012). International research acknowledges the challenges of adopting a more integrated rural development approach.

Promoting integrated rural development poses numerous policy and governance challenges. It requires a less ‘defensive’ approach to rural policy and stronger coordination across sectors, across levels of government, and between public and private actors. It also requires a new focus on places rather than sectors, and an emphasis on investments rather than subsidies (OECD, 2006, p. 3).

The starting point for a place-based development policy is recognition that much of the knowledge needed to fully exploit the potential of a region is not readily available, and must be produced anew through a participatory and deliberative process that fundamentally involves local and external stakeholders. This approach builds on local values and sense of community, whilst keeping communities open to outside values. It is this sense of community that creates the social capital that determines the institutional environment in which development takes place, the capacity to generate consensus and trust, to resolve conflict and mobilise resources, the provision of public goods and, last but not least, the local willingness of different players to pay for development (Barca et al., 2012).

In Australia, federal and state governments originally established regional development programs to help address the impact of market deregulation and service cuts on regional communities (Beer, Clower, Haughtow, & Maude, 2005). The nation’s Regional Development Australia (RDA) policy and delivery approach is the latest manifestation of Australian and state governments support for regional development organisations and infrastructure (RDA, 2013). Through these programs, federal and state governments have sought to support regions by refocusing regional development as a local level problem and responsibility, encouraging engagement between local governments, businesses and organisations.

These regional development programs have sought to support local communities in addressing the challenges caused by economic reforms, by shifting some responsibility to the local level through the development of regional plans. However, financial power and budgetary control have been retained at a higher government level (Beer et al., 2005). Government bureaucratic silos and short-term competitive funding cycles can often limit, rather than encourage, regional development.

Australia is a diverse nation, with vastly different regions that boast different factors of production in terms of natural resources, infrastructure, supply chains, knowledge and skills, cultures and histories. All of these factors affect a region’s competitiveness and influence the role that agriculture plays in a region’s economy and communities. Place-based approaches to agriculture can enable exploration of, and response to, these different opportunities and constraints, so as to maximise the competitiveness and potential of every region.

**Objectives**

1. Develop a framework for quantifying and qualifying the contributions that agriculture makes to regional economies and communities, along with identifying constraints and opportunities that face agriculture.

2. Consider scenarios for how agriculture may develop within a region, the institutional arrangements for facilitating change and development, and provide an understanding of how to maximise the contribution of agriculture to these economies.

3. Identify and explore how regional and national trends are manifest in a ‘place-based’ context, and build strategies to facilitate the development of agriculture for the broader benefit of regions.
4. Engage federal, state and regional stakeholders and relevant networks that are involved in decision-making in respect to agriculture and regional development as part of developing the framework, so that the research supports the ongoing development of an agenda for agriculture's contribution to regional development, particularly in the pilot region.

**Methods used**

The research methodology involved a four stage process, inclusive of multiple research methods ranging from literature review and discussion paper development, focus groups, workshops, surveys, interviews and case studies.

In total, the project involved 175 participants including 48 face-to-face through the focus groups (Canberra 8, Brisbane 7 and Innisfail 19) and interviews (Wet Tropics 14), and a further 127 through an online community survey.

The methodology engaged with a range of stakeholders, including national and state policy makers, peak industry bodies, regional development organisations and community/industry leaders within the pilot region. A participatory approach was chosen, recognising that as the framework was developed, key end users would gain a better understanding of the benefits of taking a place-based regional development approach to development, and that this would foster ownership of the framework, particularly within the Wet Tropics pilot region.

It became clear from the literature and focus groups that agriculture and local communities had an interdependent relationship for effective place-based regional development. An online survey was, therefore, added to the research methods and designed to gain an understanding of the Wet Tropic’s communities’ connection with local agriculture. The multiple research methods enabled data and analytical triangulation to ensure reliability and validity of data and analysis (Silverman, 2001).

**Results/key findings**

The research developed a Place-based Agriculture Development Framework combining the three models (agri-industrial, post productivist and rural development) with eight critical factors important to maximising agriculture’s contribution to regional development. The three models provide different lenses to explore how agriculture can contribute to regional development. The eight factors include five assets (social capital, human capital, natural resources, infrastructure/technology and environment/amenity) that provide the foundation for agricultural development and three factors (balancing needs, strong regionalism and governance and institutions) that influence whether the different opportunities presented by the models are realised. Together the factors and models encourage an expanding vision of the contribution that agriculture can make to regional development based on a region’s competitive advantages (Figure 2).
Figure 2: Place-based Agriculture Development Framework

The eight factors and three models are further defined and explained below.

**Social capital** is the level of connectedness and trust of people and organisations within and between local communities (Cocklin & Alston, 2002; Onyx & Bullen, 2000; Woodhouse, 2006). Social capital reflects an ability to work together in a cooperative and coordinated way to tackle problems. It is important to have a cohesive approach to development within a region (bonding social capital) as well as strong links beyond the region (bridging social capital).

**Human capital** is important, as it is individual farmers, businesses and industry leaders who must be entrepreneurial and take the risks to identify new markets, and develop new enterprises and supply chains. This requires new knowledge and skills to be developed by individuals and businesses, and provides opportunities for new and younger farmers to enter into agriculture.

**Natural resources** including soils, water, topography and climate underpin the type of agricultural contributions that are possible within a region.

**Infrastructure/technology** are critically important as combining infrastructure and technology (transport, information and communication technologies and energy) with security of access to natural resources (land and water) can change the relative competitiveness of agriculture within a region.

**Environment/amenity** can underpin new industries and regional supply chains based on food safety and sustainability and regional tourism. They can also underpin increasing land values as rural amenity and lifestyle are increasingly sought after commodities.

**Balancing needs** emphasises that different agriculture businesses balance a range of needs according to varying economic, environmental and social values. Businesses may be focused on production within different models or have income streams outside of agriculture. The capacity within a region to recognise and enable agricultural businesses to manage what can be competing needs can influence a business’s ability to engage in development.

**Strong regionalism** was regularly expressed in the data through the need for industry and regional self-reliance post-deregulation. It also stresses the need for regions to speak with a strategic and coordinated voice, and for development to be controlled and driven regionally.
Effective governance and institutions were critical to creating a holistic and integrated approach important to expanding agriculture's contribution within a region. This includes the values and norms reflected through community, industry based organisations’, governments’, and increasingly corporations’, policies and regulations that mediate agricultural production and associated markets and supply chains.

The agri-industrial model (contributing through the supply of food and fibre within bulk commodity markets) remains the dominant model of agriculture in Australia. The model’s main focus is on increasing production and productivity to combat declining terms of trade through incorporation of new technologies and support for increasing scale of production (Marsden, 2003; Marsden & Sonnino, 2008).

The post-productivist model emphasises the role of agriculture in contributing to, and capitalising on, the aesthetic beauty of the surrounding environment and adopting environmentally friendly farming practices (Marsden, 2003; Marsden & Sonnino, 2008). Post-productivist agriculture is a more complex model that moves from a sole production focus, to engaging not only the farmer, but also the wider community through programs like Landcare, integrated catchment management and regional natural resource management. A key concern with the model is the need to balance environmental protection with financial viability, and the questionable sustainability of models reliant on government funding.

The rural development model makes a distinct move away from sector or industry focused agricultural sustainability towards regionally focused placed-based agricultural and rural sustainability (Marsden, 2003; Marsden & Sonnino, 2008). Some strategies of a rural development approach would include place/regional branding, value-adding, agri-tourism, and niche marketing. In some ways, the rural development model of agriculture requires an increasing professionalisation of those who work on farms and in rural businesses (Wolf, 2008).

This research supports earlier studies that are increasingly questioning the sustainability of the agri-industrial model (Darnhofer, 2010; Lawrence, 2013; Marsden & Sonnino, 2008; McShane, 2012). The post-productivist and rural development models provided opportunities to improve agriculture and rural sustainability by expanding the contribution that agriculture can make to regional development. The framework therefore positions these three models as building on each other, providing an opportunity to consider how agriculture can be part of a broader vision for regional development.

Implications for relevant stakeholders

In developing the framework, a key concern was the best way to organise roles and responsibilities amongst stakeholders so as to maximise agriculture’s contribution in place-based regional development. Stakeholders identified as important and engaged through the research included individuals and businesses along the agricultural supply chain, local rural community leaders, agricultural industry leaders and government departmental officers. As a result, the following key roles and responsibilities were identified for these four key groups:

Community: Community was at the heart of successful place-based regional development. This reaffirmed the importance of community capacity to place-based regional development. Community leadership and organisations were important for regional planning and decision making. Strengthening links between agriculture and the broader regional community was important to the development of new regional supply chains and industries within the rural development model.

Individuals and businesses: Individual health, leadership and entrepreneurial capacity was identified as critically important to maximising agriculture’s contribution within successful place-based regional development. It is these individuals and businesses who drive the change and take the risks necessary to make any new regional vision a reality.

Agricultural industry: Agricultural industry organisations were important independent voices bringing the needs of farmers and industry sectors to government. They can therefore lend support to
regional communities seeking to implement place-based regional development approaches. They also play a critical role in many regions, in cooperative marketing of commodities to large corporate millers and processors, maintaining the contribution from agri-industrial agriculture to regional development.

**Government:** Government (including Australian, State, Territory and local governments) have an important role to play in setting higher level policy frameworks and facilitating place-based regional development. This is also reflected in both this research and other studies, including internationally (Beer et al., 2005; OECD, 2006, 2012). This research and other studies confirm, however, the need for a greater devolution of power and decision-making to regional communities to determine priorities if the opportunities available through a place-based regional development approach are to be maximised.

**Recommendations**

1. Further test and refine the Place-based Agriculture Development Framework resulting from this research as an agricultural development tool within other regions, and by governments designing regional development policies and programs. Areas of particular focus should be:
   - Further developing and testing tools that enable the different models of agricultural contribution to be used by agricultural businesses, rural communities, industries and governments, to identify current and future contributions that agriculture can make to regional development.
   - Better understanding the importance of strong regionalism, governance and institutions in supporting place-based regional development. Particularly, identifying how current siloed government departmental policies and programs, and sector based industry approaches, can be modified to support place-based regional development.
   - Strategies to identify and prioritise assets that need to be further developed, so as to maximise a region's capacity to exploit regional competitive advantages.

2. Develop government and industry policies that ensure that large corporate and smaller agricultural businesses along the supply chain can continue to maximise their contributions to regional and national product. Areas of particular policy focus should be:
   - Maintaining transparency in supply chains and ensuring that markets are functioning in a way that creates a transparent distribution of profits along the supply chain.
   - Facilitating the further development of regional supply chains through supportive policy and regulatory environments, and investments in regional infrastructure, network and cluster development.
   - Where practical, supporting businesses to remain competitive. For example, by supporting the maintenance and development of farming models that aggregate production and supply through cooperative farming and marketing.

4. Australian and State governments (in consultation with business, industry and community) review RD&E policies and programs as part of the development of a new RD&E framework to increase the focus on supporting place-based approaches.

RD&E priorities should reflect the broader contributions that agriculture can make through all three models (agri-industrial, post-productivist and rural development) to regional and national development. A project's capacity to build regional competitiveness should be key criteria for determining research funding. Further research also needs to be undertaken in place-based approaches to support regional development, particularly the critical factors and the changing roles and responsibilities within communities, industries and governments.
5. Communities, industries and governments adopt place-based approaches when developing and implementing regional development plans.
Introduction

This project has focused on designing a place-based framework to account for, and maximise, the multiple contributions that agriculture can make to a region. The framework is designed to be used by communities, industries and governments to support agricultural development within a region.

There is great regional diversity in Australia, with different types of agricultural production carried out in different regions. Regions therefore face different challenges as a result of the enormous change that has been occurring in agriculture. Globalisation, industry deregulation, declining terms of trade, technological innovation, changing supply chains and consumer preferences and an ageing farm population (Productivity Commission, 2005) are forcing many farmers to leave the industry. Others are having to look to new ways to generate a livelihood from agriculture.

Traditionally, maximising agricultural production in Australia has focused on increasing productivity within food and fibre commodity-based sectors. This agri-industrial model of production has made Australian agriculture one of the most productive and competitive in the world. Declining terms of trade, however, have continued to erode the profitability of agriculture within this model. The model’s commodity-based approach has also limited the industry’s ability to look across sectors, and to regional competitive advantage, to consider new commodity and non-commodity products that can be produced from agriculture.

Place-based approaches, on the other hand encourage cross sector and industry analysis of opportunities for economic development. The development of a place-based agriculture development framework was therefore seen as an opportunity to explore more broadly how agriculture could contribute to regional development and farmer livelihoods.

The framework was developed through a literature review, focus groups, interviews, an online survey and case study research. Through these methods, three models of agricultural development were identified, further developed and tested: agri-industrial, post-productivist and rural development (Marsden, 2003). These models emphasise the production of different commodity and non-commodity outputs from agriculture.

The agri-industrial model describes the traditional role of agriculture contributing to a region through the supply of food and fibre marketed as bulk commodities. The post-productivist model emphasises the role of agriculture in environmental management and contributing to a region’s aesthetic beauty and regional lifestyle. The rural development model focuses more broadly on agriculture and rural sustainability through, for example, place/regional branding, value-adding, agri-tourism and niche marketing of commodity and non-commodity outputs.

Eight critical factors were identified as important to maximising the contribution of agriculture from the three models. These included five regional assets (social and human capital, natural resources, infrastructure/technology, and environment/amenity) which provide the foundations for regional development. Strong regional governance and institutions was important to balancing competing interests and making the overall system work, in order to maximise the opportunities presented by the different models.

The framework combines the three models with the critical factors enabling regional communities, farmers, industries and policy makers to explore alternative agricultural development strategies for a region. Maximising the contribution of agriculture relies on understanding the various opportunities each model presents, and the region's critical factors. These can then be combined to determine what commodity and non-commodity outputs (OECD, 2001) can be produced competitively. Identifying and maximising a region's competitive advantages is, therefore, central to place-based regional development.
After describing the project's objectives and methodology, this report is structured around a series of chapters. Chapter 1 details the rationale for taking a placed-based approach, and the context for agricultural development in Australia. Chapters 2 and 3 detail the development of the framework and the need for changes in roles and responsibilities in relation to communities, businesses, industries and governments to maximise the contribution of agriculture to a region. Chapter 4 details a methodology for applying the framework within a region or by a policy maker. Chapter 5 provides a summary of four case studies that explore the different models of agriculture within the case study region. Finally, Chapter 6 provides a summary of the project's findings detailing the conclusions, implications and recommendations. Further detailed results and analysis are included as appendices.
Objectives

The project objectives and methodology emerged from RIRDC’s interest in determining how to capitalise on the regional diversity within agriculture across Australia. The Far North Queensland region was chosen for one of the projects, and the final Terms of Reference (see Terms of Reference in Appendix 7) and objectives were developed through an iterative process of consultation between RIRDC and The Cairns Institute, James Cook University. The objectives and related methodology were designed to use the Wet Tropics of North Queensland as a case study, with the findings and framework having broader application to other regions.

The objectives of this project were to:

1. Develop a framework for quantifying and qualifying the contributions that agriculture makes to regional economies and communities, along with identifying constraints and opportunities that face agriculture.

2. Consider scenarios for how agriculture may develop within a region, the institutional arrangements for facilitating change and development, and provide an understanding of how to maximise the contribution of agriculture to these economies.

3. Identify and explore how regional and national trends are manifest in a ‘place-based’ context, and build strategies to facilitate the development of agriculture for the broader benefit of regions.

4. Engage federal, state and regional stakeholders and relevant networks that are involved in decision-making in respect to agriculture and regional development as part of developing the framework, so that the research supports the ongoing development of an agenda for agriculture's contribution to regional development, particularly in the pilot region.
Methodology

The research methodology involved a four stage process that included the following methods: literature review, discussion paper, focus groups, workshop, survey, interviews and case studies.

The participatory methodology engaged with a range of stakeholders, including national and state policy makers, peak industry bodies, regional development organisations and community/industry leaders within the pilot region. A participatory approach was chosen, recognising that as the framework was developed, key end-users would gain a better understanding of the benefits of taking a place-based regional development approach to develop and foster ownership of the framework, particularly within the Wet Tropics pilot region.

It became clear from the literature and focus groups that agriculture and local communities had an interdependent relationship for effective place-based regional development. An online survey was therefore added to the research methodology to assess broader community perceptions of agriculture and its contribution within the Wet Tropics region.

The online survey was designed to gain an understanding of the Wet Tropic’s communities’ connection with local agriculture. The multiple research methodology enabled data triangulation to ensure reliability and validity of data (Silverman, 2001).

Stage 1 – Desktop analysis and discussion paper

A desktop review of national and international literature was undertaken to inform the research and develop a discussion paper to engage community, industry and government. Key issues explored in the review and discussion paper included:

- how the contribution of agriculture is currently considered nationally and internationally;
- a demographic analysis of agriculture within the pilot region;
- a history of agriculture within the Wet Tropics pilot region and a summary of major changes and policy interventions and the impacts these have had; and
- an exploration of the current issues facing the region including future challenges and opportunities within the context of national policy agendas.

The discussion paper has been published separately and can be downloaded at http://eprints.jcu.edu.au/30913/.

Stage 2 – Stakeholder consultations and workshop

Initially, a workshop was planned to bring regional representatives from industry and community together with state and national policy makers to discuss key issues identified in the literature review. However, it became clear during this consultation phase that greater engagement would be achieved through three focus groups Canberra, Brisbane and Innisfail.

Focus groups involved between six and 10 participants, who may be from across target groups, depending on availability of participants (Rabiee, 2004). In Innisfail, 19 people attended so this group was broken into three smaller groups for discussions. Focus group and interview participants were initially identified using theoretical sampling techniques (Silverman, 2001) and, subsequently, through a snowball technique where participants recommended others who could inform the research (Noy, 2008).
The following individuals, groups and organisations were identified as important participants within the research project through this process:

- farm family businesses in the pilot region;
- agribusiness leaders and managers with businesses in the pilot region;
- regional/state and national industry bodies;
- regional development organisations;
- agriculture research development and extension staff engaged in the pilot region;
- government officials at the local/state and federal levels engaged in agricultural regional development policy and program development and implementation; and
- regional communities within the Wet Tropics pilot region.

The Canberra focus group had a higher proportion of government representation, while the Brisbane and Innisfail groups had a higher proportion of agriculture industry and community representation.

Participants in the focus groups included representatives from Canegrowers, Dairy Farmers, Growcom, Regional Development Australia Far North Queensland & Torres Strait, Advance Cairns, and Terrain Natural Resource Management. Federal, Queensland and local government representatives were also engaged and participated in informing the research through the focus groups.

The discussion paper was circulated to participants and, through these networks, built knowledge about the project. The paper also encouraged consideration of the key challenges and opportunities facing agriculture, and the role of place-based regional development as a way to support agriculture's ongoing contribution. This engagement was important to building networks within the project, to support the ongoing application of the regional place-based framework being developed.

The three broad themes identified in the discussion paper provided a basis for focus group discussion and analysis. These were: defining agriculture and its contribution, critical success factors/roles and responsibilities and future challenges and opportunities. Case notes recorded major discussion themes. Focus groups and workshop discussions were digitally recorded and transcribed.

**Stage 3 – Framework development and testing**

The focus groups, combined with the literature review, formed the basis for the development of the draft framework. This was then tested through interviews and further developed based on results from the online survey and case studies.

**Focus groups and interview analysis**

Content analysis was used to analyse the raw qualitative data from the focus groups and workshop. Content analysis is a systematic and objective method, which allows inferences to be drawn about themes within the data based on the context and environment from which the data were collected (Downe-Wamboldt, 1992). This method involves creating and designing categories, testing the validity and reliability of these categories, redefining the categories if necessary, and coding the data (Downe-Wamboldt, 1992). This procedure uses a combination of predefined themes and exploratory theme analysis to generate and categorise content.

Analysis was cross-checked by another team member to evaluate the face validity of the individual themes, as well as to make recommendations towards the clustering of subthemes to parent themes (Appendix 1).
This analysis, combined with the literature review, was used to develop a draft theoretical place-based agriculture development framework. This was then tested through semi-structured interviews with community, industry and government leaders within the Wet Tropics pilot region and through an online survey.

The interviews also enabled agriculture's contribution, critical factors and roles and responsibilities within a place-based regional development framework to be further explored. Interview participants were shown a draft of the placed-based agriculture development framework during the interview where it was discussed.

**Case study analysis**

Case study research was undertaken following the development of the draft framework, to further explore and demonstrate the frameworks application within a real world context (Yin, 2009). The case studies also enable a more in-depth discussion and analysis of the contribution that agriculture makes within a regional place-based context, and how agriculture can and has developed within a region (Appendix 2 to 5).

Critical factors that support agriculture's contribution within a place-based regional development framework, and the roles and responsibilities of individuals, communities, industry and government in supporting place-based regional development within the framework, were also further explored. Research data including scholarly and grey literature, focus groups workshop, interviews and case studies were integrated in the final development of the place-based regional development framework.

**Community survey analysis**

The literature review and focus groups identified the importance of the relationship between agriculture and local communities to the success of place-based regional development approaches. A survey was therefore developed to explore this relationship (Appendix 6).

Community members (N=127) from the Wet Tropics, North Queensland were invited to complete a questionnaire about their perceptions toward agriculture and their community. Participants included:

- 39 males and 88 females, whose age ranged from 21 to 77 years (M=48.50, SD=12.62);
- Of the participants, 50 percent reported being married, 27 percent reported living as domestic partners and 73 percent reported having children;
- Participants reported living in the region for an average of 20.32 years (SD=14.66), with 55.6 percent coming from a rural background;
- The majority of participants reported higher levels of education (35.5 percent Bachelor degree, 11.3 percent Graduate diploma, 10.5 percent Masters degree) and most identified as working in the agriculture, forestry and fishing (20.2 percent or education and training (23.4 percent) sector;
- The majority of participants worked as professionals (32.8 percent) or managers (16.4 percent) and earned an income of $50,000 to $74,999 (15.5 percent) or $75,000 to $99,999 (24.4 percent). However, 29.3 percent of participants reported an income of $35,000 to $49,999 or below; and
- Participants reported belonging to an average of two to three community groups.

Recruitment strategies included distribution of the questionnaire link and information sheet through email networks of community organisations and businesses in the region. Further, distribution included posting of the link on community organisation social media pages for exampleand websites
as well as through newsletters of community networks/organisations, schools and businesses. Advertisement in local/regional newspapers (advertising same information distributed through newsletters) was also utilised, as well as the snowballing technique. Only participants who were over 18 years of age and lived in the Wet Tropics were invited to participate. Participants were also provided the opportunity to go into a draw to win one of three $100 shopping gift vouchers as compensation for participation.

In total, the questionnaire package included 59 items. Factors assessed included demographic factors such as age, gender, income, education and shopping preferences; Farming Attitudes (adapted from Harmon & Maretzki, 2006; Hillman & Buckley, 2011; Sharp & Smith, 2003); Farming Roles (generated by research team); Farming Contribution (generated by research team); Support of Farming (generated by research team); Farming Social Capital (Sharp & Smith, 2003); and Social Capital (general) (adapted from Onyx & Bullen, 2000; Woodhouse, 2006). See Appendix 5 for the complete questionnaire. Factor analysis and internal consistency testing was conducted to identify subscales of the Farming Attitudes scale.

The results indicated three subscales which included Importance and Value of Farming (items 1, 2, 6-9), Farming Careers (items 3-5) and Regional Production (items 10-13). The Social Capital scale (general) as indicated by Onyx & Bullen (2000) and Woodhouse (2006) included four subscales of Bridging (items 1-4), Informal Associations (items 5-9, 13, 14), Community Engagement (items 10-12) and Trust (items 15, 16).

Stage 4 – Research paper and strategic agenda reporting

A final workshop was planned with key stakeholders to feedback the results of the research, and refine the framework. The Terrain Industry Advisory Group meeting was used as this forum to feedback results to a cross section of local agricultural industry leaders, tourism, regional development and local government leaders. Further feedback sessions are planned following the release of this final report.
Chapter 1: Background

This chapter explains what is meant by a place-based approach. It provides an historical context for the development and application of a regional place-based agriculture development framework in Australia.

Place-based approaches encourage collaboration between a range of different actors including industry, community, businesses and government to tackle complex social, economic and environmental problems within a defined geographic location (Cantin et al., 2010; Tomaney, 2010). They provide an alternative approach to tackling what, in many regions, has become an entrenched problem of agriculture and rural community decline as a result of globalisation and economic reforms.

Prior to the 1970s, agriculture was regulated through a range of ‘stabilisation’ schemes that controlled production and prices of major agricultural commodities (Lawrence, 1987; McKay, 1965). During the 1980s and 1990s, economic reforms drove industry deregulation, on the basis that Australian consumers could not be expected to subsidise agriculture through higher domestic prices (Botterill, 2005). As a result of deregulation, Australian agricultural industries were no longer shielded from declining terms of trade. Communities, industries and governments were confronted with the growing reality that many (particularly smaller family) farming businesses were struggling for survival (Potter & Tilzey, 2005; Tonts & Jones, 1997). Today, many continue to leave the industry.

Place-based approaches suggest that adjustment processes should involve the broad range of actors in a local community, not simply the dominant industry being impacted. This can be difficult because established industries have institutional power and relationships which they can use to resist change (Campbell-Ellis, 2012).

International research acknowledges the challenges of adopting a more integrated regional development approach.

Promoting integrated rural development poses numerous policy and governance challenges. It requires a less ‘defensive’ approach to rural policy and stronger co-ordination across sectors, across levels of government, and between public and private actors. It also requires a new focus on places rather than sectors and an emphasis on investments rather than subsidies (OECD, 2006, p. 3).

The impacts of globalisation are causing a rethink of economic development, and the way that it occurs. The importance of human capital and innovation, business clusters, supply chains and institutions has created new ways of thinking about development (Barca et al., 2012). In effect, globalisation has made place more, rather than less, important as success is increasingly related to a regional capacity to identify, develop and leverage local competitive advantage.

The emergence of regional development policy in Australia

In Australia, agriculture has traditionally focused on remaining competitive through sector based approaches, increasing productivity through technological innovation while supplying bulk commodities to world markets (Carroll, 2010; Productivity Commission, 2005). Farmers have increased their scale of production, adopting new technologies to improve efficiencies and meet the demands of the market for consistent high quality products.

Productivity increases have meant fewer jobs in agriculture, contributing to the general population decline in many rural communities (Australian Bureau of Statistics [ABS], 2003). Improved transport infrastructure and communication technology have also combined with government cuts to services, changing the way that rural communities accessed goods and services and contributing to the decline
of many rural service centres (Bureau of Infrastructure, Transport and Regional Economics [BITRE], 2014).

Governments began responding to rural community decline through the development of regional development programs in the 1990s. Beer et al. (2005) identified the interaction of four key factors that influenced regional development policy and practice in Australia. These included: (i) the external philosophies of government and society; (ii) international policy transfer; (iii) agency learning and experience; and (iv) political pressure and conflict.

In Australia, governments supported the establishment of regional development organisations, funding for regional infrastructure and activities to improve the skills of regional development practitioners. Regional Development Australia (RDA) is the latest manifestation of Australian and state governments' support for regional development organisations and infrastructure (RDA, 2013).

These regional development programs shifted responsibility for addressing the challenges created by globalisation and economic reform to the local level through the development of regional plans. Regional development programs broadened the focus of government interventions from farm businesses to include the broader industry and community. Government funding became available through competitive grant programs for diversification and value-adding projects.

However, financial power and budgetary control over programs has been retained at a higher government level. In the case of regional development policy, it is government that decides how much money is to be made available, for which time period, to which types of devolved agencies, and what policy remit each agency should be given (Beer et al., 2005).

To effectively engage in place-based regional development, governments should devolve power as well as responsibility to regional communities. There is limited evidence of this occurring in Australia. Bureaucratic silos too often inhibit, rather than enable, change.

Government, however, remains a critical player in creating the environment for growing agriculture in Australia. Government regulates land tenure, environmental protection and foreign investment. It manages trade negotiations and customs and quarantine laws. Investments in infrastructure, research, development and extension can influence regional priorities and the establishment of new industries. Government policy and programs can encourage or discourage a cooperative approach to regional development (for example, depending on the way that competitive grant programs are delivered).

The emergence of post-productivist and rural development models of agriculture

At the same time that globalisation and industry deregulation began contributing to rural community decline, environmentalism emerged as a social movement. Environmentalists began to call into question the sustainability of many agricultural practices.

There was an increasing requirement for agriculture to contribute to the environment through programs like Landcare, Integrated Catchment Management and Property Management Planning, that emerged in the 1980s and 1990s. These programs, in line with parallel national economic reforms, emphasised the importance of self-reliance, rather than government intervention, to manage declining terms of trade and environmental sustainability (Dale, McKee, Vella, & Potts, 2013).

Groups of consumers influenced by concerns about environmental sustainability, and lifestyle diseases like diabetes and obesity, created new markets for food. Organic agriculture and regional supply chains including farmers markets have emerged as new opportunities for some farmers to generate a livelihood (McCarthy, 2014).

This combination of factors has encouraged expansion and recognition of agriculture’s contribution beyond traditional bulk commodity food and fibre production. These included post-productivist
contributions to environmental management, rural amenity and lifestyle, and rural development contributions in the form of industry diversification, value-adding and niche marketing based on regional competitive advantages.

These post-productivist and rural development contributions of agriculture remain small but are now well established. They provide new opportunities to explore how agriculture can contribute to regional development, and a revitalisation of rural and regional communities.

Understanding how to maximise the value of agriculture’s multiple contributions within a place-based regional development context provides an opportunity to identify new strategies (particularly for smaller family farmers) to remain profitable and sustainable. It also suggests the need to broaden agricultural policy beyond a singular focus on sector and commodity-based plans to increase productivity as a way to remain competitive.

**Sector-based planning in Australian agriculture**

At the national level, the National Farmers' Federation (NFF), agriculture’s peak industry body, has released a new ‘Blueprint for Australian agriculture’, a sector wide attempt to set out a sustainable path for Australian agriculture to 2020 and beyond (National Farmers’ Federation, 2013). The Australian Government has developed a national food plan as a framework for agriculture’s future development (Department of Agriculture, Fisheries and Forestry, 2013) while the Queensland Government is developing a strategy to double the value of agricultural production by 2040 (Department of Agriculture, Fisheries and Forestry, 2012).

While these plans reflect a renewed focus at the national and state level on the future of agriculture, overwhelmingly, they focus on continuing to increase agricultural productivity. The recently elected Queensland and Australian Governments have indicated that they wish to continue this trend, committing to double agricultural production with a particular focus on northern Australia (Department of Agriculture, Fisheries and Forestry, 2012; Liberal National Party, 2013).

Agricultural trends over the past three decades, however, suggest that relying solely on productivity increases to remain competitive will not guarantee longer term survival or sustainability, particularly for smaller farm businesses (Carroll, 2010; Productivity Commission, 2005). There are also indications that productivity improvements may be plateauing (Keating & Carberry, 2008).

**The need for a new agriculture development policy framework**

The terms of reference for the recently announced ‘Agricultural Competitiveness White Paper’ (Department of Prime Minister and Cabinet, 2013) provide an opportunity to develop new policies and programs that could leverage place-based and sectoral approaches. A place-based approach to agricultural development policy would move beyond a singular focus on productivity increases within an agri-industrial model to remain competitive. Emerging post-productivist and rural development models would increasingly be seen as opportunities to further develop agriculture within a region.

These three models have tended to emerge in isolation or in competition with each other (Marsden, 2003). Capitalising on the opportunities these new models provide for corporates, farm families and rural and regional communities requires entrepreneurial innovation, new knowledge and skills, and strengthening links between agriculture, local communities and complimentary industries.

Communities can take on a broader responsibility for the socio-economic and environmental sustainability of agriculture within a place-based framework, as they become increasingly engaged in and take responsibility for their own future. By doing so, place-based frameworks emphasise agricultural and regional sustainability to be a regional issue that exists in non-agricultural sectors. Local communities, however, need to demonstrate support for local farmers and industries (Granvik, Lindberg, Stigzelius, Fahlbeck, & Surry, 2012; Maxey, 2006; Moon & Griffith, 2011).
Implementation of a regional place-based framework still places great responsibility for change and sustainability onto the farmer. Farm families recognise the importance and influence of societal issues on farm sustainability. In general, they see opportunities and have positive attitudes towards adoption of alternative practices and non-food production on farms, though can be constrained by financial and personal family considerations (Cocklin & Dibden, 2005; Darnhofer, 2010; Maxey, 2006). These factors may influence the adoption of regional place-based strategies that farmers consider financially risky or involve great changes to lifestyle and identity. Farmers and rural communities, therefore, need to be supported if the significant opportunities to further develop agriculture through place-based regional development are to be realised.

Key strategies that would need to be considered in adopting a place-based regional development approach include rescaling, respacing, and reconnecting (Kneafsey, 2010). Rescaling emphasises the need to shift power to regional centres, so that these centres can direct and implement policies that are effective for the region, and meet regional needs. This shift is, in most cases, not a shift of government but the development of partnerships with private organisations at the regional level. This type of partnership helps establish with the regional community feelings of integration and involvement with decision-making.

Resspacing refers to the regionalisation of foods but not necessarily food networks; that is, developing a market for foods that are known in the region or that are traditional to the region (Kneafsey, 2010). This particular concept of Kneafsey’s may be somewhat limited in the Australian context considering the cultural connection to food is not as strongly regionalised as it is in European countries. Nonetheless, perhaps taking this concept and applying it to the idea of developing speciality foods of niche markets for particular food and food-related items is a concept that can be, and is, utilised in an Australian context (Kneafsey, 2010). However, as with other strategies for supporting agriculture’s multiple contributions, the effectiveness of regionalisation or relocalisation of food is dependent on the existing systems and networks such as community support and infrastructure (Marsden, 2010).

Reconnection, Kneafsey’s (2010) final strategy, refers to reconnecting communities with local food networks which emphasise the value and benefit of consuming these products over those from centralised markets. This strategy encourages urban centres to reconnect to local regional centres, emphasising the higher quality of product compared to centralised markets through concepts of ‘fresh, healthy and wholesome’. This strategy presents important implications for rural sustainability, as by reconnecting local consumers or community with farmers, new social and economic networks are established at the local level and contribute towards the innovation necessary to compete with centralised markets (Marsden & Smith, 2005).

Through these three strategies of adopting a regional place-based framework, the regional governance body is tailoring policy appropriate for the region, establishing clearer links between producer and consumer (rescaling), extending markets that are competitive at the international level (resspacing) and strengthening regional place-based markets (reconnecting).

Australia is a diverse nation with different regions having access to different factors of production in terms of natural resources, infrastructure, supply chains, knowledge and skills, cultures and histories. All of these factors affect a region's competitiveness and influence the role that agriculture plays in a region’s economy and communities. Place-based approaches provide a new way to explore the opportunities and constraints to agriculture’s development at the regional scale.
Chapter 2: Developing a Place-based Agriculture Development Framework

Chapter 2 explains the final framework that emerged from the research, and how it was developed. It sets out the rationale for the different parts of the framework, how they are interrelated, and why each is important to successful place-based agricultural development within a region.

The research developed a Place-based Agriculture Development Framework (PADF) combining three models of agriculture (agri-industrial, post-productivist and rural development) with eight critical factors important to maximising agriculture’s contribution to regional development. The three models provide different lenses to explore how agriculture can contribute to regional development. The eight factors include five assets (social capital, human capital, natural resources, infrastructure/technology and environment/amenity) that provide the foundation for agricultural development, and three factors (balancing needs, strong regionalism and governance and institutions) that influence whether the different opportunities presented by the models are realised. Together, the factors and models encourage an expanding vision of the contribution that agriculture can make to regional development based on a region’s competitive advantages (Figure 3).

Figure 3: Place-based Agriculture Development Framework

The development of the Framework is discussed in more detail in the following sections.

Models of agriculture

The research highlighted the multiple contributions that agriculture can make to regional development. Three models of agriculture, described as agri-industrial, post-productivist and rural development, were identified (Marsden, 2003) and found to be operating within the Wet Tropics region of North Queensland. They were useful in building the research teams' understanding of the multiple contributions that agriculture can make to regional development.

The traditional agri-industrial model of production (supplying food and fibre within sectoral bulk commodity supply chains) remains the dominant model of agriculture in the Wet Tropics. The post-
productivist and rural development models, however, are becoming increasingly important to regional development, reflecting experiences in Australia and internationally (Marsden & Sonnino, 2008; OECD, 2001; Queensland Farmers’ Federation, 2013).

Although theorised as alternative paradigms (Marsden, 2003; Marsden & Sonnino, 2008), this research demonstrates how they can be synergistic and how some farmers are increasingly leveraging aspects of each model to generate a livelihood. For example, farmers who have diversified into agri-tourism leverage post-productivist and agri-industrial systems to generate additional value by creating a tourism experience. They still, however, see themselves within the agri-industrial model as it remains the dominant income source, with the other enterprises adopted as strategies to combat declining terms of trade or shrinking access to supply chains.

The results also demonstrate how the agri-industrial system, although traditionally focused on a sector approach to increasing productivity to remain competitive, can benefit from taking a place-based approach. For example, farm profitability of agri-industrial sugar and dairy production in the Wet Tropics is dependent on managing supply and demand within the regional supply chain (see Agri-industrial case study Appendix 2).

The PADF that has been developed combines all three models, recognising that each remains important in contributing to regional development. The focus should be on how to maximise the contribution of each based on a region’s competitive advantages, which may also change over time. For example, transport or telecommunication infrastructure can open up new markets and supply chains, as can new trade agreements. These may change the relative competitiveness of these different models of production.

The remainder of this chapter discusses each model in the context of the research results, as lens’ through which agriculture can be viewed. Rather than as competing paradigms, they are integrated, in effect creating an expanding vision of what agriculture can contribute within a regional development context.

**Agri-industrial lens**

The agri-industrial lens aligns with traditional views of agriculture and food, fibre and timber production. The agri-industrial themes that emerged from the focus group analysis are contained within the lens (Figure 4). The research analysis confirmed the relative simplicity of this lens with farmers viewed as producing commodities within well-defined sectors. Actors within the agri-industrial lens including farmers, industry bodies, departments of agriculture, and private sector service providers continue to focus on production and sectoral markets as the main way to create a livelihood and maintain viability.

These themes reflect other studies highlighting that the agri-industrial lens is increasingly generating questions about the viability and sustainability of agriculture, particularly as it relates to farm family businesses (Darnhofer, 2010; Marsden & Sonnino, 2008; McShane, 2012). For instance, Darnhofer (2010) found that although farm families demonstrated flexibility and adaptability in the farm business system through sourcing off-farm income, this was also a source of stress and conflict for the farm family. This finding is supported by McShane (2012), who found that family members who had multiple roles to manage, such as off-farm employment, were more likely to report high levels of distress. Such distress and role conflict places individuals at risk of burnout and job withdrawal (Maslach, Schaufeli, & Leiter, 2001).

In the Wet Tropics of North Queensland, deregulation of industries and an ageing farm population has seen a decline in the number of small farms and increasing levels of off-farm work to sustain rural businesses reflecting other research (see Anderson, 2004b; Thompson & Prideaux, 2010). This is despite the more than $100 million (sum of individual industry adjustment packages) that has been invested in industry adjustment in Far North Queensland, in response to industry deregulation and rural decline (Griggs, 2002; Thompson et al., 2010). The industry adjustment packages
overwhelmingly focused on increasing productivity and scale of production within the individual sectors being deregulated. There has been a growing realisation, however, that production is only one component of profitability.

For example, for decades the Atherton Tableland’s dairy industry has focused on growth, but is today confronted with the realisation that in a deregulated market, their regional competitive advantage is fresh milk. So, despite $30 million in government investments in projects like GrowMalanda to support production through value adding following deregulation, if an industry does not have a competitive advantage, profitability does not follow.

Research participants regularly reflected that agriculture could significantly increase production in-line with state and federal government’s stated goals (Department of Agriculture, Fisheries and Forestry, 2012; Liberal National Party, 2013). However, this did not necessarily mean they could sell additional production at a profit.

This has led to concern that public discourse about doubling agriculture production through new developments in northern Australia did not reflect market realities post government deregulation. Government support for new industry development should therefore be based on enhancing regional competitive advantage; solutions may lie in other models or industries within a region.

**Post-productivist lens**

The themes within the post-productivist lens (Figure 5) identified from the focus groups emphasise farming and agriculture capitalising on the aesthetic beauty of the surrounding environment, and adopting environmentally friendly farming practices that protect the natural surroundings and provide ecosystems services. The post-productivist agriculture lens takes a more complex view of agriculture, moving from a sole focus on production, to engaging not only the farmer but also the community through programs like Landcare.
**Figure 5: The post-productivist lens and related themes**

There were varying motivations identified in the research for engagement in this model, including from the desire to be a good land steward, to securing government and community investment in land management. Key concerns for those viewing agriculture through this lens include the need to balance environmental protection with financial viability, and the questionable sustainability of approaches driven by government or reliant on government funding. These are of particular concern where agriculture is facing increasing pressures to become more productive whilst having to comply with increasing demands for environmental sustainability (Marsden, 2003).

This research highlighted a lack of clarity within the post-productivist lens in relation to duty of care, where farmer, community and government responsibilities begin and end, and who should pay. Where the responsibility for environmental sustainability is placed solely on producers by the wider public and government, this can create discontent amongst producers (Cocklin, Dibden & Mautner, 2006; Marsden 2003). This is particularly the case where governments emphasise environmental protection based on regulation, rather than a balanced approach that includes incentive-based ecosystem services to achieve environmental outcomes.

In the Wet Tropics region, farmers face increasing environmental regulations (many related to World Heritage Area protection) and encouragement to engage in community-based environmental management through Landcare and Catchment Management supported by the regional natural resource management body Terrain. Programs like Reef Rescue, which have provided grants for adopting or implementing more sustainable farming practices, were viewed positively.

The sustainability of post-productivist systems, however, was more likely to be achieved where these systems generated additional value through the supply chain. This occurs where consumers pay more for the product, or because of corporate private sector regulation. Examples include the abolition of caged eggs, or the push to develop the Bonsucro accreditation scheme and market for sustainable sugar in Australia (Courtney, 2012).
Rural development lens

Figure 6: The rural development lens and related themes

The rural development lens is the most complex, building on the agri-industrial and post-productivist lens’ to incorporate diversification, value-adding and niche marketing as strategies to increase viability and sustainability reflected in the focus group themes (Figure 6). This can require new leadership and entrepreneurial skills as farmers break out of traditional sectoral identities to develop new networks and enterprises.

The rural development lens highlights the need for an increasing professionalisation of those who work on farms and in rural businesses (Wolf, 2008). Within the Wet Tropics region, this approach to rural development is evident in the establishment of local food networks (such as the Regional Food Network and Real Food Network), and the marketing of niche products and services. These service local markets and leverage the region’s tourism industry to supply products and services.

Agriculture is also viewed beyond individual commodity sectors, and becomes a priority within regional development organisations plans, including Regional Development Australia, Tablelands Futures Corporation and Advance Cairns (Advance Cairns, 2011; RDA, 2012; Tablelands Futures Corporation, 2013).

This approach encourages a greater engagement between local communities and farmers through these networks and cross sectoral engagement in industry development. The community survey results (Appendix 6) highlight the strong support within the Wet Tropics community for agriculture, with approximately 95 percent of the participants saying that they value farming and agriculture, and 98 percent of survey participants were willing to support locally produced and supplied food goods. Moreover, approximately 75 percent of the participants were also willing to pay more for locally produced food. This emphasises the opportunity for farmers to engage in regional supply chains, although the size of these markets limits opportunities.

The approach also builds regional independence and food security, providing local, often smaller family businesses with new sources of income from agriculture. Quantifying contributions becomes difficult as economic activity is often generated and recorded within other sectors, for example manufacturing, retail and tourism.
Integrating the models within the Framework

The three lenses encourage a deeper understanding of the total potential demand for commodity and non-commodity outputs from agriculture within a region. Integrating the three models as lenses within the framework therefore encourages an expanding vision of the contribution that agriculture can make to regional development (Figure 7). The X axis acknowledges the increasing complexity in the system, reflected in the results as we move from agri-industrial through post-productivist to rural development approaches. The Y axis similarly represents the increasing contribution agriculture can make to regional development. Agriculture's contributions reflected on the Y axis incorporate both tangible and non-tangible assets, which may include environmental and social and cultural values.

The first lens (agri-industrial) is positioned closest to the axis as this is the established model of production and the least complex of the systems. It produces the least contribution to regional development as it is focused solely on agricultural production within bulk commodity markets.

The post-productivist lens has increasing complexity and contribution, as it acknowledges that agriculture can also make contributions to environmental sustainability and regional amenity. These are intrinsic values and contributions that are becoming increasingly important for regional environmental and cultural sustainability. They incorporate and expand on the contribution the agri-industrial system can make to regional development.

The rural development lens is the most complex and produces the largest contribution, as it expands further on the agri-industrial and post-productivist lens through diversification and the development of new supply chains and industries. Agriculture, therefore, makes multiple contributions to regional development through traditional bulk commodity markets, environmental stewardship and additional income and employment generated not only in agricultural industries but in complementary industries, for example, manufacturing, tourism and the emerging knowledge economy.

Figure 7: An expanding vision of the contribution agriculture can make to regional development

The rural development lens is the most complex and produces the largest contribution, as it expands further on the agri-industrial and post-productivist lens through diversification and the development of new supply chains and industries. Agriculture, therefore, makes multiple contributions to regional development through traditional bulk commodity markets, environmental stewardship and additional income and employment generated not only in agricultural industries but in complementary industries, for example, manufacturing, tourism and the emerging knowledge economy.
Critical factors for regional place-based agricultural development

The focus group analysis identified social capital, human capital, resources and infrastructure, balancing needs and strong regionalism as critical factors for agriculture’s successfully contributing to place-based regional development (Appendix 1).

This analysis was later refined in the development of the framework with social and human capital, natural resources, infrastructure/technology and environment/amenity identified as regional assets that provide the foundations for agricultural development. Balancing needs, strong regionalism and governance and institutions make up the remaining eight critical factors important to successful place-based regional development. These factors are positioned in the middle of the framework, highlighting their role in mediating and influencing whether the different opportunities presented by the models are realised (Figure 3).

Other research has identified similar factors important to regional development. The OECD (2012) identified enabling infrastructure, education, innovation, natural resources and the ability to maximise the opportunities provided by a geographic location as important to strong regional growth. Reflecting this international research, the Regional Australia Institute (2013) release the [In]sight framework that identified 59 measurable indicators across 10 themes that are important to regional competitiveness. These themes range from those which are fixed, such as natural resources, to those which can be changed by policy decisions, such as institutions and infrastructure, or influenced by policy, such as human capital and labour market efficiency.

A recent study of Australia’s competitiveness identified similar measures of competitiveness, but also included quality of life (Enright & Petty, 2013). Enright and Petty’s Five Levels Competitiveness Framework highlighted that competitiveness is influenced at different scales from the global through national/regional, cluster and industry and firm level drivers. A region or industry may therefore be competitive but it can be limited, for example, by poor national or international policy frameworks.

Deregulation of agriculture in Australia, for example, has created a more efficient and competitive sector but a failure to reduce trade barriers in Europe and America limits Australia’s ability to compete with these markets internationally (Dibden & Cocklin, 2009). It is important, therefore, to recognise that although much can be done to improve agriculture’s competitiveness and contribution within a place-based regional development context, the broader national and international environment are important factors that regions have limited control over.

The eight critical factors identified through this research are discussed separately below. They are interrelated, and are strongly influenced by each other. The lack of a critical factor or an over emphasis on some can limit opportunities for agricultural development and contribution to regional development.

Social capital is the level of connectedness and trust of people and organisations within and between local communities (Cocklin & Alston, 2002; Onyx & Bullen, 2000; Woodhouse, 2006). Social capital reflects an ability to work together in a cooperative and coordinated way to tackle problems. It is important to have a cohesive approach to development within a region (bonding social capital) as well as strong links beyond the region (bridging social capital). The critical role of strong social capital is reflected within the data through discussions about the importance of networks, connectedness and trust to support the development of new opportunities and mediate risks.

The online survey highlighted the opportunities for strengthening links between the community and agriculture in the Wet Tropics (Appendix 6). Development opportunities may be linked to sectors beyond agriculture and new and emerging niche markets outside of traditional agricultural commodity supply chains. In the Wet Tropics, for example, the local World Heritage environment and amenity have provided opportunities to leverage these environmental values to develop regional brands, and market products to tourists (see Agri-tourism and Regional Supply Chain case studies Appendix 4 and
5). However, leveraging these opportunities has required farmers to develop new regional networks and to understand how the region is positioned globally.

Similarly, the technologies and expertise developed within the region to produce agricultural products sustainably within two World Heritage areas provides opportunities for new non-commodity outputs from agriculture. However, leveraging these opportunities requires the development of new networks and trust.

The need to strength social capital in the form of leadership, collaboration, networks and trust in the Wet Tropics was previously identified in the study of the feasibility of a business centre on the Atherton Tablelands (Pinnacle Management, 2004).

**Human capital** includes individual farmers, businesses and industry leaders who must be entrepreneurial, and take the risks to identify new markets, develop new enterprises, and develop supply chains. This requires new knowledge and skills to be developed by individuals and businesses, and provides opportunities for new and younger farmers to enter into agriculture.

Rural and regional communities in Australia tend to have lower levels of education (Maude, 2004) and this is reflected in the case study region. The Regional Australia Institute (2013) recently analysed the competitiveness of regions in northern Australia similarly identifying the importance of human capital to development.

Within a region, there may be a need to develop new human capital, or it may exist but is not being utilised by an agricultural industry confined to an agri-industrial production system. Strategies to strengthen human capital may therefore involve building human capital through education and training, or attracting existing people with the knowledge and skills required to support an expanding contribution from agriculture. Expanding social capital can thus also support human capital development.

**Natural resources** including soils, water, topography and climate underpin the type of agricultural contributions that are possible within a region. They can provide a region with a comparative advantage, but these resources need to be developed and sustainability managed before they become competitive advantages.

Maintaining these assets can be important to a region's long term success, and this creates challenges in terms of duty of care, and individual and community responsibilities for maintaining and protecting assets. This is particularly the case in the Wet Tropics region, comprising two World Heritage areas.

**Infrastructure/technology** are critically important as combining infrastructure and technology (transport, information and communication technologies and energy) with security of access to natural resources (land and water) can change the relative competitiveness of agriculture within a region. The Tinaroo Dam and the Mareeba Dimbula Irrigation Scheme were a catalyst for further agricultural development on the Atherton Tablelands of North Queensland, and remain important regional assets.

This research identified transport and logistics as the main areas needing further government investment in order to improve supply chains, and access to domestic and international markets. This reflects recent reports by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) (Nguyen et al., 2013) and RIRDC (2011).

Private sector investment is also important. For example, foreign investment into the sugar industry was central to securing capital to upgrade mills. This has, in turn, given farmers greater confidence to invest. Infrastructure investments, however, needed to be innovative, well planned, cost effective and resilient to threats from climate change, particularly cyclones and flooding.
Environment/amenity can underpin new industries and regional supply chains based on food safety, sustainability and regional tourism. They can also underpin increasing land values as rural amenity and lifestyle are increasingly sought after commodities.

Environment and amenity as critical factors to regional development were regularly reflected in discussion about regional supply chains, increases in land values and agri-tourism in the Wet Tropics.

Balancing needs emphasises that different agriculture businesses balance a range of needs according to varying economic, environmental and social values. Businesses may be focused on production within different models or have income streams outside of agriculture. The capacity within a region to recognise and enable agricultural businesses to manage competing needs can influence a business’s ability to engage in development.

The enormous change being experienced by agriculture, and mounting financial pressures as a result of continued declining terms of trade, were expressed regularly within the data in the context of balancing needs. Farmers may recognise the need to adopt post-productivist farming systems and look to new opportunities to diversify or value add, but these needed to be balanced with financial or human resource constraints as many people now had off-farm incomes to sustain a livelihood.

Place-based regional development therefore needs to acknowledge these pressures, and recognise that farmers will engage in the range of models of production from agri-industrial through post-productivist and regional development, depending on their needs, circumstances and attitudes to risk. There may be a range of reasons why farmers choose not to engage in a particular model of production or adopt a particular innovation, including propensity for risk, access to knowledge and skills, financial or personal family constraints.

Developing strategies to support farmers balance competing needs to focus on production, environmental management and or new enterprises or niche markets may be important to the successful implementation of a regional place-based agricultural development strategy. It is also important for those stakeholders who may not be directly engaged in agricultural production to understand and respect the challenges many farmers face in balancing these varying demands.

Strong regionalism was regularly expressed in the data through the need for industry and regional self-reliance post-deregulation. It also stresses the need for regions to speak with a strategic and coordinated voice, and for development to be controlled and driven regionally. Regions which mobilise their assets and resources, and do not rely on external support from government, demonstrate greater growth (OECD, 2012).

The emerging agri-tourism and regional supply chains in the Wet Tropics have been driven by entrepreneurial businesses seeking to diversify and generate new income streams. Government has also played a role in the development of the Taste Paradise Regional Food Network and agri tourism industries (see case studies).

Government has played an important role in the development of new post-productivist farming systems through Landcare, property management planning and regional natural resource management bodies. However, this has been most successful when adopting a place-based regional approach (see Post-productivist case study Appendix 3).

This research supports the findings of others, concluding that Australian government regional policy tends to be top-down, with a focus on responding to equity arguments from particular industries often in response to a regional crisis, rather than taking a systemic bottom-up regional development approach (Regional Australia Institute, 2012). While regional planning may be encouraged and supported to address the negative impacts of globalisation and deregulation (most recently through Regional Development Australia), there has been no systematic divestment of power and resources from state and federal government departments to support implementation of these plans (Beer et al., 2005; Maude, 2004; Tonts & Jones, 1997).
While local governments may be better placed to support a strong regional approach, they lack the financial capacity of federal and state governments. Individual regions and businesses, therefore, compete for support through programs designed and administered by state or federal departments that often respond to political needs driven by established interests (Maude, 2004), have high transaction costs, and that may discourage the cooperation required for successful place-based regional development.

Programs developed within siloed government departments generally lack continuity and the capacity to respond to the different needs and complexity of individual regions. This top-down approach to regional policy may have responded to established agri-industrial interests through the process of deregulation, often fail to identify new regional development opportunities founded in a region's competitive advantages. Place-based regional development should not be dependent on government, but it can play an important role in making sure government investments are well targeted and produce maximum benefits.

**Effective governance and institutions** were critical to creating a holistic and integrated approach to expanding agriculture's contribution within a region. This includes the values and norms reflected through community and industry based organisations and governments’ and, increasingly, corporations’ policies and regulations that mediate agricultural production and associated markets and supply chains.

There is a need for regions to speak with a coordinated voice within and between regions, and for governments to respond through policies that support and encourage regional collaboration rather than competition. Effective regional institution and governance support the development of the other critical factors already identified as important to place-based regional development.

Particular roles for institutions included research, development and extension (RD&E) that are driven by regional supply chains rather than a supply side drive to increase productivity. Agricultural RD&E remains constrained, to a large extent, within established agri-industrial institutional arrangements that limit capacity to consider and establish priorities based on leveraging a region's competitive advantages. Commodity-based industry levies are match by government funding and reinvested largely to increase agricultural productivity. This system has driven productivity gains within the agri-industrial system and has been important to maintaining industry competitiveness.

However, this approach limits the capacity for investment in new and emerging industries, and in cross sectoral investment. Place-based regional development approaches require institutions to be able to respond to individual regional needs. RIRDC is an example of a RD&E corporation that does support emerging industries and regional cross-sector approaches. However, the Corporation has limited capacity when compared to the established commodity-based RD&E corporations.
Chapter 3: Roles and responsibilities in supporting place-based regional development

This chapter discusses different roles identified as important to the application of the PADF within a region. It considers how in some instances roles need to change to effectively implement the Framework.

The research identified four broad roles and responsibilities in applying a PADF and ensuring that these critical factors can be harnessed and where needed, further developed. Although discussed separately these roles and responsibilities are interrelated and linked (Figures 8 and 9).

Community: At the heart of successful place-based regional development should be community, which is consistent with the themes identified within the definition of the rural development model. This is also strongly linked with the importance of social capital as a success factor.

Community, industry and government need to be prepared to work together in a collaborative, not competitive, manner. This theme is picked up in the discussion of the role of government. Government policy can support the development of cooperative arrangements within regions or encourage competition. An example of this is discussed in the post-productivist case study, where the competitive approach adopted in the Caring for Country Program is contrasted with the Reef Rescue Program. The relationship between local communities and agriculture is also important in supporting the establishment of local food networks and engaging the community more broadly in environmental management, through programs like Landcare.

The right community environment can create the social capital that determines the institutional relationships in which development takes place, has the capacity to generate consensus and trust, can resolve conflict and mobilise resources, facilitate the provision of public goods, and can create local willingness to pay for development (Barca et al., 2012). These sentiments are reflected in the Queensland Plan (Queensland Government, 2013), a state-wide planning process with ‘Communities that are well planned, well connected and engender community spirit’ voted as the second priority by delegates to the Brisbane Summit attended by more than 600 delegates from across Queensland. To achieve this, there is a need for systemic investments in community-led organisations that create the strong regionalism and social capital that supports the development of other success factors.

A key role of regional organisations is creating the social capital needed to better integrate the agri-industrial, post-productivist and regional development models. For example, organisations like Terrain, the Wet Tropics regional natural resource management body, were seen to play a role in supporting producers to make appropriate linkages between the post-productivist and agri-industrial role of agriculture. On the other hand, regional development bodies like Regional Development Australia, Advance Cairns and the Tablelands Futures Corporation, were seen to be important in building social capital and arguing the case for improved infrastructure and regional services important to agriculture.
Figure 8: Roles and connection within a place-based agriculture development framework

Figure 9: Roles and responsibilities within a place-based agriculture development framework
**Individuals and businesses:** Individual leadership and entrepreneurial capacity was identified as critically important to maximising agriculture’s contribution within successful place-based regional development. It is these individuals who take risks and drive the change necessary to envision new futures for regional agriculture. There are numerous examples within the region of this capacity, including Mungalli Creek and Gallos Farming in the dairy industry, and the development of a cocoa industry on the Wet Tropical coast.

There are also those industry leaders in the traditional agri-industrial system who continue to develop and adopt new production and management systems that drives competitiveness in this sector. While individuals and businesses need to take responsibility for developing these opportunities, capacity development can be supported by government and industry. RIRDC currently run a leadership program and historically, Queensland DAFF also ran such a program.

Individual entrepreneurship and innovation can also be limited by a lack of knowledge and skills or access, for example, to the necessary financial resources. State departments of agriculture are winding back their investments in RD&E, with these services increasingly provided by private consultants or company agronomists.

Post-productivist and rural development agricultural systems, however, are only just emerging. There is a need for systemic investments in programs to build individual knowledge and skills, to establish new supply chains and support the diversification of businesses, for example into agri-tourism, if a broader regional vision for agriculture is to be realised.

There is a need for a further professionalisation of the agricultural workforce, and the need to attract a new generation to farming as the agricultural workforce is ageing. Individuals and businesses need to be prepared to drive and invest in these new opportunities, but often these small businesses don’t have the capacity to support research and development on their own and may require support to build individual and business knowledge and skills. Government, industry and community more broadly all have an important role to play in encouraging and supporting individual entrepreneurial and innovative endeavour.

**Agricultural industry organisations:** Agricultural industry organisations were important independent voices who bought the needs of farmers to government. They also play a critical role in many regions in cooperative marketing of commodities to large corporate millers and processors.

Their main role within a place-based agriculture development framework is, therefore, maintaining support for particular commodities within the agri-industrial model of production and negotiating marketing arrangements. Agri-industrial, post-productivist and regional development are not mutually exclusive models of production within the framework and industry peak bodies can also play an important role in supporting post-productivist and regional development contributions. This requires a change of thinking by some in the agricultural sector.

**Government:** Government has an important role to play in facilitating place-based regional development, which is reflected in this research and other studies including internationally (Beer et al., 2005; OECD, 2006, 2012). This research confirms the need for devolution of power and decision-making to regional communities and institutions to determine priorities if the competitive advantages identified through a place-based regional development approach are to be maximised.

Local governments can play an important role here but lack the financial capacity of federal and state governments to invest in regional development. The role of local governments needs to be strengthened as part of the further development of place-based regional development approaches.

There is a need to ease the negative impact of policies, and over/under regulation in some areas. The design of government programs can encourage or discourage connections and collaborations within a region necessary to building the social capital that facilitates strong regional development. For
example, the top-down development and implementation of competitive grant programs within government silos can encourage a culture of competition rather than cooperation.

There is no systemic investment in place-based agriculture development and often, priorities do not reflect those that would be established through a strongly supported place-based planning process. Government investments tend to be driven by established interests and supply-side factors reflecting the strong emphasis on regional infrastructure investments. Emerging industries and business do not have the political influence of established industries, yet may provide the greater potential for further growth if developed.

The PADF highlights the need for a more demand driven market focus by considering the multiple contributions that agriculture can make through the three models. The Framework also provides a way for governments to consider how the eight critical factors identified could be inhibiting or supporting development. Government policies and programs could, therefore, be better targeted at supporting place-based agriculture development through the application of the PADF.
Chapter 4: Planning place-based agriculture development

This chapter suggests a methodology or process that could be used or modified by a regional community or policy makers to apply the PADF to agricultural development within a region (Figure 10).

Placed-based approaches can be applied at different scales, so the boundaries of the place must be established as a first step. The research identified the following factors as important in establishing boundaries:

- community networks;
- geography;
- supply chains / markets; and
- administrative boundaries (i.e., statistical, local government).

Building collaborations and networks within a region to tackle problems is one of the strengths of the place-based approach, and it is important that the boundaries are discussed and agreed between the participating stakeholders. This process may also identify other stakeholders who may need to be engaged.

Place-based approaches to agricultural planning may be established through a steering group or organisation as part of a top-down governmental or organisation process to tackle a problem, or they may emerge out of a more organic community process. The framework may also be applied simply as a structured way to think about the problem of agriculture and rural decline in a particular region or community by, for example, a policy maker or researcher.

Where the framework is applied as a structured collaborative approach within a community or region, then as part of the process of agreeing on boundaries, the governance arrangements should also be agreed. A steering committee or project management group involving the key stakeholders would then be established.

A situation analysis of the place can then be undertaken, including a stocktake of the framework’s major assets. A review of agriculture’s history within the place needs to be undertaken as part of this situation analysis. Agriculture has gone through enormous change. Understanding this past, and how it may influence the present and future, is important in considering opportunities and constraints to further development. For example, while rural identity can be important to fostering resilience it can also be a barrier to change if proposals do not sit well with established community cultural norms (Campbell-Ellis, 2012).

Through this situation analysis, local trends may emerge in relation to the challenges facing agriculture and how the community may have dealt with challenges and change in the past. Lessons can be learnt, for example, from past industry deregulation and regional development programs. It is also important as part of this analysis to consider assets that might not normally be associated with agriculture. These could be complementary industries like tourism, amenity/environmental values and proximity to emerging markets.

These assets and associated values all potentially provide new opportunities to add value to existing agriculture or identify new agricultural products and markets. Finally, global trends that may provide opportunities and threats to agriculture should be considered as part of the situation analysis.
Once this analysis is complete, the agri-industrial, post-productivist and rural development lens should be applied to the data to consider the various opportunities these different models present for regional development. The outcome of this analysis may identify limited opportunity for change or envision a totally different future for agriculture. A consultation process may be undertaken to gain broader input on possible futures. The steering group for the place-based initiative should agree and then document the future vision for the community and region, and begin a planning process to achieve this vision.

This may involve a range of different strategies and related projects if the vision is to be realised. Planning should support the development of critical factors, and review roles and responsibilities so as to ensure stakeholders are effectively supporting place-based agricultural development.

The benefit of applying the PADF as part of the process of developing the regional vision is to force stakeholders to consider agriculture’s contributions beyond traditional commodity-based sectoral approaches. Post-productivist and rural development lenses force a consideration of agriculture beyond the traditional agri-industrial lens within a regional place-based approach. This enables local communities, industries and policy makers to envision futures which they may not have previously considered. It also enables a consideration of the critical success factors, and stakeholder roles and responsibilities.
Figure 10: A place-based agriculture planning process
Chapter 5: Regional case studies

Four case studies were developed to further explore the three models as part of the development of the framework. These included:

- agri-industrial contribution to regional development;
- agriculture’s increasing contribution to environmental stewardship;
- agriculture’s contribution to regional tourism; and
- a regional supply chain case study.

The case studies also informed the identification of the final critical factors, and the need for changing roles and responsibilities of actors, within a place-based regional development approach. This chapter provides a summary of the four case studies, which can be read in full in the appendices.

Agri-industrial case study: agri-industrial contribution to regional development

Agri-industrial agriculture, defined by its productivist focus, remains central to agriculture’s contribution to regional development in the Wet Tropics. Although agriculture now contributes less than 20 percent to regional product compared to the approximately 70 percent in the middle of last century (RDA, 2012), it remains a foundation industry for many rural communities, particularly those outside of the city of Cairns (Tablelands Futures Corporation, 2013).

This research confirms well reported trends (Productivity Commission, 2005) that agri-industrial agriculture is going through significant change. This has been driven by globalisation, declining terms of trade, industry deregulation, changing supply chains and consumer preferences and an ageing farm population. This change has seen the tobacco industry disappear from the region in the past two decades and the sugar, dairy and horticultural industries go through significant rationalisation.

The future of agri-industrial production is dependent on maintaining a competitive advantage in production and the supply chain. This is being achieved by increasing the scale of production, often through the leasing of land, and enabling the adoption and application of new technologies and farming systems.

Large corporates have taken over the milling and processing sectors in the sugar and dairy industries, providing capital to upgrade and maintain infrastructure creating greater certainty for farmers. In the horticulture industry, corporate farms are increasingly in control of production and supply chains, as major retailers prescribe product specifications and demand continuity of supply.

These changes are having significant impacts on industries, and rural and regional communities. Total numbers of agri-industrial farmers continue to decline. In the Wet Tropics dairy industry, 51 farmers remain supplying the Malanda factory where there were 186 in 2000 just prior to deregulation. In 1963, there were 966 dairy farmers supplying three factories (Statham, 1998 cited in Anderson, 2004b). It is a similar story in the sugar industry, with total agri-industrial farm numbers predicted to continue to decline based on this research.

Family farm businesses have adopted three distinct strategies to remain in farming, depending on their capabilities and attitudes to risk. They have sought off-farm employment, increased their scale of production or sought to diversify into niche markets discussed in the Regional Tourism and Regional Supply Chain case studies. Some farmers have adopted one or a combination of these strategies.
No matter which strategy is adopted, understanding and leveraging the advantages of place has become more, not less, important even within the agri-industrial system. The dairy industry’s competitive advantage, for example, is in the supply of fresh milk to north and west Queensland, a defined market of limited size.

A strong farmer cooperative negotiating with the factory to balance supply and demand is critically important, whereas traditionally farmers were focused on growth and increasing production. Similarly in the sugar industry, strong regional industry organisations remain central to farmers retaining some control over their supply chain in dealing with large corporate millers.

The critical success factors identified through this research become increasingly important in this context. There is an increasing need to remain connected and networked (social capital), to stay up to date (infrastructure/technology), and for new knowledge and skills (human capital) to manage larger and more complex businesses. For a complete case study, see Appendix 2.

Post-productivist case study: agriculture’s increasing contribution to environmental stewardship

Australia’s economic history is steeped in agri-industrial development, with environmental issues only taking on a higher profile from the 1970s. Since then, the policy foundations and delivery frameworks for a post-productivist approach to agriculture have been unfolding. Van Oosterzee, Preece and Dale (2013) describe this timeline in detail, showing a place-oriented movement in environmental stewardship in parallel to a more regulatory approach by governments.

During the 1990s, new community-based and regional approaches to NRM emerged, focused on enhancing more place-oriented community, farmer and land manager stewardship approaches. In effect, these reforms represented a real shift away from a purely agri-industrial view of agriculture. The framework could also be adapted for managing the landscape-scale impacts of climate change by guiding the aggregation of greenhouse gas abatement and sequestration and other ecosystem service delivery activities (van Oosterzee, Preece, & Dale, 2012).

Current situation and possible futures

To create a place-oriented post-productivist approach to agriculture inclusive of a functioning ecosystem services economy, a simple and understandable national, stewardship-oriented policy framework first needs to emerge. The Wet Tropics region has operated at the coal face of this emerging opportunity.

From 2005 to 2010, Terrain NRM joined forces with another ethical company (Biocarbon) to work towards establishing the Wet Tropics region as an international supplier of quality ecosystems service credits (van Oosterzee et al., 2012). The alliance explored the idea of pooling (or aggregating) a range of carbon products arising from improved land use activities that delivered on the region’s natural resource management plan. In addition to carbon sequestration or abatements, these activities deliver other measurable biodiversity and community benefits.

A cohesive policy response to the development of ecosystem service markets, however, should never just continue to be about reducing carbon emissions alone. This means setting up both:

- a wider policy framework for combining good landscape-scale regulation with balanced efforts to enhance landholder contributions to environmental or land stewardship; and
- trading systems to offset the impact of our consumption on biodiversity, agricultural sustainability and water quality in alignment with such a policy and delivery framework. This may be government regulated systems or privately established market mechanisms.
In effect, agriculture needs both a wider policy framework which embeds place-based, integrated approaches to landscape-scale management, and a clear national framework for the development of ecosystems services trading products and services delivered in alignment with this system.

**Critical factors for agriculture’s contribution to stewardship**

The case study found that key NRM institutions in the Wet Tropics consider the following factors are needed to facilitate agriculture’s improved contribution to land or natural resource stewardship:

- a clear regulatory framework for NRM (governance and institutions);
- a cohesive policy approach to regional NRM planning/effort mobilisation;
- long term continuous improvements in integrated regionalism (strong regionalism);
- collaborative frameworks for research and knowledge management (social capital); and
- environmental accounts, reporting and adaptive management.

**Reforms needed to secure the future**

Over the last few decades, there has been dramatic maturation in the governance of Australia’s approach to stewardship-oriented NRM, enabling farmers and land managers to begin participating more directly in a post-productivist approach to agriculture (*strong institutions*). However, several high-level reforms are needed for a healthier and more integrated national multi-level NRM governance system to emerge (Dale, Ryan, & Broderick, in press):

- a more enduring national NRM infrastructure;
- a national NRM policy and planning framework and strategy;
- a framework for integrated program and local delivery; and
- moves towards better landscape-scale adjustment in NRM.

**Conclusions**

This case study confirms that the future of agriculture, based on a strong productivity and profitability foundation, can and should be enhanced by more place-based approaches to natural resource stewardship.

While regulatory frameworks are still required to define a reasonable 'duty of care', regulation alone only places the major social and economic impacts of environmental management on agricultural producers. To complement regulation, a major economic reform is required that sees consumers also contribute to the cost of maintaining healthy ecosystem services in rural and remote landscapes beyond a reasonable duty of care. This suggests a strong national and post-productivist policy framework is required, to position agriculture to play a more significant role in environmental stewardship while still enhancing profitability (*balancing needs*). This could be achieved through both government policy and regulatory frameworks, combined with the development of private sector markets for ecosystem services. For the complete case study, see the Appendix 3.
Rural development case study: agriculture’s contribution to regional tourism

This case study demonstrates how agriculture contributes to tourism within a regional development model, through the development of agri-tourism. It outlines the critical factors, and the roles and responsibilities for achieving an agri-tourism sector, and emphasises the need to develop agri-tourism within a broader regional tourism context. The case study concludes with a detailed discussion of how agri-tourism has developed in the Wet Tropics region.

The Wet Tropics region is representative of many agricultural regions in Australia that have experienced economic decline. The region’s economic base has been built on the diversity of the regional natural resources to establish exports focused on agriculture and, more recently, tourism. Fertile soils and rainfall support the production of numerous crops, including sugar, tropical fruits, coffee, tea and vegetables. The natural landscape, including the World Heritage listed Great Barrier Reef (GBR) and Wet Tropics Rainforests (WTR), also forms the backdrop for many nature based and eco-tourism experiences.

With such reliance on the natural resource base, preservation and protection of the region’s natural resource base is a priority and is critical to the sustainability of the region’s economic base and communities. Historically, accessing the region’s natural resources has created competition between the agriculture, timber and tourism industries. However, there is increasing collaboration between the agriculture and tourism industries as they realise the potential to develop agri-tourism in response to a growing demand for regional food experiences among tourists.

In the Wet Tropics region, tourists are attracted by the range of experiences available, rather than for the sole purpose of experiencing agri-tourism. Similarly, within the agricultural areas of Tropical North Queensland, tourists are attracted by some agri-tourism activities, but in conjunction with other factors (for example, the natural environment, rural landscapes, views, accommodation choices and so on). It is the bundling of complementary tourism attributes that enhances the success of agricultural regions striving to develop agri-tourism. Understood in this broader context, agri-tourism is one component of the tourism activity that occurs in agricultural regions. For agriculture to effectively contribute to regional development through agri-tourism, consideration needs to move beyond developing an agri-tourism sector, to understanding how tourism develops in an agricultural region.

A number of factors are critical for agriculture to contribute to tourism through agri-tourism. The importance of social capital is discussed in detail, as building connections and collaboration between the industry, individuals, community and government is a first step in achieving regional support for agri-tourism. Human capital and strong regionalism are required to drive development, and to train individuals wishing to start-up innovative new businesses. Remaining financially viable (balancing needs), having access to and maintaining natural resources and infrastructure, and effective institutions are also critical for an agri-tourism sector to develop new products and experiences and be self-sustainable in the long term. The roles and responsibilities of individuals, industry, community and government in achieving these critical factors are also discussed.

For agriculture to contribute to tourism in the Wet Tropics region, the following changes are recommended: recognising the significant potential of an agri-tourism sector by industry (agriculture and tourism), individuals, community and government; harnessing the region’s potential by converting this comparative advantage into a competitive advantage; and matching desirable experiences (pull factors) with changing consumer demands (push factors).

To achieve these recommendations requires the following: adopting a holistic approach to the development of a niche agri-tourism sector; building social capital through improved collaboration and network development; adding agri-tourism experiences into the tourism product offering; communicating the availability of agri-tourism (and other) experiences surrounding Cairns through
highly visible and accessible marketing and branding; and building skills to ensure the professional
delivery of agri-tourism experiences. For the complete case study see the Appendix 4.

**Rural development case study: regional supply chains**

A regional supply chain model presents many opportunities for the sustainable regional development of agriculture. Current supply chain models of centralised distribution are driven predominantly by the agri-industrial framework and neo-liberalist policies. This drive is centred on production and efficiency, so that Australian farmers can be recognised as a competitive force within the global market.

The main limitation of this framework is that small producers, such as small farming families, are unable to meet these production and efficiency demands due to a range of factors. These factors include limited resources, infrastructure and personal motivations (i.e., it directly challenges some farmers’ motivations for farming which are predominantly centred on lifestyle and family well-being) (McShane, 2012). This limitation of the framework and the impact it has on small producers is recognised within the academic literature (Kneafsey, 2010; Umberger, Scott, & Stringer, 2008), current news (Mercer, 2013), government and institutional reports (Australia Competition & Consumer Commission, 2008; Spencer & Kneebone, 2012), and findings from the focus groups and interviews within the current research.

Currently within the Wet Tropics region, produce is distributed via two main types of supply chains. Firstly, agricultural produce is packed and transported to southern markets (wholesalers) for sale to retailers (such as Coles and Woolworths) or the food service sector (such as restaurants). This form of distribution deals with bulk commodities produced from large scale farms, where produce is grown, packed and sent to wholesale markets.

However, changing trends in the current situation also suggest different possible futures for the overarching supply chain model. For instance, research suggests a growing trend for preferences in purchasing local products and utilising regionally-based food outlets and distributors (for example, local markets). This trend can be recognised within the Wet Tropics with a parallel local supply for produce beginning to emerge on a small scale (McCarthy, 2014).

Critical factors that need to be considered for the development of a regional supply chain include the following:

- a community demand for product (which can be increased through improved connectedness between community and agriculture);
- entrepreneurialism and leadership (both at the individual level and at the regional level);
- industry support through encouraging change in the current mentality of centralised distribution;
- government policy that actively facilitates and supports regional supply (for example, local events supplied by local products);
- institutional-based research that identifies consumer demand and areas to direct financial support;
- ensuring a whole-of-region approach by considering World Heritage sites and collaboration with Indigenous communities;
- establishing and identifying necessary infrastructure (processing facilities); and
- ensuring that all stakeholders operate in a collaborative and complementary manner.
This will contribute to a process that should have clarity, coordination, and simplicity for the supplier, distributor and consumer. The complete case study is available in the Appendix 5.
Chapter 6: Conclusions, implications and recommendations

This chapter summarises the projects findings against the original objectives. It considers the implication of current trends in agriculture, and how the framework applied through a place-based regional development approach could support regions to maximise the contribution of agriculture to regional development. Finally, a series of recommendations are made to further test and develop the framework, and support the development and application of place-based regional development approaches.

Conclusions

The terms of reference set out four objectives to be achieved by this research:

1. Develop a framework for quantifying and qualifying the contributions that agriculture makes to regional economies and communities, along with identifying constraints and opportunities that face agriculture.

   - The research developed a Place-based Agriculture Development Framework incorporating three models of agriculture contribution—agri-industrial, post-productivist and rural development, and identified eight critical factors important to agricultural development within a region.

   - It was important that the framework incorporated the tangible and intangible contributions from agriculture, as they all influence decision making. Individuals and businesses engage in agriculture for a variety of reasons, including economic as well as the intrinsic lifestyle and related social, cultural and environmental values. These factors similarly influence government decision making and support for agriculture within a liberal democracy.

   - Globalisation, deregulation, declining terms of trade and an ageing farm population have all contributed to a corporatisation and consolidation of agri-industrial production and marketing, making it difficult for smaller family farm businesses to remain competitive.

   - Smaller family farm businesses are increasingly generating a livelihood through off-farm employment (which can impact productivity) and/or engaging in the post-productivist and rural development models to generate additional income.

   - The role of government is changing as it withdraws from its role in RD&E service provision within the agri-industrial production system to focus increasingly on its public benefit functions including biosecurity and natural resource management. The private sector is increasingly being relied on to supply these services as part of ongoing economic reforms.

   - The withdrawal of government from RD&E is a major constraint to the realisation of the new opportunities within post-productivist and rural development models of agricultural contribution. The small family businesses often engaged in developing these new farming systems and supply chains don’t have the capacity of larger corporate agriculture businesses that have emerged within the agri-industrial system.

   - These larger corporate businesses may have greater capacity to continue to fund RD&E in the agri-industrial system but there is a need for continued RD&E to maximise contributions from emerging post-productivist and rural development models.
• The lack of institutional recognition within government and industry to move beyond a simplistic focus on production within the agri-industrial model is limiting the contribution the other models can make.

• There is significant latent capacity within established agricultural areas to increase agricultural production, however often, returns do not make production profitable.

• Farmers and industry stakeholders increasingly recognised that understanding the market and managing the supply chain is the key driver of competitiveness and profitability.

• Institutional reforms within government and industry that support place-based regional development approaches would encourage a greater focus on markets and supply chains within regions, increasing agriculture’s contribution and competitiveness.

• Increasing costs of production remain a major constraint to the competitiveness of Australian agriculture. The high Australian dollar, water, energy and insurance costs can all be influenced by government policy and regulation. Governments, industry and community need to support research, development and the implementation of findings to minimise these costs.

• Climate change has emerged as both a constraint and opportunity for agriculture. The Wet Tropics region has experienced two severe cyclones in less than a decade, devastating the plantation timber and emerging tropical fruit industries and severely impacting all other industries. At the same time, the emerging carbon and ecosystems services markets provide new opportunities to leverage additional contributions from agriculture within a post-productivist farming system.

• The corporatisation and consolidation of production and marketing systems within the agri-industrial model also provide opportunities for new investment into agriculture increasing productivity and sustainability.

• Government has an increasingly important role to play in managing the market power of corporations within agricultural supply chains to protect smaller businesses and consumers, and ensure that any foreign investments are in the national interest.

2. Consider scenarios for how agriculture may develop within a region, the institutional arrangements for facilitating change and development, and provide an understanding of how to maximise the contribution of agriculture to these economies.

• The identification and further development of the agri-industrial, post-productivist and rural development models represent different scenarios for agricultural development within a region.

• The agri-industrial model remains the major focus of government, industry and community. If this continues, it is likely that the family farm business will continue to decline within the agri-industrial supply chain.

• Supporting the post-productivist and rural development models to continue to develop and contribute will be important to maximising agriculture’s contribution to regional development.

• There are a range of institutional factors that can influence agricultural development within a region including:
  o Local government and state planning and land tenure governance systems;
• The adoption of competition principles for government service delivery at a regional scale (this can discourage cooperative approaches which may produce better local outcomes. Regions or industries which lack capacity or political influence may also be disadvantaged); and

• The level of regulation and investment in regional assets.

- Government’s role as a direct investor in infrastructure, research, development and extension is changing to one of an enabler, by creating a secure environment for private sector investment.

- There is a need to create an investment environment for each model if agriculture's contribution is to be maximised. This requires policy reforms that provide greater security of tenure for the production of commodity and non-commodity agricultural products produced through the three models.

- Place-based approaches allow decisions to be informed by regional communities so that where conflict between models emerges, it can be resolved with strong local community engagement.

- Strategic investments may be needed to develop one, or a number of the eight critical factors, including social capital, human capital, natural resources, infrastructure/technology, environment/amenity, balancing needs, strong regionalism, and governance and institutions, to maximise agriculture's contribution within a region.

- There is a need for government to devolve power to local communities within a place-based regional development framework, to encourage and support local level planning and implementation.

- Local government, communities, individuals, businesses and industry need to take on greater responsibility and be prepared to work together collaboratively to maximise regional advantage. This requires a change in focus from sectoral interest to regional interest. This is why connectedness, networks and trust reflected in social capital emerged so strongly from the research results.

3. **Identify and explore how regional and national trends are manifest in a ‘place-based’ context, and build strategies to facilitate the development of agriculture for the broader benefit of regions.**

- The PADF developed through this research provides a tool to facilitate the further development of agriculture’s contribution to regional development based on a region's competitive advantages.

- The trend towards an increasingly globalised world dominated by neoliberal markets for products and services means a focus on identifying and capitalising on competitive advantages will become more, not less, important to Australian agriculture.

- The framework’s incorporation of post-productivist and rural development models of agriculture support regions identifying and generating additional value from growing global trends towards valuing agriculture’s environmental and social contributions.

- The critical factors and models incorporated within the framework aid in the identification of strategies to support agriculture’s contribution to regional development in light of emerging global trends.
4. **Engage federal, state and regional stakeholders and relevant networks that are involved in decision-making in respect to agriculture and regional development as part of developing the framework, so that the research supports the ongoing development of an agenda for agriculture’s contribution to regional development, particularly in the pilot region.**

- The participatory research methodology engaged with a range of stakeholders, including national and state policy makers, peak industry bodies, regional development organisations and community/industry leaders within the pilot region. In total, the project involved 175 participants, including 48 face to face through the focus groups (Canberra 8, Brisbane 7 and Innisfail 19) and interviews (Wet Tropics 14), and a further 127 through an online community survey.

- Everyone contacted has engaged positively and the discussion paper was circulated through participants' extended networks. The final report will be used to promote the framework within these established networks and encourage its application within local planning processes.

**Implications**

The last two decades have seen significant changes in Australian agriculture as a result of economic reforms, including globalisation and industry deregulation. Adjusting to these changes has been difficult, particularly for smaller family farm businesses who have struggled to remain competitive. Many families have left agriculture to pursue different livelihoods. Others have continued, increasingly relying on off-farm income and/or a combination of opportunities emerging from post-productivist and rural development models of agriculture.

Agriculture, however, is not alone in experiencing the impacts of these broader economic reforms and globalisation, reflected in the decline of the automotive industry and manufacturing more generally in Australia. Australian agriculture’s future will be dependent on its capacity to remain globally competitive, and this is influenced by a range of factors including government policy.

The initial government response to industry deregulation was to compensate those impacted and seek to improve the productivity and competitiveness of established industries within traditional bulk commodity supply chains. This strategy has helped maintain Australian agriculture’s relative competitiveness in the face of continuing declining terms of trade, but there are indications that productivity improvements are beginning to plateau.

Consequently, there is a need to look not only to an agri-industrial model, but to how additional value can be leveraged from post-productivist and rural development models within a place-based regional development approach. The PADF developed through this research highlights the new opportunities that could emerge from such an approach. The new roles and responsibilities suggest changes are needed by individuals, businesses, communities, industries and governments for this to be achieved.

Economic reforms and globalisation have resulted in 20 years of continuous economic growth in Australia. This has underpinned growth in real incomes and living standards. The Asia Pacific region has similarly experienced growth supporting an emerging middle class.

There are, therefore, growing numbers of consumers in our region, many of whom are increasingly concerned about environmental and social sustainability of the products they consume. These emerging markets provide opportunities for regions like the Wet Tropics where World Heritage values are already recognised to leverage additional value from agriculture.

Every region will have its own unique strengths and comparative advantages that can be leveraged through entrepreneurial innovation into competitive advantage. Place-based regional development approaches enable these opportunities to be identified and exploited.
Recommendations

1. The PADF resulting from this research should be further tested and refined as an agricultural development tool within other regions, and by governments designing regional development policies and programs. Areas of particular focus should be:

   - Further developing and testing tools that enable the different models of agricultural contribution to be used by agricultural businesses, rural communities, industries and governments, to identify current and future contributions that agriculture can make to regional development.

   - Better understanding the importance of strong regionalism, governance and institutions in supporting place-based regional development. Particularly, understanding how current siloed government departmental policies and programs and sector based industry approaches can be modified to support place-based regional development.

   - Strategies to identify and prioritise assets that need to be further developed in order to maximise a region’s capacity to exploit regional competitive advantages.

2. Develop government and industry policies that ensure that large corporate and smaller agricultural businesses along the supply chain can continue to maximise their contributions to regional and national product. Areas of particular policy focus should be:

   - Maintaining transparency in supply chains and ensuring that markets are functioning in a way that creates a transparent distribution of profits along the supply chain.

   - Facilitating the further development of regional supply chains through supportive policy and regulatory environments, investments in regional infrastructure, and network and cluster development.

   - Where practical, supporting businesses to remain competitive, for example, by supporting the maintenance and development of farming models that aggregate production and supply through cooperative farming and marketing.

3. Australian and state governments (in consultation with business, industry and community) review RD&E policies and programs as part of the development of a new RD&E framework to increase the focus on supporting place-based approaches. RD&E priorities should reflect the broader contributions that agriculture can make through all three models (agri-industrial, post productivist and rural development) to regional and national development. A project's capacity to build regional competitiveness should be a key criterion for determining research funding. Further research also needs to be undertaken in place-based approaches to support regional development, particularly the critical factors and the changing roles and responsibilities within communities, industries and governments.

4. That place-based approaches become important strategies adopted by communities, industries and governments when developing and implementing regional development plans.
Appendix 1: Qualitative analysis

Definition of agriculture

The three focus groups (Canberra, Brisbane and Innisfail) all agreed that the three models identified in the discussion paper reflected different contributions that agriculture makes to regional development. The agri-industrial model was referenced 18 times across the focus groups; the post-productivist model referenced 9 times across all three sources; and the regional development model referenced 18 times across all three sources.

The agri-industrial model was discussed more frequently and in more depth by the Brisbane (referenced 9 times, 3.30 percent coverage of transcript) and Canberra focus groups (referenced 6 times, 3.30 percent coverage of transcript); the post-productivist model discussed more frequently and in more depth by the Innisfail (referenced 4 times, 2.75 percent coverage of transcript) and Canberra (referenced 3 times, 3.92 percent coverage of transcript) focus groups; and the rural development model was discussed more frequently and in more depth by the Innisfail (referenced 6 times, 3.11 percent coverage of transcript) and Brisbane (referenced 9 times, 2.76 percent coverage of transcript) focus groups.

The applicability of the three models was confirmed by participant interviews.

Focus groups overarching themes

The overarching themes identified within the focus groups as important to a place-based regional development framework were:

- **Social capital:** Being connected with others, clearly communicating your needs and wants and working in coordination with others allows regions to more effectively, and efficiently put in place the strategies that they need for their region to develop successfully. This means that development should not be driven solely by agriculture, but by the identified needs and wants of the broader community.

- **Balancing needs:** Farmers are people who have their own needs (for example, financial) and so there needs to be a balance between the expectation and the recognition of what farmers should do. This recognition may come in many forms, such as financial and incentive support (for example, for environmental activities), provision of services, or consumer support.

- **Strong regionalism:** For place-based regional development to work, regions cannot be reliant on external forces such as government for their success. Regions have to be self-sustainable, but in order for this to happen, there needs to be a recognition of where the power for such development lies and then a redistribution of power to a local level, so that regions have more control over development and sustainability issues.

- **Human capital:** A place-based regional development framework places a lot of pressure on individual farmers and businesses to be innovative and create new markets and industries. Therefore, there needs to be consideration of the current skill levels of farmers, and identification of what skills need development and whether people have access to the appropriate resources to develop these skills. This also emphasises the need to attract more people and a younger generation of farmers to the occupation to allow for this process to continue.
Theme analysis

The analysis of the agri-industrial model focus group discussions produced fewer themes than the post-productivist and rural development models. This reflected the increasing complexity of the systems from agri-industrial through post-productivist to rural development. See Figures 11, 12 and 13 for an outline of the models and their embedded themes produced from the content analysis of the focus groups transcripts noting the increasingly complexity of the diagrams. The agri-industrial model produced one layer of themes while the post-productivist and rural development produced two and three layers respectively.

The following results section highlights a selection of important themes with related quotes, to give a real world voice to the issues being discussed.

The agri-industrial model

The agri-industrial model reflected that agriculture today remains predominantly focused on producing food and fibre at increasingly larger scales. It is becoming increasingly difficult for farmers to remain financially viable within this system.

This drive to increase production, as well as the presence of economic and financial pressures, was at times thought to be a result of political changes reflected in policy and regulations. The role of policy and regulations was particularly connected with market functioning, either through the positive and negative effect of free markets, or through government intervention. Value adding was focused within sectors and industries.

The following quotes provide a sample of the discussions that generated these themes from the focus groups (Figure 11). The title of the related theme from the Figures is at the start with each quote in italics.

Financial pressures & production: … from the perspective of the landowner …. we’re in this business to grow stuff and make a living.

Financial pressures & production: ...most people think of it as an agri-industrial model and I think a lot of the thinking in the (Queensland Agricultural Development) strategy will come across looking that way, that really they’re about producing more, producing it cheaper, less inputs, a lot of those words are in the ag strategy.

Government policy: ...and at the end of the day that’s producing food and fibre, and a driver of national policy at the moment, I guess is increasing productivity so you know, there’s plenty of evidence to suggest that productivity in Australia and agriculture has dropped off and so there’s a push to see if we can increase productivity to meet the demand globally...

Questionable sustainability: I have a bit of an insight into the beef industry by virtue of the fact that it’s monoculture, the question I just wrote on my pad is, can we actually say that agriculture is successful when everybody’s going broke?... if we take ourselves as representative of organisations in Australia are we actually – have we been successful in agriculture; what’s the measure of our success? We maybe have increased our output and the beef industry would sort of argue those sorts of figures but the pain... the human pain and the whole... the difficulties that we’re going through are just huge. In the beef industry, debt’s risen 22 percent in two years in Queensland; that’s hardly a measure of success.
The themes identified within the focus groups reflected interview participant understanding of the agri-industrial model and its limitations, particularly confirming concerns identified in the focus groups in relation to financial viability when relying solely on agricultural commodity markets for an income.

Participants saw the agri-industrial model increasingly being dominated by corporate farming, but that family farming still had a role to play in this model of production. Family farmers, however, were getting bigger to compete as more opportunities for productivity gains were now coming from scale and the application of technology, rather than traditional agronomic gains.

They said we’re focusing too much on corporate, and I’m saying but we are an industry group. I mean we can have, we might like things to be as they were, look that’s not going to be where it is. And I mean some of these corporates aren’t what we call an MIS, they’re family farms that have just got bigger. And so they’re corporate aren’t they…

... I mean look, I say family farms are in decline. That doesn’t mean that there’s going to be no family farms. They’re in decline though.

Family farming was also increasingly looking to diversify income sources which could involve off-farm investments or employment, particularly in the case of smaller farmers. However, farming remained an important part of the business owner’s lifestyle as well as a source of income. Participants acknowledged that this could have impacts on productivity as farmers balanced their competing needs to source income off-farm with the demands of farming.

There’s some very profitable businesses that are small farms that have off-farm investments and I actually think that’s quite a good business model. I mean it’s exactly the same as being diversified in any other way, they’re not growing cabbages as well as milking cows. They’re out of agriculture with bloody houses or industrial sheds or shares or whatever and that allows you to keep your farm business small enough that you can just run it as a family.
Smaller family farm businesses remained important suppliers to dairy and sugar factories in the Wet Tropics, within the agri-industrial model. However, interview participants saw a continued rationalisation of farms into the future, driven particularly by the ageing population.

There was a need for younger people to enter the industry but land prices (driven largely by amenity and lifestyle values) were a barrier to entry. Leasing was an increasingly popular option for farmers seeking to increase scale of production, but who lacked the capacity to purchase because of land values and the return on that investment from agriculture.

Protecting agricultural land from residential development was seen as important by those wishing to remain within the agri-industrial model. At the same time, there was recognition that many ageing farmers saw their land as superannuation. There were, therefore, competing interests in terms of the use of agricultural land for rural residential developments.

Our farm has expanded a lot in the last few years but we’ve had to do it through leasing, we can’t buy it because land values, you can’t get a return on your investment and that’s a problem, so we’re having to lease and that’s only... people aren’t getting a decent income from that either.

Old ageing population, I think we can sort of beat that with leasing. I wish land prices would come down so we could buy land. It is a worry on some of our leases to do improvements because you don’t know how long you’ve got the lease, you go and spend a heap of capital on something and you might lose the lease and that has happened.

Participants recognised that corporate investment in the sugar and dairy industry had provided much needed capital for processing facilities upgrades and gave confidence to farmers that there would be a market for their product.

Cooperative marketing through strong industry based groups, however, was essential where farmers were dependent on one processor. It is unlikely that processors could supply products more cheaply than family farmers given their extensive experience, real labour costs and at times, cross subsidisation of family farm businesses for lifestyle reasons.

Interview participants identified the risk of a disconnect between farmers in the region and the processor’s corporate head office where decisions were made. This was particularly the case where the region only represented a small part of a processor’s business.

The importance of strong social capital, particularly trust, became apparent in relationships as farmers and processors were interdependent. It was acknowledged that it was in processors’ and farmers' interest to maintain a supply price that kept farmers in business.

... but we’re managed by people in Melbourne, overseen by people in Sydney and we’re a long way from either. So I guess one of the challenges for us is that we’ve got a regional focus as an industry and we can see opportunities, we can see things that can be done but we’re owned by a group of people down there who see this industry fitting into their business in a particular way.

There was recognition that government investment through deregulation packages could have been better spent in some circumstances. This is particularly the case where growth was encouraged in areas where a competitive advantage did not exist. Government investment had tended to produce greater returns on investment where it had been focused on developing business and markets that leveraged regional development opportunities.

... whatever it is, the fundamental question is why would that entity do whatever it is in North Queensland and not somewhere else? Because unless there’s a bloody sustainable competitive advantage for doing it here, it’s going to be bloody cheaper to just go somewhere else and buy it...
The funding that went into it I do think, and this is a personal opinion, when you inject federal government or any sort of money into a region, I do think that there needs to be a good hard look at what is actually necessary...and I don’t begrudge it to any of the individuals, certainly I’ve worked with them over the last twelve months, but when it comes down to just putting money to individual private projects, I think you can delete the benefit you can get from something like that.

Interview participants agreed that government has an important role to play in protecting industries from biosecurity threats, in developing new supply chains and RD&E to support continued productivity gains. Participants agreed that it was more difficult to argue for the traditional RD&E to be paid for by government as agriculture was becoming increasingly corporatised.

The post-productivist model

The post-productivist model emphasises management practices that protect the environment, reflected in farmers increasingly engaging in Landcare and regional NRM programs. There were a range of motivations identified for adoption of the post-productivist model, including individual recognition of the long term benefits, community involvement and external regulation and incentives to adopt sustainable practices.

The following quotes provide a sample of the discussions reflected in the post-productivist themes generated from the focus groups (Figure 3). The title of the related theme from the Figures is at the start with each quote in italics. The quotes give real voice to the issues that are being discussed and analysed.

Long-term pay-offs: *...but this did show that even in a very, under very favourable growing conditions, very highly productive intensive cropping area, the sort of area where normally you think you don’t get a big pay-off from trying to increase something like biodiversity, you usually think that that’s a bigger pay-off than in marginal farming environments, they did show a measurable economic benefit, so to just try and pretend that there’s no benefit to farming, and somehow you can separate it out from the eco-systems in which it’s embedded, just like the communities in which it’s embedded, is convenient for trade purposes, but it doesn’t actually affect the real world of running, running a farm because in the end it may be your business, but it’s the business that’s based on manipulating ecosystem services to maximum, to improve productivity of some species, you can’t remove it.*

Biosecurity: *I think part of, picking up on what you said about being a managed landscape, I think part of the value of agriculture is that it provides that management of the landscape, and bio-security risk in northern Australia is an important point in that it’s not a service that it, so it’s not... so the additional services were are talking about are not just carbon farming or reparation and returning the land to the way it was, but it can be a continual, a continued management and in this case, managing and looking out for bio-security risks or the like, weed management, feral pests and that sort of thing.*

Factors which were identified as limitations of this model included the need, at times, to trade off profitability for environmental protection and the systems reliance on government.

Duty of care: *... I think there’s some mismatch between what community’s expectations around baseline and around duty of care is and what a farmer or what an ag... you know, someone managing a farm might believe is their baseline duty of care and what they can you know sustain as it were...*

Environment programs and government dependency: *...I think a lot of people want government to be the body that drives that. I don’t necessarily think that that is going to be a sustainable long-term solution for those that want to build that ecosystem services into the agriculture industry, and I mean changes of government, changes of policy, you’ll lose your funding, and I think anything that’s based on government funding is not a long-term sustainable option; it needs to be some sort of market-based incentive.*
Interview participants recognised the increasing importance of post-productivist models of production. These were driven by government incentives and regulation but also by recognition of the opportunities that were emerging from leveraging environmental management systems to niche market products.

Government schemes like Reef Rescue were identified by a number of participants as examples of good programs that had assisted many farmers adopt more sustainable practices (see post productivist case study for more detailed discussion). The short term funding cycles of these programs, however, meant that they weren’t always available when the opportunity to do improvements occurred. Participants also perceived that the programs could fail to acknowledge early adopters of these more sustainable technologies, with these farmers not receiving support when they implemented these technologies.

**Figure 12: The generated themes of the post-productivist model**

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So they had money that year, I said, right, that’s an eroding drain, I want to get some funds.
When I plough that out next time, there’s a guy that was in charge went yeah, yeah, yeah, that’s a prime example, that’s one we want to fix, that money’s dried up. I’m now at the stage where I want to do that job, I can’t get any funds for it.

Oh Reef Rescue is still competitive in that if I want to do a drain and you want to do a drain and I’m prepared to pay three quarters and you’re only prepared to pay a half, I’ll get the funds and you won’t. So it is competitive. When you put that project in, you’ve got to stump up as much as you possibly can just to up your chances of scoring the rest of the funds.

It was frequently thought that the joint contribution by farmer and government was a good model and that competition between farmers for grants encouraged greater contributions.

Farmers who had moved beyond sustainable practices to meet duty of care requirements were increasingly seeing the post-productivist model as the stepping stone to support the marketing of their product. Post-productivist models were, therefore, important to underpinning rural development approaches to agriculture, by building additional value in products traditionally produced within an agri-industrial model. These products were now marketed through regional supply chains emphasising that the product came from an environmentally sustainable production system within a pristine World Heritage Region. In this way, the rural development model built on the post-productivist and agri-industrial models of production within the framework.

Market based mechanisms were identified by a number of participants as good ways to encourage more environmentally sustainable practices. This aligns with findings within focus groups where the post-productivist models' reliance on government was questioned. One participant identified markets established through corporate regulation as being an opportunity rather than government regulated market mechanisms. Bonsucro was an example of a corporate sector accreditation scheme being developed internationally for the sugar industry.

... so it’s [Bonsucro] a way the farmers if they get accredited they can hopefully give us a marketing advantage. Bacardi’s already signed up, Bacardi Rum has signed up that by 2020 they’ll only source Bonsuco-branded sugar. Coca-Cola is pretty well involved, Pepsi, Nestlé.

The rural development model

The rural development model was the most complex system reflected in the key themes and subthemes identified in the focus groups (Figure 13). The model incorporates many elements of the agri-industrial and post-productivist models, while further expanding the contribution that agriculture can make to regional development.

This was reflected in themes including environmental stewardship (and the need for increasing education in this area), as well as the need to consider the bottom line. That is, adapting to place-based development and contributing to community is beneficial, as long as there is a reasonable expectation on how much time and effort farmers/communities/organisations/governments should expend without any direct reward or benefit.

In the case of the rural development model, considering the bottom line also included considering the need for incentives for individuals, governments and industry to invest in rural development; to understand that it is important for the individuals, governments and industries to be financially and economically successful; to consider the increasing impact of cost of living; and that regions need to be political attractive to gain investment and support.

The following quotes provide a sample of the discussions reflected in the rural development model themes generated from the focus groups (Figure 13). The title of the related theme from the Figure is at the start with each quote in italics.
Politically attractive (Bottom line): … my concern with bang for your buck is particularly when you are starting to think about place-based strategies, place-based approach to regional development, you look at the places that the Australian government has focused on today and it’s Northern Tasmania, it’s Latrobe Valley, there’s a little bit of North Queensland, wanted to do the Pilbara but didn’t have enough money, so South Australia and Eyre Peninsula, so we’re talking about political imperatives which drive the government to focus on those places, not that there’s a... some sort of industry there that’s going to give us a big bang for our buck.

The additional dominant themes within the rural development model included infrastructural or service support, global market trends, individual characteristics, connectedness, and informed holistic planning (Paddock to Plate). That is, in order for rural development to be successful, there needed to be an investment of the appropriate infrastructure and services (for example, roads and public transport).

Infrastructure & services: …it became quite clear that for those economic activities on the farms to operate they needed all the support elements of transport, infrastructure, the services in local terms to support the social end of production aspects of those farms but also we’ve introduced those elements of natural resource management and the fact that there’s multiple values on rural land that need to be supported as well.

Success was also dictated by global market trends and farmers, industry and government need to consider what is happening on an international scale before implementing any business or policy change.

Farmers need to engage in holistic planning before implementing change or making decisions on regional development/diversification. This involved understanding supply chains and the needs of markets (for example, tourism). Therefore, to engage in place-based regional development, people need to be innovative, people need to give and receive skills, and people need leadership that empowers the local community and supports independence (for example, from government support).

Leadership (Individual characteristics): I think... honestly I think we completely lack leadership, we lack vision. So I’ve just been in Melbourne at the [name] meetings last week. There is complete absence of engagement with these sorts of issues at an industry leadership level, complete absence, so I think that’s why I guess I have some energy for this regional thing. Somewhere we’ve got to get leadership that’s actually going to help provide some picture of the way forward that’s actually viable, that works.

Innovation (Individual characteristics): And I guess where we got to was again, utilising holistic farming systems and that approach and embracing innovation and realising that there’s hardly any continuum, it’s exactly that; we need to see high calibre research developed and then synthesised in a way that people can embrace it and move forward.

Participants identified social capital reflected in discussions about connectedness between levels of governments, industries, organisations, communities and farmers as critically important to successful rural and regional development. The connectedness theme was linked to three subthemes of community engagement, place and people specific, and miscommunication or disconnection.

Community engagement was identified as important, as farmers and the community need to develop a relationship if rural development is to occur. Community engagement could occur through educating communities about farming and the life of farmers, as well as through enhancing recognition of farmers' multiple contributions to regional development. Technology, particularly the use of social media, was identified as a useful tool to engage the community.

The importance of place and people was also reflected as a subtheme of connectedness. That is, the need to recognise that each place and its people are different with different histories, cultures and connections.
The final theme within connectedness was miscommunication or disconnection. This theme represented the impact that miscommunication or a disconnection between government, industry and regional groups have on the success of a region’s development. Further, the impact on successful development also extended to the disconnection between rural and urban communities, with urban communities not understanding the needs of rural communities and vice versa. This disconnect is also associated with the perceived negative perception of farming by the public, which can impact rural development.

The following quotes provide a sample of the discussions reflecting the rural development model themes generated from the focus groups (Figure 13).

Interdependent relationships (Connectedness): …there would be benefits from potentially greater connection with communities and some of those sort of things, greater understanding of agriculture and the way the industry operates, increase… less dislocation between the ag sector and other people within the economy.

Place and people specific (Connectedness): So in a region, you don’t have an average farmer, you have got a continuum of people and so it’s a mosaic and you are going to have to, when you look across the landscape you will see all of these different farms operating in different ways, with these different beliefs and generating potentially different outcomes on different farms, so I think that’s, we can’t… it, you know for each of those questions there might be a slightly different answer, depending on who the farm manager is you are dealing with and what their paradigm is…. 
Figure 13: The generated themes of the rural development model
Interview participants, although identifying that agriculture was predominantly still operating in an agri-industrial model, generally agreed that there were opportunities for production within a rural development context. There was a lot of interest in the rural development model by farmers.

A number of interview participants who identified that there were more opportunities for expansion in the rural development model also indicated that this market had size limitations. The agri-industrial oriented dairy industry, for example, did not see the Mungalli Creek (organic dairy product supplier) as competition to the traditional agri-industrial production system, but as an alternative market (due to limited market demand for this high value product). Similarly, the marketing of horticultural products was limited within the regional food networks as the size of the market in Cairns and region was not very large.

Producers were therefore dependent on larger domestic markets in Brisbane, Sydney and Melbourne. It was generally agreed by interview participants that it was becoming increasingly difficult to compete in these markets, not only because of cost price pressures, but because larger corporate producers were increasingly monopolising the major retail supply chains. Retailers like Woolworths and Coles demanded contracts that guaranteed security of supply. For example, in the horticulture industry, smaller family farmers were left to subcontract to larger suppliers or sell into the traditional wholesale markets.

Across industry sectors, it was agreed by interview participants that there would be another rationalisation of farmers as a result of increasing financial pressures and the ageing farm population. Those that did remain were increasing their scale of production and seeking to establish supply agreements with the retail chains, or to diversify into the rural development model of production.

As they’ve become bigger businesses, they’ve become more professional if you want to look at it in those terms, it’s certainly more business-like and so one of the things that really changed in the late 1990s was people like Woolworths became very prescriptive around their product specification and so to give an example I guess, the early 1990s, the supermarkets used to go into a central market situation and their product description was ‘best on sale for the day’ so they would take what was ever there. By the late 1990s they would say, no, this is our product description, you must grow fruit to match this. And so suddenly that started to place some management pressure I guess on growers and as the supermarkets became more dominant, and they also implemented a range of other policies and one of them was the desire to source more fruit directly from growers, that in a way influenced a lot of very successful growers in the industry to get bigger so that they would have sufficient volumes to deal directly with the supermarkets.

Critical factors for place-based regional development

Infrastructure and resources were identified as critical factors from the focus group analysis that influenced the development of regions. Transport and logistics were particularly important to the development of supply chains, and access to domestic and international markets. Infrastructure needed to be innovative and resilient by capitalising on the latest technology and information. For example, incorporating our changing understanding of the risks from cyclones and flooding as a result of climate change. The following quotes are provided to give real world voice to the analysis.

Infrastructure & resources: The regions are a very powerful place to start to bringing together the different sectors in getting the people and making the decisions on infrastructure and roads and logistics and that sort of stuff to understand we’ve got to get the food out and we’ve got to process it and where we are doing the processing.

The environments and natural assets of a region were identified as critical factors for the success of a place-based framework. There was a need to manage assets for future generations but there was contention over asset ownership and perceptions of interference particularly from those outside of the region. This was particularly discussed in relation to the influence of the World Heritage listing of the
Wet Tropics on agriculture and its development. Environment and natural assets were also identified as important in defining a region.

Ownership (Environment & natural assets): ... yeah, and if you look at some of those things like live export, it’s all Southern Australia metropolitan people who hold the same viewpoints quite different from anywhere else in the country and it was the same with the environmental policies, a lot of those were driven by the people in Sydney and Melbourne...

Defining regions (Environment & natural assets): Yes, it’s interesting how many different ways you can cut up the one pie, the pie which is Australia geographically, on a supply chain basis, on an NRM-based catchment or region or around a regional Australia-based approach or a local government approach or the different ways in which you can cut it up. And I guess while that’s nice, the question would be if you look at different ways of cutting that up, what gets the best level of community buy-in

Institutions, as discussed in roles and responsibilities, are critical to place-based regional development. Examples discussed included regional planning, marketing, financing and RD&E. Similar to the other themes, institutions also play a connectedness role in ensuring whole-of-region development, reflecting again on the importance of social capital.

Future preparedness (Institutions): But there’s a huge influence I think from the focus of agricultural research over the long term in the Australia and the kinds of farming that we see as a consequence. So there needs to be not just more research and education but serious thought given to what the focus of that should be.

Integration was the final theme identified as a critical success factor in the focus group analysis. Issues discussed included the need to break down silos, and the importance of whole of region coordination and voice to support development. Governments can assist in this by creating policies that facilitate regionalisation and create funding opportunities that encourage regions to be collaborative rather than competitive.

As identified within the Government policy theme, power and control often sits within high levels of government, and this has a large impact on the success of regional development strategies. Devolution of power would support a more integrated approach to development.

Intra-regional coordination (Integration): So if you look at an industry or multiple industries, the agriculture industry, can we, can you map the influence of that industry and then present a sort of a coherent argument to government about how influential, collectively these industries are in this place.

Governments create silos (Integration): … it’s people probably in the government level because it’s easier for them to do it too. You can regulate nicely for silos, much more difficult to regulate for integration so perhaps it’s against [the government’s] culture of regulation.

The thematic coding from the focus groups and workshops was further refined in the analysis of interviews into six themes representing success factors: social capital, human capital, balancing needs, strong regionalism, infrastructure and resources and governance and institutions as part of the further development of the framework.

Social capital was described in similar language to that in the focus groups emphasising the importance of connectedness and networks within supply chains and communities. Social capital in interviews was associated with all models of production although connections and networks became stronger in the post-productivist and region development approaches.

Oh yeah, a lot of it's volunteer, I lose a lot of money by doing it. But a lot of these things are networking too, meeting people and other things … those networks are, I can make a phone call and talk to bloody most people.
**Human capital** was identified similarly as important in all models of production. Those in the agri-industrial production system who were increasing in scale needed to adopt new production and management systems. Post-productivist systems similarly required new knowledge and skills as part of the development of new sustainable farming systems, while rural development approaches required new knowledge and skills to value add and develop new supply chains. The ageing population of the regional farming community was regularly identified, and the need to support younger people to remain in the industry.

*So the 30 year olds that should be coming back onto the farm they’ve sort of got jobs elsewhere and we sort of missed that, so the father is staying on a bit longer. So the next wave of young ones, 18, 19 year olds, the ones that are coming through. But we’re just trying to develop programs. We want to set up regional groups in each mill area down the coast.*

**Balancing needs** continued to be a common theme in discussion in relation to managing the farming systems with financial and environmental pressures, and the need to spend time with the family. In the agri-industrial system, how to balance the needs of the farmer and the processor were identified in the sugar and dairy industries. This links back to human capital and social capital in terms of the ability to negotiate and develop trusting relationships to achieve mutually beneficial outcomes for farmers and processors.

*And so we went through this period where the industry adjusted itself, which is the polite way of saying people bloody... people left, and it’s sort of got to a level now where from the company’s point of view the amount of milk now is – quote unquote – ideal. But from a farmer’s point of view, everybody wants to be able to grow their business and grow their opportunity and right now the opportunity exists to grow within a pool as opposed to sort of growing it bigger than that.*

**Strong regionalism** was identified in terms of the need to take advantage of the region's environmental values by marketing products and linking with the tourism industry. Participants identified that there were many players in the regional development space, and it was important that regional development agencies worked together and added value. The agri-industrial sector was well serviced by industry. Strong regionalism, therefore, had links back to social capital for it to work effectively.

*With the industry groups, for want of a better word, we try to stay out of the road. We really just try to keep a strategic point of view and see where we can add value to what’s already happening.*

**Infrastructure and resources**, to a certain extent, were taken for granted by participants who were operating in an established agricultural production region. The corporate investment in the processing sector in sugar and milk had been welcomed, as it provided new capital and security to farmers that they would have a mill or factory to supply into the future.

There was also acknowledgement by participants that government support for infrastructure had enabled some individual businesses to diversify with Mungalli Creek and Gallos often mentioned as positive examples. A number of participants, however, acknowledge that government investment particularly in individual businesses could have achieved better outcomes.

The need to protect agricultural land was identified by a number of participants as important which links to effective institutions.

*The biggest thing for Mossman was the lack of confidence in the mill and now that Mackay’s bought us out and there’s a greater confidence, like that’s been the biggest turnaround for our area to get sugar cane back into those long-term fallows and just the confidence in the mill.*

**Effective governance and institutions** were reflected in participant discussions about the roles of organisations and governments. The need for effective institutions to support agriculture and regional
development, and ensuring local planning schemes protected agricultural land whilst balancing the needs of retiring farmers, was reflected in participant interviews.

I mean you get a lot of where it used to be one big farm, you’ve probably got about ten people on that and you might have someone that’s got horses and you’re not 100 percent utilising that land and then it gets a bit hard then to do your farming practices ‘cause they don’t want you making noise or you can’t spray and you can’t do that. So it does get, to me the little hobby farmers are a little bit more of pain. But I can see why the farmer did that, they probably needed, they were relying on the farm to be their superannuation and it was the only way they were going to get their money was to sell off some blocks.

Roles and responsibilities for place-based regional development

The focus groups' discussions of the roles of different organisations, industries and government in place-based regional development incorporated all three perspectives of agricultural contribution (i.e., agri-industrial, post-productivist, rural development). The initial coding of themes in which roles were organised were Community responsibilities, Individuals, Government policy, Industry peak bodies, and Institutions. Each is discussed in turn and sample quotes are provided to give voice to the analysis.

Community responsibilities reflected the contribution of social capital to regional development and sustainability. 'Community' did not necessarily reflect the regional community but also the government community and the industry community. Thus the role of communities was to connect and bridge different groups, organisations and factions, and ensure that all worked together in a collaborative, not competitive manner.

The theme of 'collaborative not competitive' also arises within the theme of Government policy and Integration (discussed later). Thus, this theme highlighted the issue of people, communities and groups/organisations needing to work together and support each other for the betterment of all. In addition to these themes, for place-based regional development to occur, there needs to be some recognition of the contribution of farmers as well as direct support for agriculture from the community. This is consistent with themes identified within the definition of the rural development model.

Bridging & Community supporting agriculture (Community responsibilities): Oh there is, there’s been a recent survey that’s actually shown there is the change in the whole level of support but I think (name), agriculture generally in Australia’s probably missed the boat a bit with the new generation coming through and I think a lot of other companies have felt that as well... according to this there is no loyalty to local community and so I do think we need to get back to that regional linkage and rebuild it from there.

The role of the individual (for example, farmer, producer, or business person) also similarly reflects the themes within the definition of the rural development model. It is the role of individuals within a place-based regional development framework to be leaders in their region, to be a creative and innovative entrepreneur and to use the latest cutting-edge technology so that the region can be competitive.

However, some factors need to be considered in order for individuals to fulfil these roles. First, individuals who attempt innovation are often inhibited by limited finances and limited knowledge on different pathways to diversification. Thus, in order to allow individuals to be entrepreneurial, there needs to be identified sources or organisations which the individual can access for advice on implementing ideas. Though sources or organisations may already exist in regions, individuals may not necessarily know of these. These needs are consistent with the roles identified in the major themes 'Institutions'.

Pathways to diversification (Individual responsibilities): I’d be saying let’s not worry about these political strategies, let’s do an investment prospectus for each of the regions because that way we can take what you want to do in this particular industry, relate it to the region, and you can
figure out whether that region is friendly or what do you want to do; has it got the infrastructure and the services, has it got the leadership that is ready to support you.

The second factor that needs consideration in order for individuals to fulfil their roles is that of the need for professionalisation of farming. Farmers are an ageing population with less young people attracted to farming as a career. Thus, one argument within the focus groups was that of how to make farming an attractive career and how to recognise the complexity of the occupation. There is both a recognised need for some degree of professionalisation within farming for future generations as well as a need to develop the skills of those already in the occupation.

Professionalisation (Individual responsibilities): Then it went into workforce development; we also looked about the perception of agriculture and career development and how everyone just thinks of agriculture as humping bananas as an analogy whereas actually there’s a lot more that happens in agriculture rather than that which we’ve got to shift the focus on agriculture but to get people to come into the community, to be part of the community, is making it more liveable.

Themes around the role of Government policy centred on facilitating empowerment in regions, as well as easing the negative impact of policies and over/under regulations. That is, it is the role of governments to implement policies that facilitate place-based regional development, that encourage collaboration between groups and organisations within a region, and that eased the access to resources, infrastructure and markets that are necessary for the diversification of the farming businesses or region.

Collaborative not competitive (Government policy): But if I could also just recount another experience with where cross-agency cooperation has really worked well and really efficiently was in the [Place] …that we would invest 195 million in this community. And then the job was how do we spend, what are we going to spend it on and we got … everyone around the table and said okay, that’s what we’ve got to spend, what are we going to spend it on, what are the priorities in the community? You go and talk to community and you work it out. So it’s a really sort of efficient and truncated way of doing it; … But it was very effective and the local community really like it.

Collaborative not competitive (Government policy): It was a good partnership model of Reef Rescue rather than the current pure competitiveness of the Caring for our Country Program. It wasn’t just you against me, it was a bit of widening… it was a little bit of you against me, there was some competitiveness in it but it wasn’t absolutely competitive.

Policies for regionalisation (Government policy): Yeah, and I guess that’s probably where we see the role of government as being more that role rather than actually going out and telling an individual business that they might do… plough your land this way or that way. In getting more away from that whole hands-on extension and looking more at that broader agriculture development process

A number of factors need to be considered for effective policy making. First, and perhaps most importantly to the participants involved, was the consideration of the impact of power and control at the federal and state levels of government. This power is often demonstrated through the funding of research, where the higher levels of government determine where funding is spent and what services should be delivered.

It was also recommended that governments should re-examine existing regulations (or lack thereof) and identify their impact on regions and farmers. Finally, it was thought that the role of government policy was to identify the need for and to allow for privatisation where necessary and beneficial to the region.

Power and control (Government policy): Yeah, I think from what I have read and what you hear in the policy discussions, I think there’s this placed-based approach in that sense of community, sustainable communities, will be generated from decision making at a local level, that decentralisation, not literally, practically, but in, I mean empowering sort of local communities and these regional development advisory groups and so forth who have the insight and
knowledge and the background to know what are the strengths and opportunities within each region which varies considerably across Australia and they, having them play a greater role in advising, the money decision makers when it comes to different levels of government.

According to the focus groups, the role of Industry peak bodies was critical to regional development. They play a key role in bringing the needs of the region, farmers and, the community to governments.

It was felt that peak bodies understand the needs of farmers as they operate at a grassroots level. Though they do have a role in investing back into the community, this is focused on their particular industry. Ultimately, industry peak bodies are concerned with industry development, not broader rural or regional development. The role of industry peak bodies in place-based regional development is therefore more clearly associated with the agri-industrial model.

Bridge by lobbying (Industry peak bodies): …so we actually do our own industry data and produce our own industry report and try to put those issues out there to help guide the players. But you’re right, that’s about as far as we can take it; we try and influence government policy of course.

The roles and responsibilities theme was further refined in the interview analysis to community, individuals and business, industry peak bodies and governments.

Community

Interview participants recognised that agriculture sat within the broader rural and regional community and needed community support. Increasing pressure on farmers, however, was limiting their time and capacity to engage in the community. A participant pointed out that many of the themes identified in the rural development model were historically reflected in the agri-industrial production model prior to industry deregulation.

Critically important was the need to work across industry silos and be strategic in terms of organisational engagement. There were many organisations and groups, and it was important that groups were well connected and networked (social capital) in the region and worked to add value to each other (strong regionalism and institutions).

Regional development organisations can play a key role in bringing community together, creating the pre-conditions needed to better integrate the agri-industrial, post-productivist and regional development models. Institutions like Terrain NRM, for example, were seen to play a role in supporting producers make appropriate linkages between the post-productivist and agri-industrial role of agriculture. On the other hand, regional development bodies like Regional Development Australia, Advance Cairns and the Tablelands Futures Corporation, were seen to be important in building social capital and arguing the case for improved infrastructure and regional services important to agriculture.

Individuals and businesses

Interview participants highlighted the increasing need for individuals and businesses to take responsibility to build their own knowledge and skills if they wanted to remain competitive as governments withdrew support. Farmers, however, were often reluctant to invest in their own professional development and innovation clusters without government incentives.

Industry peak bodies

Strong industry organisations were particularly important to cooperative marketing of products with large corporate mills and factories in the sugar and dairy industry. Interview participants suggested that industry organisations shouldn’t just be about lobbying, but investing in industry development.
Industry needed to continue to play an important role in funding RD&E. Participants suggested extension/industry development officers may be better placed within industry organisations than in government.

**Government**

The traditional role of governments in delivering agriculture RD&E services was viewed as changing. Government was increasingly seen as reducing its responsibilities to priorities including biosecurity and natural resource management. Although Government funds RD&E, this was increasingly being undertaken by private providers and universities rather than by departments of agriculture.

There were different perspectives on the role of government in the provision of infrastructure as part of industry development. Some interview participants identified the importance of government grants to the development of new businesses, including Mungalli Creek, Mount Uncle, and so on. Others questioned whether some of these investments could have been better targeted and indicated that government was better funding enabling infrastructure rather than specific business development.

State and local governments were identified as playing important roles in protecting agricultural land.

**Future challenges for agriculture**

Challenges to the three models of agriculture’s contribution were identified. Themes from the focus groups included sustainability of production, reflecting concerns about the availability of resources (for example, water, healthy soil), ability to trade competitively (for example, free markets, Asian markets) and the increased cost being experienced by farmers.

*Effective and efficient markets* was also a concern in regards to meeting and understanding the demands of the Asian Century, as well as negotiating the challenge of increasing supply chain monopolies (for example, Woolworths and Coles).

International trade and effective efficient markets: *So one of the things we’d love to do and we actually have a person we want to hire to do it, is this export market identification including... because it’s part of the National Food Plan but it’s what Asia wants but from the detail that we can get, it’s pretty broad... China wants apples in October, who cares? We also need to know what are the potential barriers, what are the potential channels, what bio-sensitive measures are required and do a full audit of what’s actually involved in getting a product into all these different markets and we’d like to do that.*

The *farming efficiencies theme* reflected discussions about the need to maximise the contribution of existing regions and industries including land and infrastructure. This was also reflected in discussions about foreign investment and the role it may play in the development of agriculture in the future and concerns about the need to protect the national interest.

Developing existing industries & infrastructure (Farming efficiencies): *... in terms of development in northern Australia I think you know, that’s all well and good but there are growers here on the ground already that aren’t being utilised as much as they could*

*Environmental challenges* included managing the threat of foreign and domestic pest and diseases that would impact on Biosecurity as well as being able to generally Protect the environment for its aesthetic qualities. Additional environmental challenges included the need to invest more into Disaster management strategies (such as cyclones and flooding) and increase education about the challenges around Climate change.

Protect the environment (Environmental challenges): *The other side of it as well is if you’re going to put an increasing focus on the value of the agricultural areas and the productive elements of that then also you’re talking about the environmental stewardship involved in that, it’s also important to think about are we investing enough in a management of our areas that are held for environmental values; I don’t believe we are so there’s not enough community*
acceptance of that problem because they are very significant problems within the world heritage area and elsewhere that are not being addressed.

Bridging, Localisation of power, Needs of the future farmer, Balancing, and Innovation (Redefined and achievable) were themes generated that particularly related to the rural development model. Bridging, a theme consistently generated from responses across the three broad research questions, identified the challenge of agricultural communities and regions needing to speak with a Coordinated voice in order to be heard by governments.

The theme Localisation of power reflects an issue that was discussed consistently throughout the focus groups and workshop. This challenge was particularly discussed in terms of Environmental management and the significant impact this could have on sustainability and livelihoods with issues often seen differently from a national, state and regional level.

Disparity of views (Localisation of power): I think the Commonwealth plan was simply an incentive-based approach, would improve practice change over time and would achieve the outcome; and then we had a state government come in over the top and say, 'We want a regulatory-based approach to achieve that outcome here and now,' so you know that shows the tension between, between the different levels of government...

The theme Needs of the future farmer reflected discussions about the ageing farm population, workforce and skills challenges and that who is a farmer is being redefined with the corporatisation of agriculture. For example, is the farmer of the future a part of a large family business or a non-family corporation? Or, is the new-age farmer one who is technologically savvy with multiple degrees or someone who learnt the business of farming from a parent? How a farmer is defined will influence the strategies used to enhance sustainability and development.

Skilled workforce (Needs of the future farmer): ... the most innovative pineapple growers are the ones where as teenagers they left the farm, and they travelled the world, they’ve done their engineering degree, they did law, they did business degree, and they’ve been running a small business somewhere else and then they’ve come back to the farm. And they’ve seen how another system works and their university educated – they’re the most innovative growers when they get back and they run the most successful businesses.

Redefining farmers (Needs of the future farmer): It’s actually what is the new phase for the farmer, is it big corporate farmers or is it single little farmers, there’s foreign investment, so it’s actually looking at, your know our terminology as a farmer is a long and boring role, 20 years of bananas or something, you know what I mean like so we need to concentrate on what’s the future trend of the industry of the farming lobby, it might be corporations , it might not be small farmers.

The final two themes identified in the future challenges analysis of focus groups included Balancing needs and Innovation (Redefined and achievable). Balancing needs was a recurring theme throughout the focus groups that emphasises that at the end of the day, farmers are just people who have their own needs (for example, financial) that need to be balanced with broader expectations about agriculture can and should contribute.

Balancing needs: Following on from that is to me one of the challenges is that we truly have a need in the part of the world that I live in where you’ve got an intensively farmed band wedged between two iconic world heritage areas that are recognised and you need that development worldwide... and that combination alone has in the past and to me will continue to be a huge challenge for management groups, community alike to get a tangible balance between commercial reality of wanting to make a buck and protecting this unique environment that we live and work in.

The discussion about Innovation (Redefined and achievable) also highlighted the need to reconsider what was meant by the term and how innovation could take different forms.
Innovation (Redefined & achievable): We’ve done our own surveys with people, manufacturing people and they say, ‘We’re not innovative, we don’t have an R&D section,’ it gets back to this perception that you’ve got to have some scientist in a white coat. And we say, but look at what you’ve changed here, you’ve changed your product only a little bit, and that’s the other thing, they think you’ve got to have a Eureka moment, you’ve got to have this big new thing.

Increasing costs of production were the main challenges identified by interview participants. These included electricity, water, insurance and general inputs like fuel and fertiliser. Labour costs and regulations were also identified as challenges. Finally, the ageing farm population was discussed by all interview participants, and the challenge of getting more young people back into agriculture.
Appendix 2: Case study 1 - Agri-industrial contribution to regional development

Introduction

This case study provides a brief history of agricultural development in the Wet Tropics of North Queensland, highlighting the significant change in agricultural production since globalisation and industry deregulation began in the 1970s and 1980s. It explores these changes within the context of the sugar, dairy and horticulture industries and considers different possible futures for these industries.

It also explores the increasing corporatisation of Australian agriculture, and considers the future of the traditional family farm within this context. The case study highlights how increasing productivity gains have done little to halt the decline in family farming in Australia, and how the corporatisation of agriculture is changing the traditional roles and responsibilities of government, industry and farm businesses in the agri-industrial productivist system.

A brief history of agriculture in the Wet Tropics

European settlement in northern Australia is quite recent, with Cairns not founded until 1876, almost 100 years after the settlement in Sydney. Agriculture had difficult beginnings as European settlers learnt about the region's tropical environment and grappled with the economic and climatic challenges of growing crops and raising livestock in a new environment (Courtenay, 1978).

Coastal North Queensland was the physically least difficult and economically least peripheral to southern settlements, so by the middle of last century agriculture had become the region's dominant economic driver estimated to account for almost 70 percent of the Far North Queensland (FNQ) region's gross value of production (Regional Australia Institute, 2012). Over the past 50 years it has continued to grow, while other industries have also emerged, particularly tourism. As a result, agriculture’s relative importance within the region’s economy has declined to less than 20 percent of the gross value of production (Regional Development Australia, 2012).

The sugar, maize and beef industries have remained constants, while a number of other industries emerged including tobacco, dairy and horticulture to become significant contributors to the region’s economic and social fabric. While horticulture, particularly bananas, remain significant industries within the region, tobacco has disappeared and dairy has declined by 50 percent over the past decade (Tablelands Futures Corporation, 2013). At the beginning of 2000, just prior to complete deregulation of the dairy industry, there were 186 dairy farmers on the Atherton Tablelands (Anderson, 2004a). Today, there are 51 farmers supplying the Dairy Farmers factory at Malanda and another seven farmers supplying niche milk products into regional supply chains.

Government has played a central role in the development of agriculture in Australia. The Queensland government set up the Department of Agriculture in 1887 and not long after this established the Kamerunga State Nursery in what is now a suburb of Cairns, to trial a wide range of tropical crops (Queensland State Archives, 2013). Following World War I, Premier E. G. Theodore announced a scheme to completely reorganise agriculture to support economic development and population growth. A provisional council of agriculture was constituted in 1922 comprising representatives of dairying, cane growing, fruit growing, wheat and general agricultural industries. In 1925, local producer associations were organised on a commodity basis for various industries and in 1926 the Primary Producers Organisation and Marketing Act was legislated, establishing marketing boards for a range of Industries including sugar and dairy in Queensland (Canegrowers, 2013).

With the advent of globalisation and industry deregulation, these cooperative marketing arrangements have now been completely disbanded. This culture of cooperative marketing by farmers, however,
continues in the dairy and sugar industries. As this history establishes, the rise and fall of industries has been driven by physical geography and climate, markets, infrastructure and technology and changing government policy.

**Current situation/possible futures**

Agri-industrial productivist agriculture continues to dominate farming in Australia. It does, however, continue to undergo significant change driven by a range of factors including:

- globalisation and industry deregulation;
- changing consumer demands;
- technology and innovation;
- changing expectations about agriculture and farmers' duty of care with respect to environmental management;
- the continuing decline in agriculture terms of trade; and
- an ageing farm population (Productivity Commission, 2005).

These changes are reflected in the changing structure of agricultural industries, with an increasingly small number of large, often corporate, farm businesses accounting for the majority of production. For example, in the beef industry 30 percent of businesses account for 80 percent of production, while in the dairy and grains industry 30 percent of businesses account for 60 percent of the production (Productivity Commission, 2005). While these larger businesses have consistently produced positive returns on investment, smaller enterprises often struggle to make a positive return. These small farming businesses are 99 percent family owned, and increasingly rely on off-farm income for survival (Productive Commission, 2005).

This research confirms that these trends are continuing, and that two distinct types of farming enterprises are emerging. The first is a smaller number of large corporate businesses which may be family owned and managed, accounting for the majority of production, and the second is a large number of smaller family businesses which account for the majority of the farming population. The numbers of farmers in the sugar, dairy and horticultural industries in the Wet Tropics are expected to continue to decline significantly over the next decade as farmers age and retire, combined with the absence of the returns to attract or support younger family members to return to farming.

The motivations, needs and capabilities of an ageing agri-industrial farm population vary significantly when compared to larger corporates focused on maximising productivity and profits. This research supports the findings of others (see Anderson 2004a; McShane, 2012) that many family farm businesses are motivated by lifestyle as much as economic considerations. Despite this, there is a tendency to lump all agriculture together and assume that the needs of the industry are homogenous when they vary significantly between industries and regions.

There remains a need for a general focus on continuing to increase productivity reflected in both Australian and Queensland government plans to double agricultural production (Department of Agriculture, Fisheries and Forestry, 2012; Liberal National Party, 2013). Doubling production, however, is not a realistic objective for many farmers struggling to survive, considering debt and succession planning issues, and how to balance the various needs of off-farm employment and investments with farm production.

The stronger financial position of larger corporate farm businesses mean that they have a greater capacity to adopt new technologies and innovations, which will likely lead to an ongoing expansion of the productivity and profitability gap between corporate farmers and the many smaller farming
businesses. This, in turn, is likely to further reduce the returns to smaller farm businesses as real prices decline as productivity increases (Carroll, 2010).

This is leading many businesses to look to diversify and value-add by developing new niche products and supply chains outside of traditional bulk commodity markets. Examples of these changes are discussed in the Regional Tourism and Regional Supply Chain case studies.

There is also significant change occurring beyond the farm gate in agri-industrial agriculture as a result of globalisation and industry deregulation. In the sugar, dairy and horticultural industries there is a consolidation occurring in processing and supply chains, much of it driven by foreign investment. In general this has been seen as a positive as new capital is available to upgrade infrastructure increasing confidence in the farming community.

Tensions, however, have emerged in the sugar industry as new supply agreements and contracts are negotiated. In the sugar industry, foreign owned mills have also begun buying land to grow and supply cane directly. At present, there is limited information on foreign investment in Australian agricultural land with the Australian Bureau of Statistics recent survey providing the best estimate, that 44 million hectares or 11.3 percent of Australian agriculture is foreign owned (Moir, 2011). There is concern about the lack of transparency of the level of foreign ownership in Australian agriculture and that too great a concentration of ownership in the supply chain could reduce competition to Australia’s detriment (Keogh, 2012).

These changes in agri-industrial productivist agriculture have significant ramifications for rural and regional communities dependent on farming and agriculture for their economic viability. They also have national implications in terms of sustainability and food security (Lawrence, Richards, & Lyons, 2013). It is possible that over the long term, we could see farming and supply chains consolidate to a point where the traditional family farm is an insignificant producer within the agri-industrial system. Instead, the large retails and processors own or control the supply chain from the paddock to the plate.

Agriculture would have shifted as a result of neoliberal policies from an industry dominated by small family businesses to large corporates. A change to this extent would have significant implications for government policy. Regulating a smaller number of large corporate businesses to ensure environmental protection and food quality standards could arguably be simpler, but will have social and cultural implications.

Large corporate businesses are increasingly making explicit commitments to corporate and social responsibility reflected in, for example, the statement of core purpose by Lion, the new owner of the Malanda milk factory as ‘Growing sociability and wellbeing in our world’ (Lion, 2013). These corporates have a greater capacity to support their own research and development and to implement or require more sustainable farming practices through the supply chain.

This is already happening to an extent, with government increasingly withdrawing from agricultural research, development and extension, instead focusing on biosecurity and natural resource management to ensure sustainability. However, a policy and regulative approach solely focused on large corporate agri-industrial agriculture could also inhibit the development of post-productivist and rural development systems if the compliance burden in terms of food safety, environmental management and other factors becomes too great for smaller businesses. These smaller businesses could also lose access to research, development and extension service and intellectual property if government completely withdraws from this area.

Government strategies to double the level of agricultural production similarly seem focused around this new corporate model of agricultural production. Historically, governments have built dams and irrigation infrastructure, and ballotted farm land to a large number of smaller farming businesses to support the development of new rural communities. This policy approach drove the development of rural communities all across Australia including on the Atherton Tablelands with the construction of the Mareeba Dimbulah Irrigation Scheme.
National competition policy today, however, requires the real cost of water including infrastructure costs to be reflected in irrigation water prices. The economic viability of many agriculture development projects has since become questionable when assessed on economic rather than the more emotive ideas of nation building. Governments are shifting the risk of undertaking these developments to private investors so that in Australia, where it has been difficult to attract domestic investment into agriculture, foreign investment is playing an increasingly important role in agricultural developments (Keogh, 2012). For example, the new $700 million Ord River Stage 2 development is being undertaken by Kimberley Agricultural Investments, backed by Chinese foreign investment capital with only 20 percent of this development is being set aside for subleasing to locally run farms (Barnett & Grylls, 2013).

Although there is a consolidation of farms and supply chains within the agri-industrial system, family farmers still dominate production in the Wet Tropics. This research confirms, however, that the ageing population and declining terms of trade will continue to see a rationalisation of agri-industrial family farm numbers in the sugar, dairy and horticultural industries. This means smaller numbers of large producers enabling the adoption of new technologies, and the spreading of capital costs.

Although some sugar mills are purchasing land, it is unlikely that corporates can produce cane or milk as efficiently as family farmers who have generations of experience and a commitment to work hours that do not fit within normal industrial agreements. Family farmers also seem prepared to subsidise agricultural production to maintain their lifestyle and identity which is linked to farming. Family farming is, therefore, likely to remain central to sugar cane and dairy production although there will likely be an increasing mix of mill owned cane supply.

The post-productivist amenity value of land in cane and dairying regions in the Wet Tropics means that it is difficult to get a return on investment from land that has amenity real estate values. Those cane and dairy farmers remaining in the industry are, therefore, adopting new expansion strategies involving the leasing of land where practical. This creates potential risks from a productivity and environmental management perspective as farmers are less likely to invest in improvements on land that they do not own.

Family farmers who remained in the industry but who are not increasing their scale of production also increasingly have to work off-farm to secure an income. This similarly creates risks for productivity, as off-farm work can impact farm management and timing of operations. Miners, for example, may be home when it is raining and away when it is fine, limiting their capacity to manage the farm effectively.

The agri-industrial system remains an important income source for many smaller farmers pursuing post-productivist lifestyle or pursuing diversification and new niche markets discussed in subsequent case studies. Maintaining a place for smaller family producers in the agri-industrial system can therefore only aid food security and support resilience more broadly in the farming community.

Maintaining transparency and competition in supply chains and protecting agricultural land from residential development can all contribute to ensuring that smaller family farms continue to play an important role in agri-industrial agriculture in the Wet Tropics and more broadly.

Critical factors, roles and responsibilities

The roles and responsibilities within agriculture are changing with the increasing consolidation and corporatisation of the supply chains. Government traditionally played a central role in agri-industrial production, regulating marketing, funding greenfield developments and research, development and extension.

Industry deregulation, combined with an ageing farm population and foreign investment, is supporting a shift from government to the private sector in terms of these responsibilities. This has seen changes in established relationships around the supply and marketing of sugar, dairy and horticultural products.
The maintenance and building of strong social capital, particularly trust, remains important in the sugar and dairy industry. This is the case given the combination of large numbers of small family farms, strong industry organisations, large corporate foreign investors and a history of cooperative processing and marketing arrangements.

While these relationships have remained strong in the dairy industry, they are breaking down in some mill areas. Cane growers on the Atherton Tablelands and Tully mill areas are currently in dispute with their foreign owned mills. As a result, from 2014, Tablelands growers will bypass their local mill and truck cane to Mossman. This adds additional costs to production and will impact local communities, with trucks passing through Mareeba and a number of smaller rural settlements. The dispute revolves around grower concerns in relation to transparency in the sugar supply chain with Maryborough Sugar, now foreign owned, marketing their sugar outside of Queensland Sugar Limited who, prior to deregulation, had a sugar marketing monopoly. Within this system, growers were guaranteed payment based on the price of their milled product sold on the world market. Post deregulation, this system is not guaranteed and there are risks for farmers if transparency is not maintained within supply chains as there is generally only one efficient supply option for cane.

Foreign investment provides capital to revitalise industries and potential benefits in opening up new markets, but it also brings with it risk for growers if transparency is not maintained in supply chains, as it limits their capacity to negotiate a share in any increases in prices paid to millers and processors. These issues are not limited to the sugar industry and are reflected in recent debates about the purchase of Grain Corp by the American multinational, Archer Daniels Midlands.

The need for balance was highlighted in the research and this should be reflected in marketing arrangements. It can be easier to maintain and build trusting relationships where there is an equal balance of power in the relationship. In the retail sector, farmers have long campaigned for a mandatory code of conduct to regulate the major supermarkets (Bettles, 2013).

Each supply chain is different, but government may need to take a greater role in ensuring that agricultural supply chains in Australia remain transparent and that there is a balance between risk and reward for all those engaged in the system. The establishment of clear rules and enforcement arrangements can assist in building the social capital including trusting relationships that support place-based agricultural development.

The role of individuals within the community may also change, as there is a shift to farmers becoming employees rather than individual businesses owners. This has occurred in the horticultural industry where smaller mango farmers, who previously grew their own product, have taken employment with large corporate growers. The corporates benefit from the skills and experience of the smaller grower which can now be applied at a larger scale with state of the art technologies, enabling improved productivity and competitiveness.

The purchasing of land by sugar mills may similarly see traditional farmers increasingly become employees of these foreign owned corporate mills. This has potential flow-on effects to RD&E services, which have traditionally been supported by an industry-wide levy and government. In the dairy, sugar and horticulture industries, companies are beginning to employ their own agronomists. Governments are retreating from their traditional role in research, development and extension to focus on biosecurity and natural resource management responsibilities that involve more public than private benefit.

**Example of the dairy industry on the Atherton Tablelands**

The dairy industry, like sugar and tobacco, has a history of early expansion as a result of government support and regulation and, more recently, reform and decline as a result of industry deregulation. For decades, Australian governments used equalisation schemes subsidising dairy exports on the more volatile and competitive international markets from revenue generated on the regulated and protected domestic milk market. This system ceased with the deregulation of the industry (Anderson, 2004b).
In 1963, there were 966 dairy farms across the Tablelands and low lying coastal region of the Wet Tropics selling milk to three main factories, all of which were locally owned and operated by farmer cooperatives. By 1973, there was only one factory left on the Atherton Tablelands and by the 1990s, as a result of further deregulation, Tableland farmers decided to relinquish control over their dairy cooperative, merging with Dairy Farmers (Statham, 1998 cited in Anderson, 2004b).

At the beginning of 2000, just prior to complete deregulation of the dairy industry, there were 186 dairy farmers on the Atherton Tablelands (Anderson, 2004a). The dairy industry provides useful information on the impact of deregulation on agriculture in the Wet Tropics as Jan Anderson completed a PhD research thesis on the industry between 1999 and 2002 (the period in which deregulation was fully implemented).

Dr Anderson’s research explored the impacts of neoliberal reforms through deregulation of the industry and government extension services. She found that the government, through extension programs, was seeking to facilitate a change in the dairy industry culture from one of family farming to seeing dairying more as a business. Programs like Futureprofit and Dairying Beyond 2000, that were delivered through the Department of Primary Industry, provided farmers with skills in business management and strategic planning whereas traditional extension services had provided technical advice on production.

Interestingly, it was many of those farmers, who had completed these courses and were probably in a better position to remain in the industry with larger herd sizes and considered more innovative, that decided to leave the industry (Anderson, 2004a). Responses to neoliberal reforms including deregulation and changes in extension services were, therefore, best understood in terms of farmers own traditional cultures including lifestyle and family tradition. Anderson (2004a) found that deregulation accelerated the cost price pressures that need to be managed within the dairy industry rather than changed the traditional culture that has maintained dairy farming in the region.

Dairy farming families that remain in the industry value their farm as part of their family tradition and culture as much as a tradable purchased good or asset and have continued to develop new ways to maintain their business and lifestyle. One family member, often a woman, was found to now work off-farm earning income (Anderson, 2004b).

Following the first three years of deregulation, it is not surprising that the number of dairy farmers decreased by more than 30 percent from 185 to 127 by October 2003 following a decline in milk prices from 36c per litre to around 30c per litre (Anderson, 2004b). The industry continued to look to new ways to survive post deregulation. For example, GROWMalanda was an initiative funded through the Federal Government Sustainable Regions Program to look to improve returns to farmers and the dairy factory by increasing the protein content of milk produced. It was a participatory regional development initiative involving a partnership between farmers, milk processors, researchers, extension officers and regional development organisations (Crawford, Paine, Smith, & Davison, 2006).

Today, there are 51 dairy businesses on the Atherton Tablelands supplying whole milk to the Dairy Farmers Factory that is owned by multinational food and beverage company, Lion. Confidence levels in the Queensland dairy industry have fallen to record lows with only 31 percent of farmers positive about the future of the industry driven by concerns about farm gate prices and profitability (QDO, 2013).

To remain competitive in the agri-industrial productivist system, farmers need a competitive advantage. Queensland Dairy Accounting Scheme (QDAS, 2012) figures highlight the lower productivity of North Queensland dairy grazing production systems as compared to southern Queensland systems. Dairy operating profit $/cow from North Queensland grazing was $193 as compared to $349 for Darling Downs grazing and $930 for the partial mixed ration (PMR) production system. Returns on asset for North Queensland grazing was 0.9 percent as compared to 1.4 percent and 4.8 percent for Darling Downs grazing and PMR respectively (QDAS, 2012).
The North Queensland dairy industry, however, does have a comparative advantage when it comes to fresh milk sold into North and West Queensland markets. The challenge for local dairy farmers is to maximise this comparative advantage by turning it into a competitive advantage. This will involve better understanding how to match supply with demand and exploring how best to maximise consumption of locally produced fresh milk which could involve, for example, provisional branding.

Woolworths and Coles are moving to develop provincial brands in southern states through direct contracting to farmer groups and cooperatives, for example Manning Valley, Murray Goulburn and Norco (QDO, 2013). The supermarket milk wars have depressed farm gate prices, with the gap in privately branded and branded milk prices now more than one dollar. The move to directly source from farmers is an attempt by supermarkets to promote an image of social responsibility, thereby improving public relations and increasing farm gate price transparency.

However, milk still needs to be processed and there is only one major factory on the Tablelands (QDO, 2013). Recognising and better understanding the region’s competitive advantage, in this case the fresh milk market, enables farmers to focus on maximising profits. Central to this must be a strong farmer cooperative which highlights again the importance of social capital to maximising agriculture’s contribution to regional development. The dairy case study also again highlights that it is the capacity to better understand and manage supply chains and markets that provides farmers with their best chance of maintaining a competitive advantage rather than a singular focus on productivity.
Appendix 3: Case study 2 - Post-productivist model and agriculture’s increasing contribution to environmental stewardship

Introduction

This case study provides a brief history of the national emergence of a post-productivist approach to agriculture, and explores how this has specifically emerged within the Wet Tropics. The Wet Tropics has actually played a strong leadership role in the emergence of these national frameworks, and as such, institutions in the region have quite clear views about the factors that enhance post-productive agriculture and the national reforms that are required to make such a system work effectively.

A brief history

Australia’s economic history is steeped in the agri-industrial development through commercial agriculture, forestry and grazing. With environmental issues taking on a higher profile from the 1970s, the initial state approach to dealing with NRM problems was via compliance-oriented regulation. Van Oosterzee et al. (2013) show that these predominantly urban approaches were, with little question, later transferred to rural landscapes and industries. Consequently, from around the 1990s on, purely regulatory approaches in managing rural landscapes had begun resulting in farmers and land managers generally having to wear the social and economic costs associated with the delivery of environmental outcomes on behalf of the State.

Since then, the policy foundations and delivery frameworks for a post productivist approach to agriculture have been unfolding. In describing this timeline, van Oosterzee et al. (2013) show that fortunately, in a parallel, place-oriented movement over the same period and across the Australian landscape, many landholders were starting to come together to embrace more long-held notions of local stewardship (Lockie & Vanclay, 1997; Prager & Vanclay, 2010). Some sense of regional or catchment scale coordination of both these regulatory and/or voluntary activities also began developing in individual states from the 1980s via the emergence of Integrated Catchment Management (ICM) Groups (Lockie & Vanclay, 1997).

From 1996 onwards, the momentum established under the ‘Decade of Landcare’ was translated into a new national grants-based program; the Natural Heritage Trust (NHT). Funded through the sale of Telstra, this program became the nation’s most significant, nationally competitive, grants-based stewardship-action programs.

However, the fragmented foundations of strong regulatory and weak grant-based approaches in the 1980s and 1990s failed to stem the exposure of several latent and regional natural resource crises, including the collapsing health of Murray Darling Basin and the increasing threat of poor water quality in the Great Barrier Reef lagoon. At the same time, fresh state-based regulatory approaches (for example, the banning of extensive tree clearing) also triggered declining trust among communities that had traditionally seen governments as partners in improving agricultural production via the provision infrastructure and technical extension services (Gowen, 2009; Productivity Commission, 2003).

Consequently, by the turn of the century, a theoretical shift in natural resource governance emerged (Robins & Dovers, 2007), and the Australian Government sought to became more involved in NRM in agricultural landscapes (Dale, McDonald, & Weston, 2008).
This new approach particularly focused on enhancing more place-oriented community, farmer and land manager stewardship approaches to delivering better NRM. Through fostering strategic (largely regional) action, it also sought to improve connectivity among decision makers, improve the use of knowledge and build the organisational health of institutions at different scales (including farm scale) to undertake planning, implementation, monitoring and evaluation (van Oosterzee et al., 2012). In effect, these reforms represented a real shift away from a purely productivist view of agriculture.

**The ebb and flow of place-based land stewardship**

From 2001 onwards, formally negotiated Commonwealth-State arrangements spearheaded reforms in the delivery of community based NRM. Under these reforms, regional NRM bodies (groups that could demonstrably represent the community) were to develop and maintain regional NRM plans. The planning process was to secure regional consensus among community sectors (including landholders) around aspirational and resource condition targets across a range of natural assets. NRM bodies were to be governed by boards representing various regional skills and sectors. Investment and effort mobilisation strategies developed with the wider community were also to be focussed on motivating and engaging land holders to improve management practices (Dale et al., 2013).

Van Oosterzee et al. (2013) consider that, between 2001 and 2007, when these new regional arrangements emerged, continuing improvements in the capacity of landholders and agricultural industries across the nation emerged in a number of areas (see also Robins & Dovers, 2007). With their extensive landholder networks, regional NRM bodies (together with industry organisations and local Landcare groups) provided the technical and facilitative services for sustainable agriculture required by many rural landholders. As they were often trusted more than government workers, such operatives tended to be a key point of property-scale extension for a wide range of NRM knowledge, advice, funding and support (Marshall, 2009).

By 2007, the implementation of this new national framework, while still experimental and with varying strengths and weaknesses (Lane, Robinson, & Taylor, 2009), had generally resulted in a shift towards more devolved regional approaches that could achieve more integrated NRM (Commonwealth of Australia, 2012). The framework could also be readily adapted for managing the landscape-scale impacts of climate change by guiding the aggregation of greenhouse gas abatement and sequestration and other ecosystem service delivery activities, in line with spatially articulated priorities and regionally agreed management action targets set out in a region’s integrated regional NRM plan (van Oosterzee et al., 2012).

After 2007, however, there was a significant retreat from this more multi-layered, place-based approach, undermining Australia’s more devolved regional model in a number of ways (Robins & Kanowski, 2011), reducing the capacity of farmers to become more involved in environmental stewardship over time. The new Federal Labor Government sought to differentiate itself from its predecessor with a new, more neo-liberal approach to investment aimed at better targeting national priorities (Robins, 2010). The *Caring for Our Country* (CFOC) program swung the governance pendulum away from a devolved regional framework capable of tackling complex problems requiring integrated approaches (Robins, 2010), to one focused on a range of isolated but tailored investments (Commonwealth of Australia, 2012) similar to previously rejected programs of the 1980s and 1990s. The reframing and delivery of the new CFOC program re-centralised control, reducing its focus towards short-term, measureable outputs and losing ongoing investment by state governments (Robins & Kanowski, 2011). Consequently, many stakeholders in the Australian landscape now found themselves heavily disengaged, restricted to annual grant systems and unlikely to help with the delivery of NRM outcomes in the future (Robins, 2010; Robins & Kanowski, 2011).

Despite significant community effort and cost, regional NRM plans were also ditched as the platform for allocating funds, with more integrated approaches to NRM diminished as a result (Robins, 2010; Ryan, Broderick, Sneddon, & Andrews, 2010). Locally, the resulting uncertainty frayed emerging relationships built over long timeframes.
In a fortunate development, however, and at odds with CFOC’s stated desire to shift away from the role of regional plans, the Commonwealth’s *Clean Energy Future* (CEF) plan (developed via another agency) revived the use of regional NRM plans. According to the government, this would ‘be the most productive, effective and efficient way of planning for Australia’s future at a scale that historically has been effective in maintaining and enhancing regional values, including communities, and targeting NRM investment’ (Department of Sustainability, Environment, Water, Population and Communities, 2012). The new CEF included a wide range of activities which will not only support emissions reduction, but new ways of thinking about securing landscape resilience and managing/storing carbon in our landscapes (Dale et al., 2013).

In summary, while the main CFOC delivery framework had retreated to a neo-liberalist delivery approach, the more market-oriented approach envisaged in the Carbon Farming Initiative (CFI) started to deliver some return to a more structured regional framework that would allow farmers to participate in delivering environmental outcomes via nationally regulated but international ecosystem service markets. With a new Australian Government considering a return to more devolved, place-oriented regionalism, this presents land managers new opportunities to embrace a more post-productivist view of agriculture.

**Current situation and possible futures**

Urban and rural Australia will struggle to reconcile their cultural divide if government continues to take a simplistic approach to regulating away the economic opportunities of land managers to deliver the ecosystem services desired and required by those living in Australia’s cities (Dale, 2014). However, if we are to create a place-oriented post-productivist approach to agriculture inclusive of a functioning ecosystem services economy, a simple and understandable national, stewardship-oriented policy framework first needs to emerge. A new national NRM framework is needed, and within this context, the Australian Government could re-establish in-principle agreement on the need for society to pay for those ecosystem services required beyond the current duty of care responsibilities of land managers. The Australian Government would also need to, through national partnerships, secure an appropriate policy and delivery framework for managing these ecosystem service payments.

While there have been some limited and emerging market-based approaches within a broader policy-based stewardship framework, one of the first real opportunities to fund a broader range of ecosystem services continues to emerge (CSIRO, 2012). The world’s emerging carbon trading markets are beginning to consider the inclusion of biosequestration activities that will provide the additional biodiversity, water quality and social advantages that Australia will need if it’s landscapes are going to be able to adapt in the face of climate change. Australia’s recently proposed *Emissions Trading Scheme* originally dealt well with issues associated with land use change. In its existing or in an adapted form (for example, the current Liberal Government’s Direct Action plan), this presents options for the better management of ecosystems across the nation.

The Wet Tropics region has operated at the coal-face of this emerging opportunity. From 2005 to 2010, Terrain NRM joined forces with another ethical company (Biocarbon) to work towards establishing the Wet Tropics region as an international supplier of quality ecosystems service credits (van Oosterzee et al., 2012). The alliance explored the idea of pooling (or aggregating) a range of carbon products arising from improved land use activities that delivered on our region’s natural resource management plan. In addition to carbon sequestration or abatements, these activities deliver other measurable biodiversity and community benefits. Market brokers heavily involved in the world’s emerging ecosystem services markets were buoyant that the region’s high forest growth rates, high endemic biodiversity, localised scientific capacity and institutional stability would make our potential carbon abatement products a jewel in the crown among what the world has to offer.

A cohesive policy response to the development of ecosystem service markets, however, should never just continue to be about reducing carbon emissions alone. Indeed, *it must*, in parallel, encourage
global efforts towards the protection and enhancement of biodiversity, cultural diversity and food security. This means setting up both:

- a wider policy framework for combining good landscape-scale regulation with balanced efforts to enhance landholder contributions to environmental or land stewardship; and
- trading systems to offset the impact of our consumption on biodiversity, agricultural sustainability and water quality in alignment with such a policy and delivery framework. This may be government regulated systems or privately established market mechanisms.

In effect, both a wider policy framework which embeds place-oriented, integrated approaches to landscape-scale management, and a clear national framework for the development of ecosystems services trading products and services delivered in alignment with this system, are required.

**Critical factors for agriculture’s contribution to stewardship**

Given the pivotal role played by the Wet Tropics in seeking reform to the nation’s stewardship-based policy frameworks and its new CFI arrangement (van Oosterzee et al., 2012), the following sections outline some of the critical foundations that key NRM institutions in the Wet Tropics consider are needed to facilitate agriculture’s improved contribution to land or natural resource stewardship. For more details, these lessons have already been specifically identified in Dale et al. (in press).

**A clear regulatory framework for NRM (Institutions and governance)**

In the Wet Tropics, it is recognised that a clear but relatively simple regulatory framework is required as a precursor to more stewardship and incentive-based approaches to NRM. A good NRM regulatory framework in effect defines the concept of ‘duty of care’ for land managers at a regional scale. Simply allocating all water to consumptive uses, for example, would mean the environmental water requirements are exceeded, in turn creating water security problems for all water users. Once duty of care can be defined through a sound regulatory system, then effort can go into supporting farmers and farming communities to efficiently use resources within these regulatory limits or even to voluntarily go beyond their duty of care requirements (for example, via establishing new wetlands).

**The national value of policy cohesion, planning and effort mobilisation (Strong regionalism and the building of social capital and effective regional governance)**

Perhaps one of the greatest implications of the Australian Government departing from structured bilateralism for regional NRM plan development and accreditation has been the significant retraction of the resources levered from other investors against Australian Government investment. The return to a neo-liberal, nationally competitive grant-based approach diminished collaborative approaches and made priority setting and the development of durable delivery systems less effective. The decline of bilateralism saw the Queensland Government, for example, withdraw significant investment in regional NRM, retreating to narrower annual financial commitments. It also increased the transaction costs within regional communities and among land managers, with multiple parties and sectors having to spend limited time and resources on developing project proposals with low success ratios. The capacity of the regional NRM bodies to align state government effort declined as a result. Cross-departmental coordination on the ground (previously arranged via the state’s Regional Coordination Groups) evaporated, further marginalising the influence of landholders in policy making.

Recent Australian Government reforms under the CEF framework, however, have been of great significance as they could eventually result in ecosystem service markets and products of international standing. It is envisaged that the current focus on enhancing and updating the regional NRM plans has the potential to attract and guide these emerging ecosystem service markets. These in turn can be transformative, in that they can support the agricultural and land use sectors to trade in greenhouse gas abatement and other complementary ecosystem services (like biodiversity) in their enterprises. Importantly, enabling mitigation and abatement activities to become ecosystem service commodities
will allow the regional model to adjust to climate change and its impacts rather than letting highly vulnerable regions like the Wet Tropics be overwhelmed by it (van Oosterzee et al., 2012).

**Long term continuous improvements in integrated regionalism (Human and Social Capital and Strong Regionalism)**

Regional NRM bodies are a key point of long term integrated NRM planning, coordinated effort alignment and delivery coordination in regions like the Wet Tropics and they play an important role in the adaptive management of those more intractable natural resource problems that rely on institutional stability for their progressive resolution (for example, halting and reversing biodiversity decline or improving water quality). The swing in Australian Government support away from (and now back towards) integrated regionalism and continuously improving regional NRM arrangements over the last seven years has reduced institutional stability and increased financial and policy uncertainty in the short to medium term in the Wet Tropics. Additionally, the Australian Government’s shift away from bilateralism also left the Wet Tropics region more vulnerable to shifting policy environments within the state government. In the Wet Tropics, CFOC also stalled progressive improvements in the development of regionally cohesive delivery systems in local government, the conservation sector, and in the Indigenous and the landcare and catchment management sectors (Dale et al., in press). There were, however, exceptions on the other hand, where time-bound CFOC funding with a specific investment horizon (for example, Reef Rescue) improved landholder capability.

**Collaborative frameworks for research and knowledge management (Human capital, Infrastructure and resources)**

Without systemic knowledge brokerage and collaborative regional research frameworks, Australian Government and state investment in NRM research and development tends to be strongly researcher or funding agency driven. This reduces the regional impact of research and its ability to be strategically applied to long term NRM decision making on farm (Inspiring Australia, 2012). Since 2010, the Australian Government has tended to centralise management of significant regional NRM research programs, though broad consultation arrangements remain in place. As a result, there has been a shift from well negotiated and more regionalised program-based partnerships towards more fragmented and centralised project-end user relationships in the Wet Tropics. Across the nation, this created higher transaction costs for regional communities, and regional NRM bodies are consequently less able to inform the development and monitoring of their programs with well engaged science. This more centralised approach reduced the capacity of the regional community to influence policy and investment decisions affecting NRM in the Wet Tropics (Dale et al., in press).

**Environmental accounts, reporting and adaptive management (Strong regionalism, effective institutions and integrative governance)**

The value of establishing a clear national framework for measuring (and responding to) the actual regional (resource condition) outcomes from national, state and regional NRM policy and investment in regulation and stewardship is one of the foundations needed for adaptive management of the nation’s natural resources. Apart from such an approach enabling consistent and adaptive regional management systems, it would ensure a high quality information base for national decision-making. Making and maintaining a cohesive, science-driven and evidence-based argument about the condition and trend of critical natural resources greatly empowers the capacity of regions to devise effective solutions that might enable a policy change or investment response from governments (Wentworth Group, 2008). It also helps mobilise the inherent efforts of the region’s key land managers.

**Reforms needed to secure the future**

Over the last few decades, there has been dramatic maturation in the governance of Australia’s approach to stewardship-oriented NRM, enabling farmers and land managers to begin participating more directly in a post-productivist approach to agriculture. While the health of different parts of the
system may have waxed and waned along the chronology of events explored, overall, the system now sets an incredibly strong foundation for improved place-focused and farm-scale stewardship.

Our intent here is to inform directions for continuous improvement, rather than to simply articulate system weaknesses. Consequently, based on this research and the principles articulated in Ryan et al. (2010), Dale et al. (in press) and the above discussion, we consider that several high level reforms are needed for a healthier and more integrated national multi-level NRM governance system to emerge.

**A more enduring national NRM infrastructure**

To avoid our national system lurching from one governance approach to another and disempowering landholders, it is important for both the Australian and State/Territory Governments to commit to long term and durable NRM arrangements at national, state, regional and local scales. A shared vision and strategic approach could be better integrated through a bilateral framework negotiated within existing (or even more consolidated) Standing Ministerial Council arrangements under Australia’s Council of Australian Governments (COAG).

Some new form of national institution focused on informing the development of cohesive policy standards could also fill a leadership gap in the current overall system, harness cross-sectoral and academic expertise, and advise governments and the Australian people on matters of national NRM interest in a post-productivist world. Finally, it could ensure an effective interplay between regulatory design, programs for enhanced stewardship and the coordinated development of effective ecosystem service markets that deliver benefit at farm scale.

**A national NRM policy and planning framework and strategy**

While higher level strategic policy reform at COAG level is important, it is equally important that there is serious effort taken to lead and integrate improved NRM governance systems across the nation’s governments and within the Australian Government’s administrative arm. Ministerial Council effort could set the scene for a more outcomes-focused approach (for example, perhaps via a National NRM Framework and Strategy) with input from the proposed national NRM Commission to ensure strategic thinking at national scale. A National NRM Strategy could identify the importance of the nation’s assets, set national targets and drive five to ten year integrated investment programs for cohesive Australian and State/Territory Government Cabinet and Treasury consideration. Such a strategy would need to be collectively negotiated with the nation’s peak sectors and stakeholders.

With a strong Framework and Strategy in place, one supporting post-productivist agriculture, effort could focus on mobilising existing and new resources within and across governments and aligning the effort of industry and community sectors across the nation. A genuinely collaborative Australian NRM Framework and Strategy would also need to be informed by state/territory objectives and regional NRM plans (and vice versa) in an iterative fashion. Under such a National NRM Framework, key opportunities for targeted policy reform across the nation and within individual states and Territories could be pursued via more policy and investment-oriented agreements that more directly involve local government, communities and farmers. Such reforms could better guide the Australian Government’s contemporary NRM policy and investment funding arrangements in the longer term.

**A framework for integrated program and local delivery**

Regional NRM bodies are a key component in the nation’s NRM infrastructure, but they equally need to be focused on continuous improvement and on strengthening the capacity of key NRM delivery agents at regional, sub-regional and local scale (for example, Landcare and farming groups, industry bodies, Indigenous groups, local government, and others). Regional NRM bodies would also need to be more explicitly contracted to play these key planning, effort mobilisation and capacity building roles (see Dale et al., 2013).
The Australian Government could work with the states to actively support continuous improvement in regional NRM planning and governance. This system needs to be refined, however, towards an increasing focus on building more resilient landscapes. Most importantly, we consider that regional NRM plans should remain the foundation for continuous adaptive management based on regional effort alignment to secure agreed targets, ensuring plan currency and a focus on monitoring plan implementation.

Annual regional progress reports could be compiled to keep a focus on target achievement. Regional State of the Environment or a set of regional natural resource accounts could then cascade up into state and national State of the Environment (SoE) reporting or accounting systems. State and national SoE reporting or accounting would need to better influence policy setting and resource allocation within their respective governments than is currently the case.

Towards better landscape scale adjustment in NRM

On the regulatory front, we need to avoid declining trust between the government and land holders over big landscape-scale NRM regulatory issues. The processes traditionally used to secure landscape-scale environmental regulation have often led to some very undesirable environmental and social consequences. Poor structural adjustment support on the back of regulatory effort has meant that communities become very distrustful of the outside world, limiting their ability to relate to the wider nation and to an ever increasing global trading system. This result breaks down the capacity of the nation to manage the many land and NRM issues it faces.

There are three things we could do to jump off this political see-saw. The first requires the application of old fashioned respect in negotiating landscape-scale outcomes. The second involves the design of improved adjustment programs when change is actually required. The third means establishing a serious, internationally robust framework for trading ecosystem services from northern Australia (see Dale, 2014).

On this last point, NRM problems are still often framed in environmental and social terms, and hardly ever in economic ones. The stark reality is that these NRM problems are economic problems. Australia’s natural resources provide the very ecosystem services that are the foundation for the economy. People and culture provide the human resources. The loss of either reflects an economic failure.

The economic reforms needed would see the negative environmental and social impacts of production and consumption recognised, valued and paid for within our market-based economy. The concept of enhancing ecosystem services and exploring how to recognise and pay for them needs to become a new economic driver in rural and remote Australia, as in effect, beyond their duty of care requirements, land managers are the ones who are providing them at their own costs. Additional research and theoretical development is required to further develop these concepts.

Consistent with above, for the concept of ecosystem services reform to work in Australian landscapes (both in a conceptual sense at national scale and a practical sense regionally), the following would be required:

- a universal and nationally agreed expectation of a land manager’s duty of care to be explicitly defined and agreed at the property scale;

- the nature and value of the ecosystem services that need to be protected across the north to be determined, perhaps at a regional scale;

- the priorities for actions needed to secure ecosystem services to be determined via ongoing regional natural resource planning processes;
• the most appropriate mechanisms for society to pay for these ecosystem service payments and the price to be paid to be developed; and

• sound, durable institutions for strategic planning, target setting, delivery, effort alignment and monitoring to be developed and maintained at national, state and regional scales.

Conclusions

This Wet Tropics-based case study confirms that the future of agriculture can and should be enhanced by more place-based approaches to natural resource stewardship. While regulatory frameworks are still required to define a reasonable ‘duty of care’, regulation alone will posit significant social and economic impact upon agricultural producers.

To complement regulation, a major economic reform is required that sees consumers also contribute to the cost of maintaining healthy ecosystem services in rural and remote landscapes beyond a reasonable duty of care. This suggests a strong national and post-productivist policy framework is required to position agriculture to play a more significant role in environmental stewardship while still enhancing profitability. This could be achieved through both government policy and regulatory frameworks combined with private sector markets based on sustainable production systems (for example, formal ecosystem service credit trading markets or commodity markets based on environmental quality assurance systems).
Appendix 4: Case study 3 - Rural development and agriculture’s contribution to regional tourism

Introduction

Agri-tourism provides significant opportunities for expanding agriculture’s contribution within a place-based regional development framework. The following case study discusses agriculture’s contribution to the development of regional tourism and the factors critical to its continuing contribution into the future. The case study concludes by illustrating the importance of developing agri-tourism in conjunction with tourism in agricultural regions, using the Wet Tropics region as an example.

Agri-tourism generally refers to the development of tourism experiences from the local agricultural resources (Phillip, Hunter, & Blackstock, 2010). While the product (or commodity) is central to agri-tourism, the agricultural and rural landscape that forms the backdrop of a region’s agricultural production is also an integral component of an agri-tourism experience. For example, a visit to a working farm to taste the cheeses or drink local coffee often takes place in a purpose built attraction within the agricultural landscape, which is a modification of the natural environment.

Developing agri-tourism requires collaboration between a region’s agriculture and tourism industries to deliver those experiences that meet changing consumer demands. Given the global interest in travelling to experience regional food and beverage (wine and beer), agricultural regions have an opportunity to diversify their economic base to include tourism. Diversification into agri-tourism is evident in the Wet Tropics region, with significant investment in infrastructure in new tourism attractions based on the local agriculture, that complement well established nature-based tourism experiences. The experience on offer at these agri-tourism attractions incorporates a regional (value-added) product that is enhanced by the agricultural setting and scenic amenity of the natural landscape. Examples of agri-tourism attractions that are positioned within the agricultural and natural landscape include Mungalli Creek Dairy and the Australian Coffee Centre (Skybury) on the Atherton Tablelands.

However, to fully realise agriculture’s contribution to tourism requires more than the development of a niche sector that is connected to the landscape. Agri-tourism needs to be developed within the broader context of tourism in agricultural regions, and connected with the wider regional tourism system.

History of tourism

The Wet Tropics region is similar to many agricultural regions in Australia, where the agricultural industry exported produce based on the natural resource base. The case study on the agri-industrial production system in the Wet Tropics provides a history (see Appendix 2). The region’s diversification from a largely agricultural base to tourism has paralleled changes in Australian culture, with increasing interest in and opportunities to travel. For instance, higher incomes and car ownership amongst the Australian population, combined with greater leisure time resulting from the introduction of annual and long service leave entitlements from the 1960s onwards has resulted in the self-drive market. This demand has led to investment in road and other infrastructure, such as accommodation and attractions, the opening up of National Parks, and the promotion and development of products and experiences through tourist bureaux (ABS, 2012).

Tourism trends have changed from mass tourism to niche tourism, with a focus on nature and eco-tourism, cultural and indigenous tourism, heritage tourism, and so on. In the last 15 years, Australian culture has experienced a growing interest in food, evidenced by the proliferation of celebrity chefs, cooking shows and recipe books. This cultural interest in food has influenced the way people travel,
and created opportunities for agricultural regions to diversify into food and wine regions. More well-known examples in Australia include Margaret River, and the Hunter and Barossa Valleys. The Wet Tropics region has experienced similar trends in its tourism development.

Tourism developed considerably in the Wet Tropics region after World War II, with increased accessibility to domestic tourists through improved rail and road infrastructure. Purpose built infrastructure, including accommodation and attractions, has catered to growing numbers of domestic tourists visiting the region. However, the catalyst to developing the region’s tourism was the opening of the Cairns International Airport in 1984, which provided direct transport access to international tourists.

Similar to agriculture, the region’s natural resources have been the focus of tourism development. A diverse natural landscape, comprised of waterfalls, rainforests, mountains, beaches and islands, has drawn visitors to the region for holidays since the late 1890s. The Great Barrier Reef and the Wet Tropics rainforests were designated as World Heritage Areas (WHAs) in 1981 and 1988 respectively. Nature-based tourism developed rapidly as a result, replacing timber as the main forest based industry. The WHA listing was a catalyst for the development of nature-based tourism, and demonstrates the changing use and pressures placed on the agriculture and timber industries competing for access to the same environmental resources as tourism. It also highlights the shift in values attributed to the Wet Tropics region’s natural resources, moving from the utilisation and exploitation of a natural resource to an increasing focus on the management and protection of the resource through post-productivist farming systems. Further illustrating the influence of the WHA listing, the main tourism attraction during this period was the GBR, while a number of companies offered day tours to the Atherton Tablelands.

Significant investment has been made in tourism infrastructure and attractions based on the iconic GBR and Wet Tropics rainforest. For instance, reef operators provide transport (boat or helicopter) and equipment for tourists to participate in swimming, snorkelling or diving. Similarly, coach tours to the Atherton Tablelands transport tour groups between rainforest sites developed with boardwalks and interpretive signage. Sometimes tourism investment has changed the way tourists experience the region. For example, in 1995 the Skyrail Cableway offered a new rainforest experience but at the expense of coach tours to the Atherton Tablelands. Tourists’ itineraries changed to a day trip on the Skyrail and Kuranda Scenic train, with a stop at the rainforest village and markets in Kuranda. The packaging of these attractions shifted the tourism focus to Cairns and Kuranda, and away from the Atherton Tablelands. The result of this shift was a collapse in the opportunities for the Tablelands, and agricultural producers to benefit from tourism.

In the last 10 years, a slowing regional economy, industry deregulation (notably dairy) and changing government policy have decreased the viability of farming. Some farmers have diversified their traditional agri-business to incorporate agri-tourism as a means of growing their business’s bottom line. As a result, a growing number of agri-tourism attractions and experiences have been established in the regional towns surrounding Cairns, to varying degrees of success.

Current situation and possible futures for agri-tourism

Increasing numbers of tourists are travelling to experience authentic, regional cuisine, which provides agricultural regions with an opportunity to diversify into tourism (agri-tourism). The potential of agri-tourism has been realised in Australia with the establishment of food and wine regions. Tourists to Margaret River, the Barossa and Hunter Valleys are attracted to these regions to experience the wine and more recently food, as well as the scenic landscape, nature and heritage tourism activities. Capitalising on the growing demand for agri-tourism experiences has become a national priority, forming the focus of Tourism Australia’s (2013) global marketing campaign.

In the Wet Tropics region, the diversification of predominantly agri-businesses into agri-tourism businesses is exemplified across a number of industry sectors. Tourism diversification has occurred in the sugar industry (Australian Sugar Heritage Centre), dairy industry (Mungalli Creek Dairy, Gallo
Dairyland, Emerald Creek Ice Creamery and Floravilla Ice Cream Factory), coffee industry (including Skybury Coffee, Coffee Works, Jaques Australian Coffee, Bella coffee and Maloberti’s NQ Gold Coffee), tea industry (Nerada Tea, Nuicifora Tea and Daintree Tea), and tropical fruit industry (Cape Tribulation Exotic Fruit Farm, High Falls Farm, and tropical fruit wineries such as de Brueys Boutique Wines, Mt Uncle Distillery, Golden Drop, Murdering Point, and Shannonvale Winery). Roadside stalls have also added to the self-drive tourists’ experience, with fruit and vegetables available at the farmgate or through farm shops (The Humpy).

A growing number of agri-tourism experiences are also available off-farm throughout the Wet Tropics region. Existing tourism operators and restaurants have begun showcasing local produce and value-added product in their businesses. Examples include Ochre and NuNu restaurants, and Hartley’s Creek Crocodile Adventures. The region’s agri-tourism potential has started to be realised, with the packaging of agri-tourism products and experiences into regional food and wine trails that explore the different sub-regions within the Wet Tropics. Themes from the food tours include Taste of the Coral Coast, Taste of the Cassowary Coast, Taste of the Savannah Tablelands and Taste of the Rainforest (Australian Tropical Foods, n.d.).

The accessibility of regional food through local distribution channels has also increased in recent years. In 2011, the local supply chain expanded from Rusty’s, Cairns’ local market, with the establishment of Jonsson’s Farm Market, the Real Food Network and the Regional Food Network. As part of the Regional Food Network, the region has developed a local brand, Taste Paradise, to easily identify foods that are locally produced. The importance of local supply chains and the Taste Paradise brand are discussed in more detail in the case study on supply chains (see Regional supply chain case study Appendix 5). The identification and accessibility of local food is an important step in developing an agri-tourism sector and growing demand for agri-tourism experiences.

Agriculture and tourism continue to be the major economic drivers of the Wet Tropics regional economy. However, the extent of the contribution of these industries to the region, its development, economy and community is unclear. Federal and state government use aggregated data collected through the Australian Bureau of Statistics (ABS) and Tourism Satellite account (TSA) to quantify the value of the agriculture and tourism industries, and their sectors, to inform government policy and regulation. However, the manner in which these figures are captured and reported on cannot be disaggregated, and is inadequate to quantify agriculture’s contribution in a place-based context. In other words, the Gross Value of Agricultural Production (GVAP) does not accurately reflect agriculture’s economic, environmental and social contribution to the regional economy as it does not account for: agri-tourism; agriculture’s connectedness with other sectors of the regional economy; agriculture’s role in protecting the environment; and the social-economic benefits of agriculture to regional communities.

A limited regional economic base has contributed to the boom and bust nature of the Wet Tropics region. Both the agriculture and tourism industries are highly susceptible to changes from often unpredictable external factors, such as natural disasters and global events. The region has been battered by two severe cyclones – Cyclone Larry in 2005, and Yasi in 2011 – that have crippled parts of the region’s agricultural production. For instance, ABARES estimated Cyclone Larry caused a $300 million hit to agricultural production, with severe damage to banana and sugar cane crops in particularly (ABC News, n.d). The region’s tourism industry has been under pressure from the Global Financial Crisis (GFC), labour shortages and stagnating tourism numbers in comparison to international growth patterns (Prideaux, 2013). As export industries, both agriculture and tourism have suffered from declining demand as a result of a high Australian dollar. The economic volatility of the tourism and agriculture industries individually demonstrates a need to diversify the region’s economic base, and integrate the two industries into an agri-tourism sector.

As the region recovers from recent environmental and economic setbacks, it needs to look forward and prepare for the likelihood that similar events may re-occur in the future. A strategic approach also needs to be adopted to identify and capitalise on potential opportunities that cater to the changing market demands. An example includes being ‘China ready’, and realising the potential of the recently
announced Aquis mega resort development for Cairns (Prideaux, 2013). Having a better understanding of agriculture’s contribution through agri-tourism can help build the region’s economic resilience, identify future opportunities and emerging markets, and recover more quickly from often unpredictable disruptions in the future.

Critical factors, roles and responsibilities

The following section addresses these critical factors, and stakeholder roles and responsibilities, with respect to agriculture’s contribution to tourism through agri-tourism.

Social capital

Social capital is required for agriculture to contribute to tourism, whereby the industry needs to become interconnected through its bonding and bridging social capital. While agriculture needs to actively engage and connect with other stakeholders, the government, community, peak bodies/institutions and other industries, including tourism, have a responsibility to reciprocate, and communicate and support the developing agri-tourism sector. Adopting a collaborative approach allows the region to better understand and collectively determine: agriculture’s contribution to the region; how this contribution is to be modelled (transitioning from agri-industrial to regional development); and whether agriculture’s contribution will be through tourism specifically.

Although there is social capital in the Wet Tropics region, it needs to be strengthened, particularly between the agriculture and regional tourism industries. It is critical that the agriculture and tourism industries collaborate to ensure agriculture’s contribution to tourism is realised through the development of an agri-tourism sector that is recognised, supported and integrated into the wider tourism system.

Bridging social capital refers to external connections beyond the region, including external markets and distribution channels. Creating connections with urban communities outside of the region can break down misconceptions about agriculture’s contribution, or not, and lead to a better understanding of the differing needs of urban and rural communities.

In the Wet Tropics region, a food and wine tour company has developed tours to introduce domestic tourists from city centres to the regional cuisine, where food trails may be an option for local visitors with their own transport. Strong social capital empowers a region and enhances its ability to maximise agriculture’s contribution to tourism by identifying market opportunities. For instance, an opportunity exists to showcase the region’s agri-tourism to a growing Chinese market with the proposed Aquis development.

Leveraging these opportunities has resulted in farmers directly engaging with their consumers and the distribution of their products, through long and short supply chains. The Regional Food Network, under the Taste Paradise brand (see Regional supply chain case study), is an example of this type of local supply chain development in the Wet Tropics region. For the agriculture industry, being engaged, actively communicating and building relationships within and outside of the region with stakeholders, emerging markets and through supply chains is essential to the successful development of agri-tourism. The tourism industry may play a similar interactive role, engaging with agri-tourism operators, and incorporating agri-tourism experiences in its marketing and branding.

Human capital

Human capital is also critical for agriculture to contribute to tourism, as it requires individuals to be innovative and diversify their skills. Innovation is fundamental to the development of agri-tourism in numerous ways: product development; marketing and promotion; transportation; maximising the utilisation of scarce natural, built and economic resources; and to maintain a competitive advantage throughout the various stages of a region’s development. Innovation will also assist regions to overcome constraints of scale and distance, and successfully transition into the experience economy,
which focuses on delivering memorable experiences. This requires agricultural regions to be innovative in the presentation and delivery of regional food and wine experiences.

By responding to changing visitor motivations (push factors) with desirable experiences (pull factors), regions will maintain their competitive advantage. Innovation is required at the individual, business, industry and regional levels, to identify new opportunities and develop the complementary products and supply chains necessary to capitalise on these opportunities. The Wet Tropics region has been innovative in the past, with the development of eco-tourism products and experiences. However, the readiness of the region to adopt agri-tourism experiences is comparatively slow, with a few exceptions, because of a lack of demonstrated recognition and support for this entrepreneurial sector from regional stakeholders and government.

Developing innovative products and experiences, and self-funding an agri-tourism sector, will require individuals to be reskilled. New skills are required for individuals to diversify from a primary industry (agricultural production) to a service industry (tourism). The training and education of regional agri-tourism pioneers, and future businesses, will be critical in providing the necessary information and skills for the long term sustainability of both agri-tourism businesses and the sector. Some of the region’s successful agri-tourism innovators have commented on the need for support through an individual or organisation that can provide feedback and connections into a network to develop their ideas further. In the Wet Tropics region, farmers may be willing to diversify their skill set through training, but have limited options. Accredited programs are run through recognised institutions, such as TAFE, but industry peak bodies have a role in identifying and providing (non-accredited) education and training in support of agri-tourism businesses.

Environment and amenity

The natural environment is the base resource of the agriculture and tourism industries, and its associated visual amenity is increasingly important to agriculture’s continued contribution to regional development. Both the natural and agricultural landscapes provide tourists with a sense of place and form part of the agri-tourism experience. For instance, enjoying the locally made coffee against a backdrop of the coffee plantation where the beans grew, and view of the mountains ranges, enhances the agri-tourism experience and sets the Wet Tropics region apart from other regions. In terms of regional development model, the protection and conservation of natural and cultural heritage that is a focus of the post-productivist model is vital in maintaining landscape amenity that attracts tourists through a balance between farming and environmental protection of land. Environmental protection can also help preserve the cultural heritage of the indigenous people and early migrant settlers. Cultural tourism experiences in the Wet Tropics region give tourists an opportunity to learn about their way of life, how they lived off the land and their lifestyle, including food and cultural customs.

Infrastructure and technology

The Wet Tropics region has developed agri-tourism from a combination of the natural resources and built infrastructure. Establishing local agri-tourism businesses requires significant infrastructure and investment. The Wet Tropics region has considerable infrastructure present, but there is a need to refresh older infrastructure and invest in new infrastructure required for the delivery of new experiences (Tablelands Futures Corporation, 2013). The need for additional accommodation on the Atherton Tablelands is currently being investigated.

Funding from the Sustainable Regions, Dairy Regional Assistance and New Industry Development programs, in conjunction with business support provided by the Small Business Assistance/Information Officer program, Enterprise Connect and the Sustainable Tourism Co-Operative Research Centre/James Cook University are examples of programs that have assisted agricultural businesses in the Wet Tropics transition into tourism. These programs have provided cash and in-kind support that was allocated to: start-up capital for purpose-built tourism infrastructure, such as new on-farm kitchen or café; product development; staff training and education in the tourism and hospitality area; and marketing. Part of a T-QUAL project funded introductory workshops for
newcomers to the tourism industry and the development of the Taste Paradise brand. However, funding new infrastructure is the combined responsibility of individuals, industry and peak bodies, to gain funding though private investment or competitive government grant programs.

Balancing needs

Agri-tourism development is supported by a functioning regional development model which includes the complementary operation of the agri-industrial, post-productivist and regional development models in the region. For instance, an agri-tourism business may find it necessary to source tropical fruits from other local growers to make fruit wine and liqueur as they lack the capacity to produce sufficient quantities. Production volumes from an agri-industrial model may be increased for the purposes of value-adding in a regional development model. In fact, it is the increasing complexity and complementarity of all three agricultural models - from economically, environmentally and socially driven outcomes - that enables agriculture to increasingly contribute to regional development through tourism.

To remain financially viable, it is critical that agri-tourism has the support of the community and government. Communities can demonstrate their support for agri-tourism by purchasing local produce and value-added products through local distribution channels where possible (as discussed in the Regional supply chain case study). The agri-tourism sector relies on the support of the local community to even out the seasonality associated with the tourist market.

In addition, supportive government policy is critical to developing an agri-tourism sector. While the sector should not be reliant on government ownership and funding, it needs to liaise with, and have the support of, local government to: access competitive grants; introduce incentives for investment; lobby on behalf of its members; and be involved in the regulatory and policy decision-making process. This role is best suited to industry peak bodies that can connect and communicate with government on behalf of an industry and/or sector. The support and involvement of government needs to extend to the state and federal levels, where agriculture’s contribution is affected by policy-making and government regulation at a higher level. This is especially critical with regards to the provision of infrastructural and service support (such as roads), employment policies and pay rates. Balancing the needs of an agri-tourism sector is enhanced by strong social and human capital, through the networks, collaboration and education built within and outside the region between government, community, industry and individuals.

Strong regionalism

The sustainability and success of agriculture’s contribution to tourism, through an agri-tourism sector, will require regional drive and independence. That is, industry ownership, leadership and investment in agri-tourism, rather than reliance on a government led and funded approaches. This is otherwise referred to as a bottom-up approach, rather than an enforced top-down approach. While some government support has underpinned agri-tourism development in the Wet Tropics, the success of government led initiatives is often short-lived. It is more important that government play a role in developing policy and regulation that supports the development of an agri-tourism sector.

While not specific to the region, a state-wide planning guideline has been drafted, providing a framework to guide future tourism development, including in natural environments. Furthermore, governments need to consider how government policy and regulations can be restrictive to agri-tourism development, and how redistributing power and control over agri-tourism development to regions can aid in development. Regional tourism destination planning is an example but governments to often support planning but then fail to respond to these plans.

Effective governance and institutions

Governance and institutions are critical to the development of agri-tourism. Development can be influenced by policies including regional planning policy, land tenure issues and industry sector
policies including deregulation. Decisions by institutions such as banks and insurance companies are also critical in supporting agri-tourism development. Banks control access to finances, such as start-up capital, and insurers set insurance policy premiums according to risk.

Recent flooding and cyclones in Queensland have significantly decreased the affordability of insurance, and the ability for new, often micro agri-tourism businesses to start-up. Having effective institutions is closely linked to creating an integrated approach that supports strong social capital to identify and address these barriers and support agri-tourism development.

**Example from the region: developing an agri-tourism sector**

Given the uncertainty of predicting future events accurately, the future of agriculture’s contribution to the Wet Tropics region (through agri-tourism) can be expected to follow one of three scenarios:

**Future 1: Decline**

The agri-tourism sector may continue to be hampered by external forces that have negatively impacted on the region’s economic viability in the last five years. Not recognising the potential of the region’s agri-tourism products and experiences will result in the sector being underfunded, unsupported by local and visitor markets as well as industry and government, and unmarketed. The sector will fall into a decline to a point where those businesses involved withdraw from tourism. The end result is the demise of the sector and producers diversifying their interests into other businesses ventures, whether these are agricultural or not.

**Future 2: Remains static**

The agri-tourism sector may continue on in its current state, with little or no new agri-tourism start-up businesses. The region’s agri-tourism product and experiences will continue to operate in the shadow of well-established tourism products and experiences, such as the reef and rainforest experiences for which Cairns is renowned. With no growth in demand for agri-tourism experiences, the sector will plateau.

**Future 3: Continued development and growth – prosperity**

The agri-tourism sector may grow and develop, with continued support from community, industry and government, to a sustainable size. Recognising the growing trend in regional food experiences, the region’s planning bodies, including the tourism industry, agriculturalists, local government associations (LGAs) and so on, may take a more strategic approach to developing tourism in the agricultural sub-regions of the Wet Tropics. In doing so, the region’s apparent comparative advantage would be harnessed and converted into a competitive advantage, by expanding the region’s tourism offering.

Figure 14 presents an overview of the current state of agri-tourism development in the Wet Tropics region (Thompson, 2013). Traditionally, the agricultural industry supplied goods in bulk to consumers via a distribution channel of wholesalers and/or retailers. This type of agricultural production more closely resembles the agri-industrial and post-productivist models of agriculture, both of which operate in the Wet Tropics region. Although farmers may be more engaged with the protecting the environment, these two approaches limit the interaction farmers have with consumers, who generally operate outside of the agricultural/production region, and little to no control over quantities to supply and price, as these are dictated by intermediaries (Thompson & Prideaux, 2010). For consumers, having no contact with farmers means they cannot communicate their changing tastes, as the produce available is largely controlled by the wholesalers/retailers in the supply chain.

However, agriculture’s contribution to regional development is continuously evolving and changing. A growing desire for agri-food and agri-beverage experiences among residents and visitors to agricultural regions is creating opportunities for farmers to respond by developing an agri-tourism
sector that delivers desirable regional products and experiences (Killion, 2001; Sznajder, Przezbórska, & Scrimgeour, 2009; Thompson & Prideaux; 2009). This agricultural evolution has commenced in the Wet Tropics region, with the establishment of an agri-tourism sector and experiences from largely agri-industrial industries of dairy, sugar and tropical fruits. Parts of these industries also incorporate environmental preservation values intrinsic to the post-productivist model, which enhances the agri-tourism experience. For instance, where a working farm has land set aside for conservation and those environmental values form a component of the agri-tourism experience. The development of an agri-tourism sector is a function of the regional development model of agriculture described in this project’s findings. Essentially, an agri-tourism sector enables farmers to stay on the farm and become financially independent (economic factors), in conjunction with becoming interconnected with their region (environmental aspects) and community (social factors). This independence and interconnectedness is a result of farmers gaining more control, and becoming involved in the development, distribution and delivery of their produce through long and short supply chains. Agri-tourism businesses are increasing farm efficiency by supplying products and experiences that match the changing demands of the consumer. This matching between demand and supply can also be described using a push-pull model.

Tourist destinations face the continuous task of matching consumer ‘push’ factors (demand-side factors that include the desire to travel, income, travel preferences, and so on) with destination ‘pull’ factors (supply-side factors that include price, quality and range of experiences on offer, security, and so on). When a mismatch occurs, for example when a destination fails to respond to changing consumer demand (i.e., change in push factors) by adjusting its pull factors, or where the destination becomes uncompetitive, tourism demand will plateau or fall (Prideaux, 2013). In the development of agri-tourism, a tourist’s demand to experience farming landscapes and regional cuisines (or push factors) create opportunities to develop an agri-tourism sector that supplies matching products and experiences (pull factors) (Hall & Sharples, 2003). Desirable pull factors may include the rural landscape, choice of accommodation, heritage, natural and built attractions and regional food and wine experiences.

In the case of the Wet Tropics region, tourists are attracted by the range of experiences available, rather than for the sole purpose of experiencing agri-tourism. Similarly, within the agricultural areas of the Wet Tropics region, tourists are attracted by some agri-tourism activities, but in conjunction with the natural environment, rural landscapes, views, accommodation choices and so on. It is the bundling of complementary tourism attributes that enhances the success of agricultural regions striving to develop agri-tourism. Understood in this broader context agri-tourism is one component of the tourism activity that occurs in agricultural regions. For agriculture to effectively contribute to regional development through agri-tourism, consideration needs to move beyond developing an agri-tourism sector, to understanding how tourism develops in an agricultural region.

This case study has provided an insight into the critical factors and recommendations for agriculture’s contribution to tourism through agri-tourism in the Wet Tropics region. Factors such as social and human capital, strong regionalism and balancing needs were among those critical for the region to convert its comparative advantage to a competitive advantage in developing an agri-tourism sector. While specific to the Wet Tropics region, the critical factors and recommendations discussed in this case study will provide some insights for other regions in the developing of agri-tourism and applying the place-based regional development framework.
Figure 14: Model of agriculture's contribution to regional tourism
Appendix 5: Case study 4 - Rural development and regional supply chains

Introduction

When considering implementation of a place-based framework for agricultural regional development, supply chains play a crucial role in determining the success. Central to value-adding, developing niche markets and diversification is developing an understanding of the consumers and the market. Farmers need to be clear about how they can deliver against these demands for commodity and non-commodity outputs.

One component that contributes to the success of a place-based regional development framework is through agriculture’s contribution to community, and vice versa. This relationship of trust and connectedness between farming and non-farming community members is essential for the successful development and adaptation of agriculture within regions (Sharp & Smith, 2003). One way in which community and agriculture can contribute to each other is through local/regional supply chains. In a recent article by Mercer (31 October, 2013) from BBC Business News, it was reported that despite a near perfect growing season for the South-East Queensland growers, the impact of limited distributors, over-supply and the control of the retail sector on the supply and demand of produce has resulted in some farmers seeking other methods of supply.

Farmers are increasingly considering the benefits of more regional supply chains, and more direct supply chains, over those of the centralised market (Mercer, 2013). This emphasises that despite the traditional support for agriculture being centred on increased production and supply through centralised markets, this perspective is increasingly too narrow, and subject to negative outcomes for individuals, industry and the economy. This further suggests that the scope needs to be broadened, alternative means of production and supply need consideration.

These issues will be explored below in this case study of regional supply chains. Specifically, the changing trend of supply chains will be reviewed to identify the growing producer and consumer demand for shorter and more direct supply. The current arrangement and possible future of key supply chains within the Wet Tropics will then be explored. The case study will then consider the critical factors, roles and responsibilities that are essential to the successful development of a more regionally-oriented supply chain and then conclude with recommendations and an example of a regional supply chain model, with the view of illustrating the importance of developing regional supply chains.

History of development of regional supply chains

One of the key strategies to adopting a regional place-based framework is 'reconnecting' (Kneafsey, 2010). The strategy highlights the importance of supply chains in a regional-place based framework. Communities need to be reconnected with local food networks and thus there needs to be a more direct supply of local products (Kneafsey, 2010). First, however, there is a need to understand how supply chains have traditionally functioned, how they have changed over time and why there is currently a shift and an increased demand for more regionally—and locally (place-based) supply chains and food networks.

A typical contemporary agri-food supply chain theorised by Burch and Lawrence (2005) is outlined in Figure 15:
Within this model, the supply and demand of food is largely determined by the Major Supermarket Chains (MSC), such as Coles and Woolworths. According to Burch and Lawrence (2005), the supply and demand in agri-food production was traditionally controlled by the manufacturing or processing companies. This framework of supply and demand can be conceptualised as a part of the agri-industrial framework as the processing companies, predominantly as a result of branding, industry regulations and set-prices, drove agricultural production. However, increasing power in the retail sector and industry deregulation shifted the control of production and the supply chain to the retail sector, particularly to a limited number of powerful supermarket companies (Burch & Lawrence, 2005; Griffith, 2004).

Deregulation, uncertain prices and a highly competitive global market has significantly impacted on farmers’, particularly smaller farming businesses’, ability to compete in this framework (see Agri-industrial case study Appendix 2).

Further, the increased power of MSCs has also resulted in some major retail companies engaging in private regulation. According to Burch and Lawrence (2005), an example of MSC private regulations that have driven the supply of only particular products from particular producer and processing facilities for sale to the consumer is that of the cage-free eggs. According the findings within the current projects interviews, the impact of private regulations can also be seen with the MSC demanding contracts with suppliers that assure a consistent supply of produce. These contracts usually exist with larger producers who can meet these supply demands, which ultimately inhibits the supply power of smaller producer through the MSC push for lowered prices.

In fact, the concern for the level of market power that is controlled by MSCs has led to the introduction of a voluntary code of conduct that would limit the power of MSCs in the setting of prices (Ockenden, 2013). However, many farmers and organisations disagree with the voluntary code, suggesting that only a mandatory code for the MSCs would effectively protect producers from unfair privatised rules and price-setting. Regardless, the current trends in the power and control of supply chains demonstrate that there is some shift away from a predominantly MSC controlled supply chain.

This change in the power and control of supply chains can be seen within the Wet Tropics. For instance, set prices that were a result of regulated industries drove production and determined the supply chains. Using dairy as an example, many of the region's dairy farms supplied milk to local processing facilities before being sent to centralised markets. The impact of the agri-industrial framework’s push for production and efficiency, as well as economic reform, eventually resulted in the de-regulation of the dairy industry, significantly impacting on the region's supply chains. Specifically, unprotected prices challenged the industry's capacity to remain globally competitive and restricted farmers to a single market. This led to most farming families withdrawing from the industry despite incentives from government to increase productivity and business skill (Anderson, 2004a; 2004b).
This change had multiple implications for regional sustainability. The loss of families in the industry would have a direct impact on the local economy.

Alternatively, though this change impacted on the value-adding within the region, it has also resulted in a number of dairy farms investigating and tapping into niche markets at a regional level, thus establishing a shorter and more direct supply chain. An example of such a business would be Gallo’s Dairyland, a dairy farm that diversified into a processing facility as well as a food service provider (restaurant and tourism). Similar to other businesses looking to diversify, Gallo’s Dairyland did so with external funding and investment. This is consistent with findings within the focus group content, which indicated that while businesses may be motivated to diversify and value-add, this is often difficult without stimulatory external investment and input.

Gallo’s Dairyland demonstrates that despite the agri-industrial model’s pressure to continuously increase production and international competitiveness, place-based regional development strategies (and thus supply chains) have in some cases naturally evolved due to some farming businesses struggling to find ways to survive in an increasingly competitive market. This emphasises that neither agri-industrial or rural development model should be favoured, and that there is a place for different farming businesses applying all three models of agriculture (agri-industrial, post-productivist, rural development).

The demands of the consumer have also influenced the natural progression towards alternative supply chains. Research by Umberger et al. (2008) suggests that changes in consumer attitudes and values have resulted in consumers increasingly seeking products for quality rather than price. For instance, consumers are more concerned than previous years with the origin of the product and other product attributes such as being organic, free-range, having no growth hormones and being environmentally friendly. Seeking products with these attributes have reportedly been driven by perceptions that it supports small farmers through increased competitiveness of quality products rather than low cost products. This change in attitude towards products has contributed to a trend of consumers purchasing from farmers markets in a bid to be more connected to the growing of food as well as for the quality of the product (Umberger et al., 2008).

These findings are also consistent with our findings from the community survey within the current research. Most participants bought their fresh food from major supermarket chains, the local community markets and the independent supermarkets (for example, IGA). This suggests that whilst the MSCs may still attract the majority of consumers in the Wet Tropics, there is also a clear trend of people are purchasing from more locally supplied distributors and outlets.

Additionally, the survey results also suggest that approximately 95 percent of the participants from the Wet Tropics place value on farming and agriculture, and 98 percent of survey participants are willing to support locally produced and supplied food goods. Moreover, approximately 75 percent of the participants also indicated a willingness to pay more for locally produced food, emphasising the opportunity for farmers to engage in regional supply chains. However, it should be qualified that intent or willingness to engage in behaviour does not necessarily result in actual engagement (Carrington, Neville, & Whitwell, 2010).

This highlights the need for policy frameworks that support the demands of the consumer through facilitation of regional and direct-to-consumer supply chains. Within the focus groups, one of the future challenges to a place-based regional development framework was the influence and control that the major supermarket chains may have in the supply of produce. Specifically, it was thought that the growing power of these supermarkets in dictating the market, reducing the farmer’s options for supply and pushing out small independent retailers would result in negative outcomes for regional sustainability.

Yet, in a 2008 report by the Australia Competition and Consumer Commission (ACCC), key findings suggested that there was, in fact, nothing wrong with the competitiveness and fairness of the grocery supply chain (Australia Competition & Consumer Commission, 2008). However, the report did note...
that the pressure placed on growers by the major supermarket chains (Woolworths and Coles) can be a problem for those growers who do not explore different ways to supply their products. This emphasises the need for some growers/producers to consider supply chains that are alternative to the direct supply to Coles and Woolworths or via centralised wholesalers.

This finding by the ACCC is also consistent with the recent news article by Mercer (2013), who reported that small farmers were forced to consider alternative means of supply. One alternative may be to supply directly to a local market. This conclusion is supported by findings from the focus groups, which identified a regional development model as one which had informed holistic planning. That is, success in a regional development model required consideration of the entire supply chain process from paddock to plate. Farmers and producers need to fully understand the process of supply chains and the regional context within which they sit, and thus the role of different supply chains for the success of their business. For example, the development of niche markets, or breaking into a market, as well as value-adding to their business, should take place with complete understanding of where the product will go and how it will get there. Yet, as identified within the focus group content, often a barrier to engaging in different markets and products is a lack of established supply chain infrastructure and processes to supplying produce locally.

From the current research findings and literature reviewed above, it can be seen that some of the challenges that may arise for the development of regional supply chains include:

- the lack of collaboration between farmers, groups and organisations at a regional level;
- the increased competition in production that has driven prices and challenged the sustainability of some farming businesses;
- the power and control of MSC over the supply and demand of food; and
- the limited infrastructure, networks and leadership that exist at a regional level that would play a major role in the development of regional supply chains.

**Current situation and possible futures for supply chains**

In the Wet Tropics region, produce is distributed via two main types of supply chains. Firstly, agricultural produce is packed and transported to southern markets (wholesalers) for sale to retailers (such as Coles and Woolworths) or the food service sector (such as restaurants). This form of distribution deals with bulk commodities produced from large-scale farms, where produce is grown, packed and sent to wholesale markets.

Within the Wet Tropics region, there are approximately 10 Woolworths, 10 Coles and 25 IGAs. Moreover, according to a recent report, there are approximately 103 food manufacturing and processing businesses in the Wet Tropics region (Outsource Management, 2012). Although there is no specific data on the percentage of supply to centralised or regional distributors in the Wet Tropics, national data from DAFF’s FOODMap (Spencer & Kneebone, 2012) indicates that consumers spend 62.8 percent of their food-related spending at the supermarket (including MSCs and independent supermarkets). Further, according to the survey results from the current research, 57.5 percent of participants ranked MSC as their preferred shopping outlet, with 73.6 percent rating MSC in their top two preferred shopping outlets. These findings from the current study and DAFF highlight that the push to operate in a central supply chain model is still the most utilised method for supply.

However, changing trends in the current situation also suggest different possible futures for the supply chain model. For instance, as highlighted in the previous section, the current research findings suggest a growing trend for preferences in purchasing local products and utilising regionally-based food outlets and distributors (for example, local markets). Further, on a national level, the FOODmap report on supply chains identified a key opportunity for the future supply chains was to capitalise on regional direct supply to meet the growing consumer demand for local, fresh and environmentally sustainable
products. This trend can be recognised within the Wet Tropics with a parallel local supply for produce beginning to emerge on a small scale. Examples of businesses and networks that facilitate and support regional supply of local products include:

- the Regional Food Network (Taste Paradise brand);
- the RealFood Network;
- Rusty’s Markets; and
- Jonsson’s Farm Market.

The Regional Food Network (RFN) facilitates a regional supply chain through an accreditation and membership process. The RFN was established in 2011 as a part of the Taste Paradise brand, which sought to engage visitors and locals in locally produced and processed food and products. Produce is distributed through accredited independent retailers, restaurants, other food service providers (for example, tourism), farmers’ markets and at the farm gate. These alternative means of supply create greater opportunities for farmers in that it facilitates a ‘price setting’ rather than ‘price taking’ mentality. See http://www.tasteparadise.com.au/tnq-regional-food-network/ or the Regional supply chain example at the end of this Appendix.

The RealFood Network, established in 2011, is an initiative to easily and conveniently distribute local and seasonal produce directly to consumers. Consumers purchase a ‘box’ of fresh fruit and vegetables (approximately 15 different types) from the RealFood Network for a set price which is delivered on a set day once a week. The content of ‘the box’ varies from week to week as the network only supplies based on seasonality and availability. The RealFood Network coordinates with 86 local farming families to deliver the produce within 36 hours of supply. See http://www.realfoodnetwork.com.au for more information.

Rusty’s Markets is a local community market located in Cairns. Rusty’s Market began in 1975 and currently features 180 stalls of locally sourced fresh fruit and vegetables and value-added products as well as international foods, baked goods, delis, bric-a-brac and other specialty products. Though unlike the RealFood and Regional Food Networks, Rusty’s Market’s main purpose is not that of regional agricultural support, the market does act as an important distributor of local produce and attracts visitors and tourists to the region. See http://www.rustysmarkets.com.au for more information.

Jonsson’s Farm Market is a wholesale and retail outlet that was established specifically to facilitate community support for local agricultural producers and processors. Jonsson’s Farm Market was operated by a 4th generation farming family from the Atherton Tablelands. Specifically, Jonsson’s aimed to create an alternative and competitive means of distribution and retail to the major supermarket chains. Products include fruit and vegetables, fresh meat, flowers, dairy and frozen items. See http://www.jonssonsfarmmarket.com.au/ for more information.

These four regional cases provide good examples of how a regional supply chain might operate within other regions. That is, from a holistic whole of supply chain approach (RFN) to a non-direct community approach (Rusty’s Market) to a business approach (Jonsson’s Farm Market) to a direct farm support approach (RealFood Network), these regional supply chains represent multiple methods of engaging in short and direct supply chains.

Critical factors, roles and responsibilities

The development and strengthening of a regional supply chain within the Wet Tropics would need to take into consideration key critical factors and roles and responsibilities. These critical factors include social capital, human capital, natural resources, infrastructure / technology, environment/amenity balancing needs, strong regionalism and effective governance and institutions. Within these critical factors, different stakeholders play different roles in facilitating the development of regions. For
example, within the critical factor of social capital, community, as a body, has a significant role in enhancing connectedness and engagement with agriculture.

**Social capital**

Increased social capital is imperative to the development of regional supply chains. Communities need to be supportive of a regional supply chains in order for this process to be successful, and so the connectedness between the general community and the farming community needs to be enhanced. That is, if the broader community does not report a motivation to purchase locally produced fresh food and value-added products, then there is no demand side to the supply chain. Thus, community groups and organisations (such as tourism, hospitality, and service providers) need to coordinate and collaborate to enhance the connection between the broader community and farmers.

As identified within the community survey results, social capital significantly predicted positive attitudes towards farming. In turn, knowledge of farming significantly predicted high social capital. These results highlight the importance of social capital in building relationships between farming and the broader community and that the way in which to increase social capital is through education, familiarity and exposure to agriculture. Therefore, successful regional supply chains, and successful regionalism, depend on the promotion of farming to community to enhance community’s connectedness and trust of the farming sector. This would then likely increase the community consumer demand for locally produced foods.

**Human capital**

Human capital is a critical factor as it highlights the fact that individuals require skills and knowledge in order to contribute more effectively to a region. In this case, it is the role and responsibility of individuals to seek connections and skill-building opportunities so that they can adequately meet the new demands and changes presented by alternative supply chains. Further, individuals should to some extent be innovative, entrepreneurial and demonstrate initiative. For example, establishing the route, the connection to the distributors such as wholesales, restaurants, service providers, and retail outlets is all for nothing if individual producers do not perceive a benefit in engaging in a regional supply chain or do not perceive how to effectively capitalise on the opportunity (potentially due to a skills or knowledge gap). As such, there needs to be some individuals who are willing to take the (perceived or real) risk to engage in a new and untried supply chain. This would then open pathways for other individual producers.

**Natural resources**

Stakeholders interested in developing a place-based regional supply chain need to consider the importance of available natural resources and how these resources can influence the success of the supply chain. For instance, the Wet Tropics has high levels of rainfall. Whilst this might suggest that farmers could supply produce regionally across the year, which would be important for the success and sustainability of a regional supply chain, there are some limitations. For example, the Wet Tropics has an identified cyclone season which often involves extensive flooding. As such, this period of year is often characterised by decreases in production, which would have a substantial impact on the regional supply chain. Therefore, regional supply chain development needs to consider the enablers and barriers that natural resources represent.

**Infrastructure/technology**

In regards to infrastructure and technology, regions would need to consider if there is appropriate roads and transport to enable a short supply chain as well as access to appropriate warehousing, refrigeration, and processing facilities. Further, linking in with human capital, there needs to be a sufficient resource of a skilled workforce that is able to establish each link in the chain (for example, wholesalers, processors, and others).
Environment/amenities

Some critical factors that need consideration for the development of a place-based regional supply chain include the surrounding environment and amenities. Considering these factors contributes to a whole-of-region integrated approach and, as such, increases the opportunities for success in developing a regional supply chain. Using the Wet Tropics as an example, consideration of the value of the surrounding World Heritage sites and the importance of local Indigenous communities should occur. That is, any approach to developing regional supply chains that involve alternative food service providers such as tourism and health should consider the attraction of the tropics to tourists as well as the importance of engaging Indigenous communities to ensure that this approach to regional development presents benefits for the whole-of-region.

Balancing needs

Balancing needs was identified as a critical factor, recognising that farmers need to balance a range of factors in deciding how to market their products. Therefore, the application of any framework must recognise that some farming businesses will not have the means to engage in value-adding processing in order to supply locally. Governments also have limited resources and funding to apply to particular regions for the development of infrastructure or programs that will facilitate the establishment of a regional supply chain. As a result, regions and associated stakeholders should be conscious of these factors when designing and implementing a regional supply chain, ensuring that demands on individuals, communities and institutions are reasonable and limited in initial and ongoing costs (including financial, time, and energy costs).

Strong regionalism

Strong regionalism emphasises the need for regions to have shared goals and a coordinated approach to development. Strong regions are not dependent on external resources for their continued development and sustainability. Regional supply chains development therefore needs to be driven at locally.

Though regions need to be strong, they do not have to be completely independent. Inter-regional collaboration can reduce the presence of silos at a regional level and encourages regions to adapt systems from other regions.

Effective governance and institutions

Government policy and industry peak bodies can encourage and facilitate the development of regional supply chains. The current policy framework for both government and industry emphasise the agri-industrial model. This pushes producers to increase production levels and increase efficiency due to the perception that it is has greater beneficial economic outcomes than other models.

The DAFF FOODmap report (Spencer & Kneebone, 2012) highlights that this has consequences for smaller producers who are unable to meet this demand for increase production. The FOODMap report also highlights that engaging regional supply chains and tending to the demands of the consumer is an important economic opportunity. However, as can be identified in the Regional Food Network case example, individual producers are still largely operating under the mentality of centralised distribution.

Industry peak bodies should play a major role in helping to change that mentality to one that is more accommodating of regional supply chains. Policies that facilitate and industries that cooperate for improved delivery of local produce would enhance the sustainability and wellbeing of regions but also present benefits at the national level.

One way in which this role may be fulfilled is by assisting regions in the establishment of a regional leader. This leader can help regions identify the needs of a regional supply chain such as identifying infrastructure, distributors, and processors. Further, the regional leader can help the region access
funding that may be needed to meet identified gaps in the potential regional supply chain. This role also contributes to building human capital within the region.

It is the role and responsibility of institutions to establish and frame research, funding opportunities, financial assistance (banks), and skill/knowledge delivery (extension officers) in a manner that encourages people to investigate and invest in different components of the supply chain. By doing so, these opportunities should also encourage collaboration and connectedness between relevant stakeholders which in turn builds social capital. Further, research should also identify the existing community need and demand for local products and whether this demand is likely to increase.

**Example of a regional supply chain in the Wet Tropics**

One example of a regional supply chain in the Wet Tropics is the Regional Food Network (RFN). Operating since November 2011, the purpose of the RFN was to establish a viable local supply of fresh foods and value-added foods to the Wet Tropic region. This purpose involved improving the access to and identification of local food. As such, the Regional Food Network operates under the brand of Taste Paradise, which facilitates the supply and demand of local, fresh and seasonal produce and value-added food. Products are branded with the Taste Paradise brand to communicate to consumers that these are locally sought and supplied products. The brand also attracts other niche markets such as tourism, with tourists able to experience the food and the region as guided by the Taste Paradise brand. Thus the RFN hopes that the Taste Paradise will develop a reputation of the region as an essential experience for tourists. In this way, the Taste Paradise venture can be compared to that of the Hawkesbury Harvest (Mason, 2011).

The RFN was established as a result of considerable government investment into the Taste Paradise brand and the motivation for regional representatives to promote local produce and the region as an agri-food destination. As such, the RFN does not have any direct competitors, as the aim of the network is to enhance the capacity and success of regional businesses and producers. Another motivation for the development of the network was to establish access to local foods, rather than non-local foods provided through the MSC. This shorter supply chain for fresh food and value-added products presents environmental and resource benefits due to the lower ‘carbon footprint’ than that provided through centralised supply chains. Further, the shorter supply chain benefits the region through the provision of fresher foods than that supplied by MSC. The RFN also aims to support the community through enhancing connectedness through sponsoring community events (for example, Port Carnivale) and engaging local councils.

The local supply chain model utilised by the RFN was developed by Rose Wright of Sunshine Coast University. The supply chain model allows for direct supply of the accredited producer to accredited retailers, food service providers and direct retail to the consumer or through central distribution of accredited local wholesalers. Wholesalers then distribute the produce and value-added foods to retailers and food service providers. In total, the RFN has 50 members who are a part of the regional supply chain. Thus members of the RFN include producers (mostly lifestyle farmers/small block farmers), distributors, retailers, restaurants and other members such as tourism organisations/companies. Examples of retailers include accredited local independent fresh and value-added food retailers. Examples of direct retail to the consumer include, agri-tourism, farm gate sales, food trails, on farm value adding, farm shops and online sales. Examples of food service providers include tourism, hospitality, catering, hospitals, schools, canteens and commercial kitchens.

To become a part of this network, members of the supply chain need to become accredited. Accreditation assures the consumer that the product is grown, sourced, distributed and sold locally. As can be seen, the RFN has identified and established access to each step of the supply chain process, complete from paddock to plate (Figure 16).
However, as reported within the focus groups and within the literature, identifying and establishing a local supply chain is only useful if farmers, distributors and consumers are aware of the supply chain, understand the supply chain and know how to access the supply chain. Therefore, an important component of the RFN is how and by what means they communicate information about the supply chain.

The main tool of information delivery by the RFN is a website. The website provides information about the Network as well as the brand. Information is provided on the purpose of the RFN, lists members of the RFN (producers, distributors, retail, restaurants), and it explains the roles of group of members in the supply chain. It offers guidance on how to become a member as well as links to a Facebook page, Taste Paradise application (provides food tours and information on accredited Taste Paradise businesses), and local community events.

This last component, link to community, is essential for the success of any regional development strategy (Kneafsey, 2010). This can be particularly highlighted within the outcomes of the focus groups, as one of the predominant themes across the data was that of connecting to others. As can be seen from the information communicated through the website, people are clearly informed at each step of the supply chain so that they can understand where the food/product is produced, where it is transported, and who supplies the end product. As stated within the focus groups, one of the challenges to engaging in alternative supply chains is a lack of infrastructure or information about how to access these alternative supply chains. The Regional Food Network has made concerted efforts to address this issue.

Despite reported growing success, the RFN is faced with some challenges and barriers. For instance, limited availability of resources has resulted in all facilitators of the network volunteering their time with the exception of the administration officer who works 4 paid hours per week. Additional barriers include resistance to change, and adoption of new technologies by producers. For instance, the initial aim of the RFN was to establish an online trading portal, but a lack of interest and engagement by producers resulted in this component of the RFN shut down. This challenge is also related to the barriers created by government rules and regulations which impact on the likelihood of farmers/producers shifting their supply more locally or value-adding their product. For example, according to the RFN, one of the challenges is local producers’ willingness to engage due to necessary food health and safety regulations. Another regulatory barrier is those put in place by local councils,
such as zoning rules, which makes it difficult, timely and expensive for those who are inexperienced trying to break into the value-added market.

This challenge for local producers in setting up processing facilities also presents challenges for the success of the RFN, in that the produce in the Wet Tropics are not in an all year round supply. Thus, to increase the viability of the short supply chain, there needs to be a consistent, year-long supply of produce, whether that be fresh produce or processed/packaged produce (i.e., frozen goods). The RFN also does not have support from industry bodies apart from Growcom, who funded the facilitator role for six months of the project. This lack of support increases difficulties in engaging suppliers.

To overcome these challenges the RFN targeted the demand-side of the supply chain, collaborating with local tourism and regional groups to promote the Taste Paradise brand and to build the demand for the local foods. This demand now drives the supply of the produce through the RFN. The RFN also aims to change local regional organisations and councils policies to support local produce. For instance, encourage the regional council to commit to using local produce for local events such as for example Port Carnivale. These strategies emphasise the importance of collaboration, communication and connectedness particularly at the regional level. These strategies also emphasise the important role of government and industry in facilitating and supporting the development of regional supply chains.

Reforms needed at the global, national, state and local levels

Based on findings within the literature, focus groups, interviews and the example of a regional supply chain in the Wet Tropics discussed above, the following reforms to policy should be considered. The main reform is the need for policy and regulatory approaches that support the development of infrastructure and networks critical to the development of regional supply chains. This does not suggest that centralised supply chains should be abolished, but that multiple supply chains should be encouraged.

Capitalising on global market trends, particularly emerging Asian markets in the development of new and existing supply chains

The focus groups, governments, industry and regional representatives all agreed that the current and future contribution of agriculture is and should be characterised by all three agriculture models (agri-industrial, post-productivist, and rural development). This is partly due to the recognition that not all farmers and producers should change the way in which they produce and supply food, and value-added products. For instance, some farms can readily meet the demands of increased production and supply centralised markets effectively. Further, some farms can remain relatively competitive in a free trade global market and meet the demands of the Asian Century. These farms can and do continue to operate in an agri-industrial framework in a reasonably sustainable manner.

However, the trends of the global markets and the impact of global free trade competitiveness and the Asian Century do present some challenges and opportunities for other farmers. This should not mean that the value of these farmers to the Australian economy should be any less than those who do have the means to compete effectively on the global stage. However, the opportunity should be available to farmers to use alternative supply chains that are regional and direct to the consumer. Additionally, global market trends and the Asian Century also present opportunities to these farmers who may be able to capitalise on the supply of niche branded quality products. Particularly within the Wet Tropics region, this strategy would clearly link into tourism, establishing another method for supplying products (for example, provision at farm gate, tourism companies, and restaurants).

National policy frameworks that facilitate the development of regional supply chains

The existing national policy frameworks currently limit regions’ ability to effectively establish alternative supply chains. As discussed previously, the power and control with supply chains often lie
with the major retailers (such as Coles and Woolworths) and thus limits the opportunity for farmers and suppliers to supply elsewhere. This type of supply chain is facilitated by current national policy frameworks which encourage individual and organisational competitiveness, inhibiting opportunities for collaboration between such individuals and groups to establish alternative supply chains.

Yet, there is a growing trend with consumers changing values towards products and resulting in consumers seeking alternative means of purchasing fresh food and value-added products (for example, farmers markets). Despite this change in consumer demands, these alternative supply chains can be costly to establish due to a lack of existing services and infrastructure. Thus, it is recommended the current national policy frameworks change to facilitate the development of regional supply chains through establishing necessary infrastructure, as well as encouraging the collaboration rather than competitiveness of regionally based organisations and suppliers.

**Coordination of state level industry peak bodies at a regional level**

One of the biggest challenges to regionalisation is to encourage individuals, groups and organisations to collaborate towards a coordinated and unified purpose. Understandably, the purpose of industry peak bodies is to represent and advocate for the needs of their constituents, however in doing so there is, by default, the creation and maintenance of regional level industry silos. This was clearly identified within the focus groups, as the role of industry bodies is to work from an industry perspective and focus on the needs of the industry. Therefore, whilst recognising the primary role of industry peak bodies, these bodies need to coordinate with each other and identify how they can benefit one another, which will then ultimately benefit the region and industry as a whole. This was again reflected within the focus groups in that a whole-of-region development is needed for this framework to be successful.

An example of this is the Taste Paradise and Regional Food Network. This type of regional supply chain would not be successful if there was not cross-industry involvement and support. Thus, industries need to discuss at a policy level and at a regional level about the most effective and beneficial ways of engaging with other industries in order to capitalise on opportunities.

**Regional industries need leadership and connectedness with community**

Ultimately, what has been reflected throughout this project is the need for greater communication within all organisations, bodies, groups and individuals involved in a place-based regional development framework. This is still clearly reflected within this case study at the regional level. Specifically, at the local or regional level, their needs to be leadership, communication and connectedness so that the relevant supply chains can be established. Achieving this is a major strength of the Regional Food Network.

There needs to be awareness and understanding of the demands of the regional population including potential tourism, awareness and understanding of the existing value-added foods and fresh produce, as well as the opportunities for others to coordinate and engage in such strategies. There needs to be awareness and understanding of the infrastructure and resources available to ensure an efficient and effective supply chain. Finally, there must be active engagement with community to encourage the support for regional supply chains. Without this engagement or support, substantial challenges will arise that may then impact the overall effectiveness and sustainability of a place-based regional development framework for agriculture in Australia.
Appendix 6: Community survey instrument

Contribution and Value of Agriculture

Welcome! This survey asks what you think about your local community, including the role of local farming and agriculture within the Wet Tropics region.

It is hoped that by exploring these factors the sustainability and well-being of rural/regional communities can be enhanced.

If you agree to be involved in the study, you are invited to complete this questionnaire which explores the roles you have in your community and what you think about the relationship between farmers/agricultural producers and the wider community.

The questionnaire should only take approximately **20 minutes** of your time.

By taking part in this study, you are eligible to go into the draw to win 1 of 3 $100 shopping gift vouchers to be drawn at the end of September, October and November 2013.

If you wish to go into the draw, please complete the registration form at the end of the questionnaire.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice.

**BY RETURNING OR COMPLETING THE QUESTIONNAIRE, YOU ARE INDICATING THAT YOU CONSENT TO PARTAKE IN THIS STUDY.**

If you know of others who are over 18 years and live in the Wet Tropics that might be interested in this study, can you please pass on this information sheet or survey link.

Your responses and contact details will be strictly anonymous. The data from the study will be used in research publications and reports however you will not be identified in any way in these publications.

If you have any questions about the study, please contact:
Principal Investigator:
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The Cairns Institute
James Cook University
Phone: (07) 4042 1879
Email: jim.turnour@jcu.edu.au
A LITTLE BIT ABOUT YOU

What is your gender?

☐ Male  ☐ Female

What is your age in years?

What is your marital status?

☐ Single
☐ Living as domestic partners
☐ Married
☐ Divorced
☐ Widowed
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have children?</td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td></td>
</tr>
<tr>
<td>What is the closest town or suburb to where you live?</td>
<td></td>
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<tr>
<td>What is your postcode?</td>
<td></td>
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<tr>
<td>How many years have you lived in the region?</td>
<td></td>
</tr>
<tr>
<td>How many community groups or organisations do you belong to? (please write number)</td>
<td></td>
</tr>
</tbody>
</table>
From the list below, please rank from top to bottom where you MOST OFTEN shop for fresh food.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Major supermarket (e.g. Coles or Woolworths)</td>
</tr>
<tr>
<td>4</td>
<td>Independent supermarket (e.g. IGA, Foodworks)</td>
</tr>
<tr>
<td>3</td>
<td>Local Markets (e.g. Rusty's markets, Community markets)</td>
</tr>
<tr>
<td>2</td>
<td>Local food networks (e.g. Regional Food Network, Realfood Network)</td>
</tr>
<tr>
<td>1</td>
<td>Other</td>
</tr>
</tbody>
</table>

Comments

Do you identify as coming from a rural background?

- ☐ Yes Country Person
- ☐ No

What is the highest level of education you have completed?

- Some high school
- High school
- Some university
- Bachelor's degree
- Graduate Diploma
- Graduate Certificate
- Master's degree
- Doctorate degree
- Trade or other technical school degree
From the list below, please select the industry of your main job.

- Agriculture, forestry and fishing
- Arts and recreation services
- Health care and social assistance
- Education and training
- Public administration and safety
- Administrative and support services
- Professional, scientific and technical services
- Rental, hiring and real estate services
- Financial and insurance services
- Information media and telecommunications
- Transport, postal and warehousing
- Accommodation and food services
- Retail trade
- Wholesale trade
- Construction
- Electricity, gas, water and waste services
- Manufacturing
- Mining
- Tourism
- Other

From the list below, please select the occupation of your main job.

- Machinery operator and driver
- Sales worker
- Clerical and administrative worker
- Community and personal service worker
- Technicians and trades worker
- Professional
- Manager
- Labourer
- Other
What is your yearly household income?

- Less than $18,000
- $18,000 to $34,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $124,999
- $125,000 to $149,999
- $150,000 or more

**WHAT DO YOU THINK ABOUT FARMING?**

The following questions ask you about what you think of farming or agriculture. While some answers may not be exactly what you think, select the answer which is most appropriate for you.

I think farming contributes significantly to the local economy.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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<tbody>
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</tbody>
</table>

Overall, I think farming positively contributes to the quality of life in my community.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
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<td>☐</td>
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</tr>
<tr>
<td>Survey Question</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
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<tr>
<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>I think a career in farming is attractive.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>I think a career in food processing is attractive.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>I think a career in food retailing is attractive.</td>
<td>☑</td>
<td>☑</td>
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<tr>
<td>I think farming in my region damages the environment.</td>
<td>☑</td>
<td>☑</td>
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</tr>
<tr>
<td>I think farmers in my region work hard.</td>
<td>☑</td>
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<td>☑</td>
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<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
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<td>--------------------------------------------------------------------------</td>
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<tr>
<td>I think knowledge and understanding of food and fibre production is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>important for people today.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keeping farmers in business in my region is important to me.</td>
<td></td>
<td></td>
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<tr>
<td>I am interested in knowing which of the foods I eat are produced or</td>
<td></td>
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<tr>
<td>grown in my region.</td>
<td></td>
<td></td>
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<tr>
<td>I wish stores would carry more food that is produced locally.</td>
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<tr>
<td>I would be willing to pay more for locally grown food.</td>
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</tbody>
</table>
If all foods had a label saying where they were grown or processed, I would make an effort to buy foods that were grown in my local region or state.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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<tr>
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</tbody>
</table>

**WHAT IS THE ROLE OF FARMING?**

Now we would like you to tell us about what roles you think farming plays in your region.

In what ways do you think farmers contribute to community? From the list below, please indicate the extent that you agree or disagree that farmers contribute to community in this way.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food &amp; fibre production</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Environmental protection</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Biodiversity management</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Employment opportunity</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>Food Security</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Economic stimulation</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Social connectedness</td>
<td>☐</td>
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</tbody>
</table>
From the list below, please select ALL of the industries or businesses that you think farming is connected to?

- Arts and recreation services
- Health care and social assistance
- Education and training
- Public administration and safety
- Administrative and support services
- Professional, scientific and technical services
- Rental, hiring and real estate services
- Financial and insurance services
- Information media and telecommunications
- Transport, postal and warehousing
- Accommodation and food services
- Retail trade
- Wholesale trade
- Construction
- Electricity, gas, water and waste services
- Manufacturing
- Mining
- Tourism
- None of these
- Other

FARMING AND YOUR COMMUNITY

Now we would like to know about the relationship between farming and your community. For the questions below, please indicate how often you do these things.

How often do you go outside of your local community to shop for essentials?

- Never
- Rarely
- Sometimes
- Often
- Always

How often do you shop for essentials in your local community?

- Never
- Rarely
- Sometimes
- Often
- Always
How often do you shop for essentials online?

Never ✗ Rarely ✗ Sometimes ✗ Often ✗ Always ✗

How often do you meet or see a farmer?

Never ✗ Rarely ✗ Sometimes ✗ Often ✗ Always ✗

How often do you feel disadvantaged living in a small community because you do not have access to all your needs?

Never ✗ Rarely ✗ Sometimes ✗ Often ✗ Always ✗

FARMING AND YOUR COMMUNITY

The following questions ask you about how you feel towards farming and its place in your community. While some answers may not be exactly what you think, select the answer which is most appropriate for you.

I feel that farmers or agricultural producers are a part of my community.

Strongly disagree ✗ Disagree ✗ Neutral ✗ Agree ✗ Strongly agree ✗
I feel farmers in the community are sensitive to community concerns.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</table>

I trust farmers in my community/region to protect the local environment.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</table>

**YOUR COMMUNITY**

The next part of this questionnaire asks you about your local area, the type of things that go on and what you think about your area. While some answers may not be exactly what you think or do, circle the answer which is most like you.

I sometimes go outside my local community to visit my friends.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</tbody>
</table>

I often travel outside my local community.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</thead>
<tbody>
<tr>
<td>☒</td>
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<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
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<tr>
<td>--------------------------------------------------------------------------</td>
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<tr>
<td>I have a quite a lot of friends who do not live in my local community.</td>
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<tr>
<td>I sometimes go outside my local community to visit members of my family.</td>
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<tr>
<td>Most of my neighbours know my first name.</td>
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<td></td>
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</tr>
<tr>
<td>I'm happy to help out my friends and neighbours if they need a hand.</td>
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<tr>
<td>If I was caring for a child and needed to go out for a while I would ask a neighbour for help.</td>
<td></td>
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</tbody>
</table>
I generally socialise with my friends at least once a week.

My town is a place in which most people care about the local community.

I often help out with local community projects or working bees in my spare time.

I often attend local community events (e.g. concerts, fetes, craft exhibitions).

In my town most people are willing to become involved with the local community and are not focussed only on their own lives.
I get on well with my neighbours.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</thead>
<tbody>
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</tbody>
</table>

I often socialise with my neighbours (e.g., go round for a BBQ or tea/coffee).

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</thead>
<tbody>
<tr>
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</table>

I think most people in Australia can be trusted.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
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</tr>
</tbody>
</table>

I think most people in my town can be trusted.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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</tbody>
</table>

**DRAW TO WIN A VOUCHER**

Would you like to go into a draw to win $100 shopping gift voucher? If so please indicate below.

☐ Yes

☐ No

Thank You!

Thank you for taking our survey. Your response is very important to us.
Analysis

To identify group differences towards the following questions (i.e., farm attitudes, farm roles & contributions, farm support, social capital), one-way ANOVAs were conducted for the categorical variables of gender, marital status, children (yes/no), rural background (yes/no), education, industry, occupation and income.

The only significant and meaningful differences identified were for Social capital subscales Community engagement (children group differences) and Bridging (income group differences). These findings will be discussed within the Does community have good social capital? section. No other group differences were found, indicating that the following results were not significantly or meaningfully influenced by demographic factors.

Does community have a positive attitude towards farming?

Means and frequencies were calculated to identify attitudes towards farming in the wider Wet Tropics regional community. Participants reported a total mean of 52.17 (SD=5.73) for Farming attitudes from a possible range of 13 (negative) to 65 (positive), with the midpoint of 39 (neutral). Participants reported a mean of 25.56 (SD=3.19) for subscale Importance and value of farming from a possible range of 6 (negative) to 30 (positive), with the midpoint of 15 (neutral). Participants reported a total mean of 8.82 (SD=2.46) for subscale Farming careers from a possible range of 3 (negative) to 15 (positive), with the midpoint of 9 (neutral). Participants reported a total mean of 17.80 (SD=2.00) for subscale Regional production from a possible range of 4 (negative) to 20 (positive), with the midpoint of 12 (neutral).

This suggests that the community generally held a positive attitude towards farming but did not necessarily perceive a career in farming, food processing, or food retailing as attractive. This can be clearly seen in the figures below which indicate the majority of participants “agree” or “strongly agree” with positive statements of farming.

Figure 17: I think farming positively contributes to the quality of life in my community (Item 2)
Does community understand and recognise the roles and contributions of farming/agriculture?

To assess participants’ knowledge of the roles and contributions of farming or agriculture, participants were asked to indicate what roles farming had in community, and which industries that farming/agriculture contributed to. For farming roles, the majority agreed/strongly agreed that food and fibre production (97.6%) was a farming role, followed by economic stimulation (84.6%), employment opportunity (85%), food security (77.8%), social connectedness (64.3%), environmental protection (61.6%) and biodiversity management (56.4%). When asked to indicate the number of industries that participants believed farming contributed to, the mean number of industry contributions were 10.24 (SD=4.40) of a possible 18 industries.

The industries that participants more often identified as a farming contribution were Education and training (78.7%); Professional, scientific and technical services (84.3%); Transport, postal and warehousing (79.5%); Accommodation and food services (78%); Retail trade (81.9%); and Wholesale trade (89%). The industries less often identified as a farming contribution by participants were Arts and recreation services (21.3%); Public administration and safety (37%); Administrative and support services (32.3%); Information media and telecommunications (36.2%); and Mining (21.3%). Thus as can be seen by these results, participants viewed the role of farming in community to be quite broad and recognised the contribution of farming to be multifaceted. This suggests a good understanding and knowledge of the roles and contribution of farming/agriculture.

Does the community support regional farming or agriculture?

This question has in part been addressed by positive Farming attitudes (willingness to pay more for local products). Additional positive Farming attitude questions that indicate support for regional farming is represented in the figures below.
Figure 19: If all foods had a label saying where they were grown or processed, I would make an effort to buy foods that were grown in my local region or state (Item 13)

Figure 20: Keeping farmers in business is important to me (Item 9)

To additionally assess whether community supports regional farming and businesses, participants were asked to rank where they most often purchase their fresh food. In regards to their fresh food shopping preferences, 73.6 percent of participants ranked Major supermarket chains (for example, Woolworths or Coles) in their top 2 preferences (57.5% ranked as number 1); 56.7 percent ranked Independent supermarket chains (for example, IGA, Foodworks) in their top 2 preferences; 56.4 percent ranked Local community markets (for example, Rusty’s Markets, Jonnson’s Markets); and 20.2 percent ranked Local food networks (for example, Regional Food Network) in their top 2 preferences. This suggests that there is growing support for locally produced products as well as support for such distributors and outlets.
Does community have good social capital?

Social capital was assessed using two measures: the Farming-specific social capital scale and the general Social capital scale. Participants reported high Farming-specific social capital with a mean of 11.83 (SD=2.26), of a possible 3 (low) to 15 (high) and midpoint of 9 (neutral). Farming-specific social capital was found to significantly positively correlate with general Social capital (r=.302, n=127, p<.001), Informal associations (r=.306, n=127, p<.000) and Community engagement (r=.312, n=127, p<.000).

In regards to general Social capital, participants reported a total social capital score of 14.63 (SD=1.83), of a possible 4 (low) to 20 (high) and midpoint of 12 (neutral). The means and range for the Social Capital subscales are presented in the table below. A paired-samples T-Test indicated that there was a significant difference between Bridging and informal associations (t(126)=4.14, p<.000), as well as between Bridging and trust (t(126)=4.37, p<.000), and between Bridging and community engagement (t(126)=5.73, p<.000). This indicates that Bridging, as a form of social capital, was rated significantly higher than other forms of social capital. There was also a weaker but significant difference between Informal associations and Community engagement (t(126)=2.40, p=.018).

A Pearson Correlation matrix indicated that the demographic factor of Age was significantly positively related to Social capital (r=.316, n=125, p<.000), Informal associations (r=.250, n=125, p=.005) and Community engagement (r=.358, n=125, p<.000), whilst weakly significantly related to Trust (r=.204, n=125, p=.023).

These findings suggest that older people had greater social capital. Using a one-way ANOVA, demographic differences with people who had children rating Community engagement significantly higher (Mean=3.63, SD=.68) than those who did not have children (Mean=3.11, SD=.58), F(1,124)=15.77, p<.000. Further, a one-way ANOVA indicated a main effect of income on level of Bridging (F(7,115)=3.1 p=.005). Tukey’s post hoc analysis indicated that individuals from the low income bracket of $18,000 or less reported Bridging significantly lower (Mean=3.34, SD=.63) than those that earned between $75,000 to $99,999 (Mean=4.00, SD=.58), $100,000 to $124,999 (Mean=4.14, SD=.57) and $125,000 to $149,999 (Mean=4.36, SD=.61). Overall, these findings suggest that the participants presented with good social capital yet income, age, and children had an influence on the level of experienced social capital.

Does general social capital and farming-specific social capital predict positive attitudes towards farming?

To test whether social capital and farming-specific social capital predicted positive attitudes towards farming, a standard multiple regression analysis was conducted. Results indicated that social capital and farming-specific social capital significantly predicted positive farming attitudes, explaining 43.3 percent of the variance. As can be seen in Table 2, Farming-specific social capital had the largest unique contribution to positive farming attitudes.
Table 2: Standard multiple regression findings for Farming social capital and General social capital on positive farming attitudes

<table>
<thead>
<tr>
<th>Factor</th>
<th>B (SE)</th>
<th>B</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming social capital</td>
<td>1.46 (.18)</td>
<td>.58</td>
<td>&lt;.000</td>
</tr>
<tr>
<td>General social capital</td>
<td>.59 (.22)</td>
<td>.19</td>
<td>.009</td>
</tr>
</tbody>
</table>

These results indicate that social capital, particularly farming related social capital, enhances positive farming attitudes within the regional community.

**Does knowledge of farming (for example, farming roles & contributions) predict social capital and farming-specific social capital?**

To test whether knowledge of farming predicted general and farming specific social capital, a standard multiple regression analysis was conducted. Knowledge independent variables included Farming roles (total score for the seven farming roles) and total frequency of Industry contribution. Industry contribution was not significantly correlated with Farming roles or Farming-specific social capital and was, therefore, removed from the analysis.

Results indicated that Farming roles significantly predicted Farming-specific social capital, explaining 24.4 percent of the variance. As can be seen in Table 3, Farming roles presented a standardised coefficient of $\beta=.49 (p<.000)$. For general Social capital, as Industry contribution was significantly (weakly) correlated with general Social capital, industry contribution was included in the regression model. Results indicated that the model was significant, with Farm roles and Industry contribution explaining 16.1 percent of the variance in general Social capital. However, as can be seen in Table 3, Farm roles was the only knowledge indicator that significantly contributed to the model. These findings suggest that knowledge and understanding of the roles of farming in community is important for building social capital, both general and specific.

Table 3: Standard multiple regression findings for Farm knowledge (Farm roles & Industry contribution) on Farming social capital and General social capital

<table>
<thead>
<tr>
<th>Factor</th>
<th>B (SE)</th>
<th>B</th>
<th>Sig.</th>
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<td>Farming social capital</td>
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<tr>
<td>Farm roles</td>
<td>.24 (.04)</td>
<td>.52</td>
<td>&lt;.000</td>
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<td>General social capital</td>
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<td></td>
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<tr>
<td>Farm roles</td>
<td>.15 (.03)</td>
<td>.37</td>
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<tr>
<td>Industry contribution</td>
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<td>.11</td>
<td>.190</td>
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Appendix 7: Terms of reference

Accounting for agriculture in place based frameworks for regional development

Background

Agriculture and the primary industries remain important to many regions of Australia. They contribute directly to the economies of these regions, as well as indirectly through other industries (for example, agri-tourism) and through contributions to social and environmental outcomes in the regions. Agricultural industries are also continually in adjustment, adapting to changes in markets, cost structures, government policies and technology as well as environmental conditions including drought and natural disasters. However, in some quarters, the agricultural industries are viewed as static rather than presenting new opportunities. To account for agriculture in regional development, questions need to be answered regarding how agriculture fits with regional economies, how the agricultural industries will evolve and develop in regions over the longer term and how to make the most of these opportunities for the benefit of regional economies and communities. Understanding the trends and issues that agricultural and related industries face in this regional ‘place based’ context can better inform regional and national policy by providing insights into how issues play out in a ‘place’. These insights may assist to identify and address constraints to industry development, but also opportunities to facilitate regional development.

It is proposed that a project be undertaken in the wet tropics region around Cairns in far-North Queensland to explore these issues. This region exemplifies a number of these challenges, with a number of agricultural industries in transition and developing new agricultural industries, as well as a suite of other established and developing industries contributing to the local economy.

Project outcome

The outcome of the project will be the development of a framework to practically account for the role of agriculture in regional development. The framework will provide a basis for examining the potential role of agriculture in contributing to regional development in a range of regional contexts, and can be used in other regions to engage with agricultural industries and communities in planning for development.

In delivering the project outcome, the project will undertake a number of activities. These include:

- Develop a framework for describing both quantifying and qualifying contributions that agriculture makes to regional economies, along with identifying constraints and opportunities that face agriculture;
- Identify the contribution that agriculture makes to the regional economy, social development and through the provision of regional ecosystem services;
- Identify federal, state and regional stakeholders and relevant networks that are involved in decision making in respect to agriculture and regional development in the pilot region; and
- Consider scenarios for how agriculture may develop within a region and the institutional arrangements for facilitating change and development and understanding how to maximise the contribution of agriculture to these economies;
- Enable the opportunities and constraints facing agriculture and its future to be identified and discussed in a regional development context;
• Identify and explore how regional and national trends are manifest in a ‘place based’ context and build strategies to facilitate the development of agriculture for the broader benefit of regions; and

• Through ownership of project outcomes and relevance to local, regional and national policy makers there will be engagement with these stakeholders to ensure that they are advised on progress, engaged in project activities and consulted on direction setting of the project where appropriate.

The project will consist of four phases, including:

• A discussion paper which describes the pilot region, including key elements of economy, demography and discussed a range of issues including social and industry change;

• A workshop including invited regional, state and federal stakeholders to discuss the issues and challenges and identify critical factors that impact on agriculture meeting its potential within the region;

• A research paper that explores these critical factors, engages with stakeholders to identify mechanisms for overcoming these barriers and identifies critical national policy implications concerning enhancing the role of agriculture in regional development; and

• A strategic agenda that the region can progress concerning the integration of agriculture and regional development beyond the life of the case study.

**Other key points**

The project should consider and build upon the Regional Australia Institute’s regional competitiveness index (to be released early November 2012).

Engage with stakeholders including Department of Regional Australia, Local Government, Arts and Sport and Regional Australia Institute and potentially NFF. Individuals may include Rose Wright (Knowledge Transfer Services), Neville Crossman (CSIRO).
Glossary

**Agri-industrial model**: An agricultural development paradigm where farmers contribute through the production of food, fibre, timber and fodder. The model’s main focus is increasing productivity to remain competitive within sectoral commodity markets. This is how agriculture has traditionally been viewed in Australia and it remains the dominant paradigm in terms of defining agriculture’s contribution to development.

**Regional comparative advantage**: The combination of resources that a region has compared to another region to produce products and services.

**Regional competitive advantage**: The capacity of a region to use its resources to outperform its competitors.

**Globalisation**: The process of increasing economic and financial integration of economies around the world through the removal of national barriers to financing, production, sale and distribution of goods and services.

**Human capital**: An aggregate view of human capabilities including knowledge, skills, creativity and personality characteristics that can be applied to support economic development.

**Industry deregulation**: The removal of production and marketing controls on agricultural products in Australia following a review of the national competition policy in the 1990s that established that regulations should only remain if they produce a net public benefit.

**Institutions**: The formal (organisations, policies and laws) and informal (social and cultural norms) that govern the behaviour of individuals within a community.

**Place-based agriculture development framework**: PADF is a place-based planning tool that integrates three models of agricultural contribution (agri-industrial, post-productivist and rural development) so as to fully consider the potential of agriculture to contribute to a region’s development.

**Place-based regional development**: Describes an approach to development which emphasises identifying and mobilising a region's endogenous potential. It encompasses the ability of the defined region to grow based on its own resources and innovative capabilities, notably its social and human capital.

**Post-productivist model**: An agricultural development paradigm which emphasises farming and agriculture contributing to and capitalising on the aesthetic beauty of the surrounding environment and adopting environmentally friendly farming practices that protect the natural productive assets and surroundings and provide ecosystems services to the wider society.

**Rural development model**: An agricultural development paradigm which emphasises place-based agriculture and rural community sustainability. Community wide competitive advantage is rooted in place rather than an individual industry or sector (for example, place/regional branding, value-adding and niche marketing).

**Social capital**: The level of connectedness and trust of people and organisations within and between local communities. Strong social capital reflects an ability to work together in a cooperative and coordinated way to tackle problems.
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