The Rural Industries Research and Development Corporation (RIRDC) has undertaken a regional study of the role and value of agriculture to the Wet Tropics region of North Queensland. A theoretical framework was developed, as part of the project, in order to quantify and qualify the contributions that agriculture makes to regional economies, and to identify the constraints and opportunities that influence these contributions. The framework was then applied to the Wet Tropics region as a pilot study. In developing such a framework, RIRDC aims to support the economic development of agricultural regions within Australia, by identifying and maximizing sources of competitive advantage specific to those regions. This fact sheet summarises the project.

About the Wet Tropics region

The Wet Tropics region is located along the coast of Far North Queensland (FNQ), between Townsville and Cooktown. Fertile soils and high rainfall have historically supported significant agricultural production and by the middle of last century, agriculture had become the region’s dominant economic driver, estimated to account for almost 70 per cent of FNQ’s gross value of production (Regional Development Australia, 2012).

Over the past 50 years, the region’s agricultural profile has continued to change. 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 per cent 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, 2004). Today, there are 51 farmers supplying the Dairy Farmers factory at Malanda and another seven farmers supplying niche milk products into regional supply chains.

Industry deregulation has seen larger corporations take over the milling and processing sectors in the sugar and dairy industries, providing capital to upgrade and maintain infrastructure creating greater certainty for farmers. Corporate farms have also become increasingly prominent in horticultural production and supply chains, as major retailers prescribe product specifications and demand continuity of supply.

Other industries have also emerged based on the diversity of regional natural resources, in particular, tourism.

The natural landscape, including the World Heritage listed Great Barrier Reef and Wet Tropics Rainforests, form the backdrop for many nature based and eco-tourism experiences. As a result, agriculture’s relative importance within the region’s economy has declined to less than 20 per cent of the gross value of production (Regional Development Australia, 2012). Irrespective of this decline, agriculture remains a foundation industry for many rural communities in the region, particularly those outside of the city of Cairns (Tablelands Futures Corporation, 2013).
The Place-based Agriculture Development Framework

The Place-based Agriculture Development Framework (the framework) developed for this project is based on three alternative models for agricultural development, and also incorporates eight factors important to maximizing agriculture’s contributions to regional development.

The three models each provide different lenses, through which to explore how agriculture can contribute to regional development. The three models build on each other within the framework, providing an opportunity to consider agriculture’s regional contributions more broadly than with a traditional economic analysis. The models are:

1. **The agri-industrial model**: where agriculture’s role in society comprises the supply of food and fibre within bulk commodity markets. This 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).

2. **The post-productivist model**: where agriculture has a role 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 consideration with the model is the need to balance environmental protection with financial viability, and the questionable sustainability of approaches reliant on government policies and funding.

3. **The rural development model**: this 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 could 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).
Figure 1: The Place-based Agricultural Development Framework

Eight factors that provide the foundation for agricultural development and influence different opportunities

Three alternative models that shape agricultural development
The eight factors include assets that provide the foundation for agricultural development, and factors that influence whether the different opportunities presented by the model are realised. The eight factors are:

1. **Social capital**: 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).

2. **Human capital**: the 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.

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

4. **Infrastructure/technology**: the transport, energy, information and communication systems within a region. Infrastructure/technology combined with security of access to natural resources (land and water) can change the relative competitiveness of agriculture within a region.

5. **Environment/amenity**: these factors 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.

6. **Balancing needs**: different agricultural 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.

7. **Strong regionalism**: the ability for a region to act in a co-ordinated and cohesive manner, and pursue self-reliance. This factor highlights the need for regions to speak with a strategic and coordinated voice, and for development to be controlled and driven regionally.

8. **Governance and institutions**: 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. These factors are critical to creating a holistic and integrated approach important to expanding agriculture’s contribution within a region.

Together, the models and factors encourage an expanding vision of the contribution that agriculture can make to regional development based on a region’s competitive advantages (Figure 1). Maximising the contribution of agriculture to a region relies on understanding the various opportunities each model presents, and the critical factors. These can then be combined to determine what commodity and non-commodity outputs can be produced competitively (OECD, 2001). Identifying and maximising a region’s competitive advantages is, therefore, central to place-based regional development.
APPLYING THE FRAMEWORK: THE WET TROPICS PILOT

In applying the framework to the Wet Tropics region, a four-stage methodology was carried out.

First, a literature review was undertaken and a discussion paper developed, which explored the history, major changes, and current contribution and demographics of the agricultural industry in the region. The paper also highlighted potential future challenges and opportunities facing the industry.

Second, three focus groups were convened in Canberra, Brisbane and Innisfail, to explore the themes identified in the discussion paper. The focus groups comprised a cross-section of participants from the Wet Tropics region, including:

• farm family businesses
• agribusinesses leaders and managers with businesses in the region
• regional/state and national industry bodies
• regional development organisations
• agriculture research development and extension staff engaged in the 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 area.

Thirdly, the draft framework, as developed from the literature review, was refined based on the focus group discussions. The framework was then tested through interviews, and further revised based on results from an online survey that explored the relationship between the agricultural industry and local communities. These revisions were also informed by a number of ‘case studies’ which provided deeper exploration and analysis of key themes within the framework.

The final stage of the pilot involved a workshop, where feedback and project results were provided to key stakeholders. Some final revisions followed from this workshop.
## CURRENT SITUATION

How do agriculture and agribusiness contribute to the regional development of the Wet Tropics? What are the opportunities and constraints that influence these contributions?

<table>
<thead>
<tr>
<th><strong>SOCIAL CAPITAL</strong></th>
<th><strong>HUMAN CAPITAL</strong></th>
<th><strong>INFRASTRUCTURE</strong></th>
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<tbody>
<tr>
<td><strong>Current Situation</strong></td>
<td>Strong social capital does exist within the region, with 95% of survey participants saying they value farming and agriculture; 98% willing to support locally produced and supplied food goods. Continuing to build social capital remains particularly important for the sugar and dairy industries, 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. Relationships between these parties are strong in the dairy industry, but appear to be breaking down in some sugar mill areas.</td>
<td>The Wet Tropics, like many other agricultural regions in Australia, has an ageing farmer population. There are many industry leaders that continue to develop and adopt new production and management systems that drive regional competitiveness. Mungalli Creek and Gallos Farming within the dairy industry, and the recent development of a cocoa industry, are good examples of the individual leadership and entrepreneurial capacity in the region.</td>
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<td><strong>Potential opportunities or facilitators</strong></td>
<td>A strong connection between the broader community and farmers is likely to result in positive attitudes towards farming and increased demand for locally produced food, enhancing the success of regional supply chains. Local markets and regional supply chains provide an opportunity for farmers to capitalize on the high levels of social capital in the region. Examples of this include the Regional Food Network and Real Food Network. Opportunities for regional development may be linked to sectors beyond traditional agriculture (for example, using environmental values and World Heritage listing to develop regional brands, agritourism, and so on); strengthening social capital between these various sectors could improve regional development outcomes. Regional development bodies such as Regional Development Australia, Advance Cairns and Tablelands Futures Corporation have the potential to assist in building social capital and promoting regional development.</td>
<td>Post-productivist and rural development agricultural systems are becoming more prominent in the Wet Tropics, providing the opportunity for broader regional development. The emergence of alternative, non-traditional business ventures for farmers, such as agritourism, provides an opportunity for further regional development whilst simultaneously building skills and knowledge (i.e. human capital); there is the potential for human capital and regional development to reinforce one another.</td>
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<td><strong>Potential constraints</strong></td>
<td>Size of the local market potentially limits regional supply chain and local market opportunities. Opportunities are dependent on the ability to develop new networks and create trust; this requires substantial leadership skills and a willingness amongst parties to collaborate.</td>
<td>Rural and regional communities in Australia tend to have lower levels of education. A lack of training/education programs for leadership/entrepreneurial skills required to develop new networks and enterprises as per the rural development model is a potential constraint on building human capital stocks in the region. Further, farmers are often reluctant to invest in their own professional development and innovation clusters without government incentives. The inability to attract new, young farmers to the industry could limit regional development as the population ages. Individuals attempting innovation or entrepreneurial activities can be inhibited by limited resources or knowledge.</td>
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<td><strong>AMENITY</strong></td>
<td>Failure to adequately address issues such as environmental protection with financial viability may place constraints on building social capital. Balancing environmental protection with financial viability for example, using environmental values and World Heritage listing to develop regional brands, agritourism, and so on could increase the region's environmental competitiveness. There is some contention over natural asset bases and thus contribute to asset base and thus contribute to regional development. There is recognition amongst farmers and the broader community that significant constraint on building human capital stocks is the inability to attract new, young farmers to the region. Recent corporate investment by processors has provided significant opportunities for business development. The presence of strong industry organisations, large corporate foreign investors and a history of cooperative processing and marketing arrangements. Relationships between these parties are strong in the dairy industry, but appear to be breaking down in some sugar mill areas. Regional development to reinforce one another.</td>
<td>The region comprises two World Heritage listed areas: the Great Barrier Reef and the Wet Tropics Rainforest. A well-developed bioeconomic networking model, such as the National Biosecurity System, enables access to international markets, if further regional development is to occur. Regional development to reinforce one another. Utilizing new technologies and media can assist opportunities for growth.</td>
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<td><strong>TECHNOLOGY</strong></td>
<td>Good NRM can be sustainable where the production system generates additional value through the supply chain. Market-based mechanisms provide the potential for farmers to undertake more environmentally sustainable practices, by providing a clear economic incentive for best practice environmental management. For example, the emerging carbon and ecosystems services markets provide new opportunities to work towards establishing the Wet Tropics World Heritage listing to develop regional brands, agritourism, and so on; strengthening social capital between these various sectors could improve regional development outcomes. Regional development bodies such as Regional Development Australia, Advance Cairns and Tablelands Futures Corporation have the potential to assist in building social capital and promoting regional development.</td>
<td>Further investment in logistics is required to support supply chains, as international market development is critical in order for agriculture to contribute to regional development.</td>
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Conclusions for the Wet Tropics region are considered against the eight factors that provide the foundation for, and influence, regional development, as reflected in the framework. These factors are considered through all three models, or ‘lenses’, for agricultural development (agri-industrial, post-productivist and rural development). These conclusions have been made by the research team, drawing on desktop information, focus group and interview feedback, and survey results.

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<tr>
<th>INFRASTRUCTURE TECHNOLOGY</th>
<th>NATURAL CAPITAL</th>
<th>ENVIRONMENT / AMENITY</th>
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<tr>
<td>Farmers can leverage the region’s natural resources to create new opportunities for alternative, non-traditional income generation and activities, for example, agritourism, and regional or ‘green’ branding.</td>
<td>The Wet Tropics region has a significant natural resource base, with fertile soils, good rainfall, and high levels of biodiversity.</td>
<td>There have been recent increases in land prices driven by amenity value, this has led to competing interests in terms of use of agricultural land for rural residential developments. Agritourism has emerged as a feature of the region, given the environment/amenity value of the Wet Tropics. 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.</td>
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<td>Good NRM can be sustainable where the production system generates additional value through the supply chain (for example, the Bonsuco accreditation scheme). Market-based mechanisms provide the potential for farmers to undertake more environmentally sustainable practices, by removing reliance on government intervention and creating a clear economic incentive for best practice environmental management. For example, the emerging carbon and ecosystems services markets provide new opportunities to leverage additional contributions from agriculture within a post-productivist farming system.</td>
<td>The region comprises two World Heritage listed areas: the Great Barrier Reef and the Wet Tropics Rainforest. Farmers in the region acknowledge the inherent value of good natural resource management (NRM) to their operations, that delivers real economic benefit.</td>
<td>Increased land values can provide farmers with the necessary capital to undertake new ventures. The introduction of a wider policy framework which embeds place-based, integrated approaches to landscape-scale management could increase the region’s environmental asset base and thus contribute to regional development.</td>
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<tr>
<td>Farmers in the region acknowledge the inherent value of good natural resource management (NRM) to their operations, that delivers real economic benefit.</td>
<td>Increased land values can be prohibitive for new farmers, or existing farmers looking to expand their operations.</td>
<td>Balanced environmental protection with financial viability can be challenging for farmers. In some cases, a farmer’s ability to maintain good NRM can be dependent on continued government funding of a program. While a robust regulatory framework for NRM is required, regulation alone places the entire cost of NRM and ecosystem service provision on farmers; reform is required to ensure cost pass-through mechanisms exist and consumers also contribute to the cost of environmental management.</td>
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<td>Balancing environmental protection with financial viability can be challenging for farmers. In some cases, a farmer’s ability to maintain good NRM can be dependent on continued government funding of a program. There is some contention over natural asset ownership and perceptions of interference, particularly those from outside the region regarding World Heritage listed areas. This could be limiting the contribution of environmental/amenity assets to regional development. Failure to adequately address issues such as disaster management (for example, from cyclones or flooding) and climate change could significantly constrain regional development.</td>
<td>Environment/amenity assets to regional development.</td>
<td>Increased land values can provide farmers with the necessary capital to undertake new ventures. The introduction of a wider policy framework which embeds place-based, integrated approaches to landscape-scale management could increase the region’s environmental asset base and thus contribute to regional development.</td>
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<td>Many farmers are motivated by lifestyle, as much as economic factors, in their decision-making. Many farmers seeking off-farm work to supplement income and maintain lifestyle. Continued declining terms of trade is placing significant financial pressure on farming businesses; farmers may recognise the need to adopt post-productivist farming systems and look to new opportunities to diversify or value add. However, these need to be balanced with financial or human resource constraints.</td>
<td>A range of new opportunities to diversify or value-add are available to farmers in the region (for example, agitourism, organic production, and others). Educating non-farmers to understand and respect the challenges many farmers face given varying demands could foster greater social cohesion and assist farmers in balancing their needs.</td>
<td>Increasing production (taking an agri-industrial approach to farming) may not necessarily mean an ability to sell extra production at a profit. Balancing environmental protection with financial viability can be challenging.</td>
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<td>The rural sector has been declining within the Wet Tropics. However, the agitourism sector has been developing. Creation of the ‘Taste Paradise Regional Food Network’ and ‘Real Food Network’ are examples of strengthening regionalism and improving engagement between local communities and farmers.</td>
<td>Local markets and regional supply chains provide an opportunity to build regional independence while simultaneously stimulating the regional economy. This also applies to agitourism. The Wet Tropics has a high level of social capital, which is necessary for strong regionalism to be effective.</td>
<td>Without divestment of power and resources from federal and state governments to local planning authorities, the effectiveness of regional policy and planning can be limited (a ‘bottom-up’ approach to regional development is preferable). There is some evidence of a lack of the leadership skills/capacity required to empower local community and support regional independence.</td>
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<td>There has been significant deregulation of major industries in the region. Public investment in agricultural R&amp;D, infrastructure, and NRM currently tends to be on a national level.</td>
<td>Effective regional institutions and governance can support regional development, and encourage regional collaboration rather than competition.</td>
<td>The effectiveness of public investment in agriculture at a regional level is reduced when this investment is made at a national level. The adoption of competition principles for government service delivery at a regional scale can discourage cooperative approaches, which may produce better local outcomes. Agricultural RD&amp;E, particularly into regional supply chains, can foster regional development; however, RD&amp;E is largely constrained within agri-industrial institutional arrangements that limit capacity to consider and establish priorities based on leveraging a region’s competitive advantages.</td>
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Conclusions and implications

A Place-based Agriculture Development Framework has been developed that combines three models for agricultural development (agri-industrial, post-productivist and rural development) with eight factors critical to maximizing agriculture’s contribution to regional development.

The framework provides an expanded vision of the contribution that agriculture can make to economic development based on a region’s competitive advantages. This research supports earlier studies that question the sustainability of using the agri-industrial model alone (Darnhofer, 2010; Lawrence, 2013; Marsden & Sonnino, 2008; McShane, 2012). The post-productivist and rural development models provide opportunities to improve agriculture and rural sustainability by expanding the contribution that agriculture can make to regional development.

The research identified some key roles for stakeholders and groups in facilitating place-based regional development. These include:

Community: Community leadership and organizations are at the heart of successful place-based regional development, and are important for regional planning and decision making. Strengthening links between agriculture and the broader regional community is 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 is 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.

(continues overleaf)
Agricultural industry: Agricultural industry organisations are important 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 federal, 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.

The trend towards an increasingly globalised world dominated by open markets means a focus on identifying and capitalising on competitive advantages will become more, not less, important to Australian 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. 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.
References


Research Team

The research team for this project was led by Jim Turnour, Research Officer at the Cairns Institute, James Cook University, with support from a multi-disciplinary team of researchers also within the University. This team included Associate Professor Allan Dale, Dr Connar McShane, Michelle Thompson, Professor Bruce Prideaux and Margaret Atkinson.

Regional Studies

RIRDC has a unique mandate to undertake cross sectoral research into a range of significant national rural issues. The RIRDC National Rural Issues program is focused on informing and improving the policy debate by Government and industry on national rural issues in Australia.

The program will deliver research relevant to contemporary issues which are non-industry specific and which promote a productive and sustainable rural sector. The two key principles in the operation of this research program include:

• the active engagement of Government and industry policy and decision makers in prioritisation, scoping and delivery of research; and
• an emphasis on understanding and using regional experiences to inform the studies.

This project is part of a trial to develop and test a methodology that would enable a better understanding of agricultural competitiveness at the regional scale.

• The regional research projects are exploring whether regional assessments would allow improved identification of opportunities and impediments for agriculture at the regional scale.
• It also sought to understand how different national issues and themes are impacting regions and whether there were opportunities to help the leaders in the regions improve their positioning and performance.
• The methodology should help people within the region such as leaders of agricultural commodities or regional development agencies plan and identify ways to improve their competitiveness and manage emerging risks.

Project Contact:

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