Environmental Sustainability and Competitive Advantage in a Wine Tourism Micro-cluster

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Abstract

This paper will use a Value Adding Web framework to analyse how environmental action may lead to competitive advantage for a micro-cluster. Wine tourism clusters, defined as areas that attract tourists interested in the combination of an aesthetically beautiful landscape, while at the same time consuming and purchasing the regional agricultural produce. Agriculture based tourism areas comprise complex layers of environmental demands and challenges for both providers and tourists. Using a cluster framework for analysis leads to greater understanding of how environmental sustainability is perceived and implemented in the two areas of tourism and wine aspects of these businesses, the differences between big and small businesses and how contextual factors may lead to locational advantage of environmental behaviour.

Key Words: sustainability; competitive advantage; industry clustering; regional development

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Introduction

Australia's adversarial and lengthy debate around action on climate change and the dim prospect of achieving global regulatory solutions (Charlton, 2011), has led impatient communities and businesses to move towards improved environmental sustainability on their own (Christie, 2007; Scott Marshall, Cordano, & Silverman, 2005; Wheeler & Crisp, 2011). These actions may be based in fear of the consequences of inaction, at another level they may be based in recognition of taking environmental action can provide business opportunities benefitting the firm or the area or region. Self-organised collective environmental action has been identified by many social scientists, (Dolsak & Ostrom, 2003; Hulme, 2010; Elinor Ostrom, 2010) suggesting that polycentric systems where greening processes are initiated without regulatory institutions in place, creates both new knowledge and results that may lead to substantial environmental impact. The focus of this paper will be on how institutional and contextual resources influence the competitive advantage of such "green" clusters. By using the Value-Adding Web framework (Brown, et al., 2007) on tourism micro-clusters (E J Michael, 2007), a better understanding of what internal and external pressures, drivers and barriers small agriculture based tourism businesses perceive for pursuing environmental action and an environmentally branded destination. The triangulation of quantitative and qualitative findings provided by different actors within and outside the micro-cluster, together with an analysis of contextual and institutional factors, provides the basis for a discussion of how competitive advantage, innovation and value-adding can be based in environmental action.

Theoretical Background

Motivations for environmental action

When examining motivations for businesses to undertake environmental actions, Anton, Deltas and Khanna (2004) found that total quality environmental management and environmental reporting are principally motivated by perceived competitive advantage in the marketplace, while internal environmental policy, corporate environmental standards and environmental auditing were

predominantly influenced by the degree of regulatory standards in place. This literature further suggests that businesses participate in voluntary environmental initiatives to: reduce costs or increase efficiency, avoid or delay regulatory action, gain competitive advantage, enhance or reinforce a positive image in the marketplace as a good corporate citizen, comply to pressures imposed by banks, insurers, clients and suppliers who do not wish to inherit environmental liabilities, conform to pressures from community groups, environmental organisations and industry members and to encourage employee productivity through improved corporate culture and employee pride. According to some scholars stringent environmental regulation enhances competitive advantage and creates incentives for innovation and new technical solutions (Porter & Van der Linde, 2000), while others see regulation as hindering innovation and competitiveness through high and non-selective compliance costs (Walley & Whitehead, 2000). Generally, the business sector prefers environmental self-regulation and market-based instruments (Anton, et al., 2004).

Environmental policies in wine tourism

In the Australian market liberal context, where agricultural production receives the least subsidies among OECD countries(OECD, 2010), a hybrid environmental governance system consists of a mix of regulatory control measures, market instruments and pure participatory/voluntary schemes (Higgins, Dibden, & Cocklin, 2010; Lockie & Higgins, 2007). The market instruments are thought to provide enough price incentive or competitive advantage for businesses to voluntarily pursue environmental implementation. Market based systems will in theory lead to greater efficiency and flexibility in environmental implementation based on the individuals businesses specific circumstances. These can be voluntary environmental codes of practice/standards, environmental management systems, environmental certification and payments to farmers of ecosystem services (Dibden & Cocklin, 2005; Higgins, et al., 2010).

In a wine tourism area, regulations and control functions regarding food, occupational health and safety, as well as winery waste and water management are mostly implemented by the Local Council. The economic incentive for environmental certification is based on obtaining better prices or exclusive access to specific markets. Some voluntary incentive based schemes are being implemented

in the area of energy-efficiencies, yet for small businesses these are limited to investments with a repayment over a short period. For native revegetation, priority is given to areas that contribute to maximum continuous wildlife habitats. While organic certification of grapes and wine may obtain better margins, this is not a given in a wine-industry where taste and fashion is a prominent factor in price-setting. Environmental assurance schemes or other environmental management standards (ISO) such as the Entwine scheme, is thought to provide cost- reduction due to savings in input use, but does lead to increased marhins, but is often a prerequisite for export. Many global retailers require ISO certification or similar (Global GAP) on imported goods. Environmental certification in the tourism sector, may give costs savings through reduced use of energy and inputs, yet the added value in the form of creating a niche market for environmentally conscious guests has yet to materialise.

With wine-prices falling due to the current wine glut on the world market, Australian wine-producers are looking to tourism as an important value-adding strategy for survival. In larger wine regions, micro-clusters of wine tourism businesses may seek to differentiate their area (environmental branding, adventure branding, culture branding) as a separate destination as a strategy for attracting and keeping wine-drinking tourists. Ostrom (2009) and Dolsak and Ostrom (2003), points to examples of individuals, businesses and communities investing both time and energy in order to pursue better management of both private and common natural resources, of both tangible and intangible value to their business and community. Of intangible value can for instance be the development of an environmentally sustainable destination where the environmental brand is an intangible value providing competitive advantage. Few studies have focussed on how social systems, efficiently self-organise, solve ecological problems and pursue additional value-adding activities based on sustainable use of environmental resources (Dolsak & Ostrom, 2003).

Clusters, Micro-Clusters and the Value-Adding-Web

Porter (1998), defined clusters as: “geographic concentrations of interconnected companies and institutions in a particular field”. Clusters achieve value-adding and thereby competitive advantage through the role of downstream and upstream sales and supplier channels, as well as through supporting government, education and research agencies and non profit organisations. While Porter’s

definition does not include the impact of contextual factors, he does suggest that "enduring competitive advantage….. lie increasingly in local things – knowledge, relationships, motivation – that distant rivals cannot match" (Porter, 1998, p. 78).

The uptake of cluster thinking can be seen both at international level, such as OECD's New Regional Policy Paradigm (Organisation for Economic Co-operation and Development, 2006), as well as in national policies for both agriculture, tourism and the environmental sectors. The success of Geographic Identification schemes for food and wine (Winebiz.com, 2010) where local identity of an agricultural product becomes a source of competitive advantage may be examined using a cluster approach if linked with environmental quality measures (food miles, short-travelled food etc) (Josling, 2006). In tourism, a common feature is small clusters of firms developing a brand for their destination (E J Michael, 2007), and in the area of environmental protection, concepts such as Sustainable Destinations are developing (National Geographic Society, 2009). In Europe a "clusterification" of public policy can be seen, with a shift away from single firm policies towards regional and cluster support. This is less prominent in Australia.

Michael (2003; 2007) developed the concept of tourism micro-clusters where optimal clustering of similar businesses (horizontal clustering), upstream and downstream businesses (vertical clustering) are complemented with businesses that supports and adds value to the overall business community in the region (diagonal or symbiotic clustering). While Porters cluster theory is based on gaining competitive advantage through economies of scale, Michael's (2007) micro-clusters gain competitive advantage through economies of scope, ie it expands the micro-cluster's market size and/or profitability through attracting new types of tourists when the products or services in a location becomes more diverse, bundled or specialised. Effective clustering in small economic communities is that the benefits (profits, cost saving and welfare benefits) from cluster formation is transferred to the enterprises and the community that makes up its membership. The micro-clusters competitive and community advantage is determined by the level of cooperation, trust and synergies between the members, and consequently one of the fundamental aspects of micro-clustering would be that members share the same values and seek their implementation in a common territory as suggested by

Hall et al (2007). As such a greening process within a community of small businesses could be seen as a micro-cluster working towards gaining competitive advantage.

Competitive advantage of environmental action in a micro-cluster

Competitive advantage of environmental action can be gained either at the individual firm level as described by Hart (2000) or at a cluster level as examined by De Oliveira Wilk and Fensterseifer (2003). Brown et al. (2010), provides a framework called the Value Adding Web to analyse what resources in the different levels of the cluster (firm, network or context) that contributes to competitive advantage. Marshall, Cordano and Silverman (2005) studied how both individual and institutional level drivers influence the early stages of transformation in terms of environmentalism in the US wine industry. They found that drivers of proactive environmental behaviour vary in relevance and relative importance depending on which stage the industry/firm is in. Further they found that managerial attitudes and norms, existing regulations, employee welfare and competitive pressures were all strong drivers of proactive environmental behaviour.

Hart (1995) proposes to analyse competitive advantage based on the three interconnected and path dependent strategies of pollution prevention, product stewardship and sustainable development (see figure 1). For the micro-cluster's environmental strategies to be competitive, the resources and capabilities they have must be valuable, non substitutable, developed as tacit socially complex and rare resources. In relation to agriculture based tourism, both agriculture and tourism rely on the natural environment for their livelihood. While agriculture relies directly on the use of natural resources such as water, soil and products, agriculture based tourism would in addition be dependent on less tangible aspects of nature, such as the value of ecosystems, wildlife, flora and fauna, the environmental branding of a place and the aesthetics of the landscape. According to the resource based view intangible resources which are rare and immobile would be the basis for competitive advantage.

Figure 1 here

Brown et al (2007; 2010) have developed a multi-level theoretical framework (figure 2) to analyse resources and competitive advantage of clusters. Cluster are viewed as a value-adding web of

businesses that compete, collaborate and adds value to the individual firm but also to the whole cluster based on available tangible and intangible resources. Competitive advantage is analysed using the resource based view for the whole cluster, through identifying strategic resources at different levels of the web, at the firm level, the relational (web) level and at the contextual level (see figure 2).

Figure 2 here

According to Brown et al (2010), contextual resources can be divided into regional resources (type of area, natural resources, and infrastructure), industry related resources (competition, threat of substitutes and entry barriers) and institutional resources (regulatory, normative and cultural cognitive.

This paper will concentrate on examining the competitive advantage of the environmental behaviour at a firm level and micro-cluster level, building analysis on Harts (1995) model of Natural Resource Based view of the firm and by using Brown et al's (2010) framework for analysing contextual resources that would provide locational advantage based on environmental behaviour.

Methodology and the Selection of the Micro-cluster

The research design is an embedded mixed methods design involving two cases, where both quantitative and qualitative studies will be used (Creswell & Plano Clark, 2007) (Jick, 1979). It follows Yin's (2003) description of a comparative case study as "an empirical inquiry that investigates a contemporary phenomenon within real-life context, especially when the boundaries between phenomenon and context are not clear" (p13). A survey questionnaire was distributed to the horizontal actors within the micro-cluster about their motivation for environmental action. The response rate among the 67 businesses in the Lovedale Chamber of Commerce is 46% (31 responses). 23 semi-structured interviews were also conducted, using the micro-cluster framework to select different types of actors both within and outside the micro-cluster.

Through performing these two types of studies in parallel, simultaneously and interactively, Greene, Caracelli and Graham (1989) suggests that the best interpretability is obtained as well as valuable triangulation of results. The survey instrument used, was based on a longitudinal survey instrument for examining sustainability among small businesses owners in New Zealand (Collins,

Roper, & Lawrence, 2009) and adapted to include issues specifically relevant to agriculture based tourism.

The selection of the Lovedale micro-cluster was based on the criteria that it should be self-organised as a separate area/identity (defined in this study as a micro-cluster), have an established microcluster organisation, primarily be an agriculture based tourism microcluster, and be involved in a process towards improved sustainability. The Lovedale micro-cluster is located in the Hunter Valley Wine Region, and the networking organisation is Lovedale Chamber of Commerce (Lovedale Chamber of Commerce, 2009) which in 2009 launched a Greening of Lovedale project (Lovedale Chamber of Commerce, 2010a).

Findings

In terms of micro cluster type Lovedale as a wine area emerged from grazing and vegetable farms around 25 years ago, with block sizes of minimum 40 ha based in the local council planning regulations divisions of land into high value blocks for lifestyle vineyard buyers. When respondents were asked to describe their business activity through a multi-option question, 16 businesses (52%) performed only one business activity (ie accommodation, grape sales, wine sales or catering), while the remaining 15 businesses (48%) had multiple business activities comprising both grape-growing, winemaking and accommodation or catering activities. However while grape-growing and manufacturing of agricultural produce was recorded as a business activity among around 25% of the respondents, accommodation accounted for 58% of the business activities.

The data indicate that agricultural production is a less prominent than more tourism related activities such as accommodation and manufacturing/sale of wine through cellar-doors. The density of wineries (approximately 120 wineries in the Hunter Valley) within a small area distinguishes the Hunter Valley from other wine regions, making it attractive as a tourist destination. This impression is strengthened by figures showing that main outlets of wine for Lovedale businesses is direct to customers/tourists with 42% selling their produce/wine direct from cellar doors, and another 35% sell it to local restaurants or cellar doors.

Visitors to Lovedale primarily come from Sydney, which is only 2.5 hours away. Sydney with its 4 million population provides a huge proximate domestic market, as well as being the entry point for most international tourists to Australia. The second most important guest group is regionally from Central Coast and Newcastle, and thirdly a slight increase in interstate guests due to increased flight connections at Newcastle's Williamtown airport.

Demographic data show that Lovedale residents are mostly in the 50 to 65 year bracket (65%), with around 60% having lived in the area less than 10 years. Thus indicating change of ownership every 5 to 10 years of these high value vineyards traded on the open market. Lovedale is primarily populated with lifestyle "tree changers" with sufficient business acumen and capital to buy properties in close proximity of Sydney. Several researchers point to amenity led or green migration as having the potential to impact on local environmental action (Argent, Tonts, Jones, & Holmes, 2010; Jones, Fly, Talley, & Cordell, 2003).

With respect to environmental action in Lovedale, even though Australia signed the Kyoto protocol in 2007, national climate action measures are fiercely disputed. This is reflected in the survey results from NSW, where in Sydney, 81 percent of residents believed climate change was happening, while in rural NSW only 61 percent believed in climate change (NSW Department of Environment Climate Change and Water, 2010). The large majority of Lovedale business owners were quite or very concerned about the environment (84%), climate change (76%) and loss of biodiversity (88%) . Lovedale residents seem to reflect a more typical urban concern for climate change than a rural concern.

Respondents reported their environmental action in valid percent as being water-saving (97%), recycling of waste (90%), reduced use of pesticides and fertilisers (81%), reduced energy use (58), erosion-control (48%), reduce transport needs (29%), use of renewable energy (19%), action to reduce loss of biodiversity (16%). Virtually all of the Lovedale respondents undertake water saving activities. This is strongly influenced by the area not being connected to public water utilities, making water saving and rainwater tanks a necessity to avoid buying water from private companies. Similarly, some respondents are not provided with council waste collection services and have found their own

solutions to waste management, sorting and recycling. Lovedale residents pursue environmental action in the area of reducing fertilizers, pesticides and through energy efficiency measures. Few businesses in Lovedale seem to be pursuing renewable energy solutions and native revegetation or other biodiversity actions.

Questions about environmental plans and certifications were structured in a way to to obtain an impression of incremental accountability of the businesses environmental plans. Starting with the least demanding and accountable (a general plan or strategy), and ending with environmental certification requiring external third party auditing. Around 60-65% of Lovedale businesses had general environmental plans, with 40% having environmental plans in writing. Only 10% of businesses had a plan with measurable targets. 15% had an environmental plan that involved staff training, while only 5% a plan that included environmental assessment of suppliers. In addition 6% Lovedale business had other types of plans, including Energy Audits and Land Management Plans. Only 7% of Lovedale businesses had some type of environmental certification (Eco-tourism and Triple AAA Green Star rating). No form of environmental certification of agricultural produce was mentioned in the Lovedale surveys, while several stated that they were making efforts to reduce use of pesticides. However, as way to promote environmental branding of Lovedale area the Lovedale Chamber of Commerce in 2010 initiated their own "Green initiative assessment scheme" where businesses have to report environmental credentials according to a rating system in order to be listed as a Green Business on the Lovedale Chamber of Commerce Website (Lovedale Chamber of Commerce, 2010b).

In terms of environmental action in Lovedale only 55% of respondents identified external pressures to undertake environmental action. The most prominent external pressure is felt from business associations, such as the Lovedale Chamber of Commerce, the neighbourhood and customers. Of much less importance is the pressure felt from State and Federal government, while Local Government is not seen to offer any pressure towards environmental action. Factors that cause the lack of influence of regulatory institutions on the Lovedale respondents may be the type and size of business, ownership structure and agricultural knowledge. More than half the Lovedale respondents are in the accommodation business, which has less industry control and regulation than agricultural

production. Through the process of Greening Lovedale initiated by the Lovedale Chamber of Commerce, businesses in Lovedale feel more pressure from neighbours and community as well as business associations than from regulatory institutions.

The drivers for environmental action, follow the same pattern as recorded under external pressures discussed above. The main drivers for environmental action is fear of consequences, increased knowledge and cost reduction, further risk mitigation, pressure from business association and environmental branding and to do the right thing.

While more than 50% of Lovedale respondents state that business associations are their main source of knowledge, with the Lovedale Chamber of Commerce stated by 38% as their source of knowledge. These figures point to the importance of local and community based organisations as a source of knowledge on environmental issues .The high response rate for "Own Research and Experience" is an indication of the resourcefulness of the business owners in the area.

As far as barriers to action go, not surprisingly for small businesses, the biggest barriers were deemed to be cost implications, lack of time, lack of knowledge and other priorities being more important. This reflects that most Lovedale respondents are relatively recent residents of the area and may have a bigger learning curve and fewer networks in the area of environmental action. As many of the Lovedale residents are recent arrivals, starting or taking over a business, direct investments to improve the business would be seen as a priority rather than environmental action which would more naturally come as incremental improvements.

In summary, the proportion of tourism (complementary or diagonal) actors as opposed to agricultural (horizontal) actors in the Lovedale micro-cluster suggests that it is a mature wine tourism. The grape-growing and wine-making businesses are much more influenced by regulatory institutions than the tourist side. Normative pressures are strong primarily from local community and business associations. Fear of consequences is a strong driver, while cost implications a large barrier. Environmental certification is less valuable for small business than for large, and less important for tourism businesses than for wine businesses. However, environmental branding of a destination may contribute to more value-adding for small businesses than for large businesses.

Discussion and Conclusions

The data obtained about the Lovedale micro-clusters environmental action, pressures, drivers and barriers can be analysed using Hart's model (1995) of Natural Resource Based View of competitive advantage. While most Lovedale businesses are actively undertaking pollution prevention measures both out of necessity as well as for cost-reduction benefits. This comprises water saving, waste collection and reducing energy use. Product stewardship is also more enforced by local council through regulations for wineries, where waste water and waste has to be treated on site. There are no direct environmental restrictions on small tourism businesses. At the micro-cluster level a Private Irrigation District has been established for the Lower Hunter, which as a collective action has led to cost-effective and sustainable water provision to all members on an equitable basis. The water allocation follows the property so cannot be traded.

The competitive advantage of product stewardship in the form of re-use of recourses, introduction of renewable energy and environmental process and product standards have only to a limited extent been incorporated among the businesses in the area. Many businesses have signed up for an energy audit, however due incentives only being paid for investments with a repayment period of less than 2 years hinders investment in solar power. A few businesses have installed solar power panels, when they have signed up for time-restricted rebates on solar power. Organic certification of wine are less certain to obtain increased margins as wine demand is much more influenced by consumer's taste and fashion trends than environmental credentials. Retailer-driven standards are mostly relevant for larger producers that sell through retailers or export their wine. Small wineries selling primarily through their own cellar-door has therefore less of a competitive advantage to pursue product stewardship strategies. Product stewardship strategies may be more relevant for a micro-cluster destination, for instance through bulk purchase of solar panels at negotiated price or through reduced grid connection costs for a community as a whole (new transformers not required).

With regards to the competitive advantage of Sustainable Development, the Lovedale Chamber of Commerce self-initiated Greening assessment scheme, their Greening process and the awareness this process has raised among members, can be stated to be a process towards obtaining

Sustainable Development competitive advantage. This may occur if Lovedale through the Chamber efforts is being perceived as a greener destination where businesses are working jointly to control pollution, use renewable energy, and where rural aesthetics and native vegetation is prominent. As a micro-cluster a sustainable development strategy may be important both for cluster cohesion and awareness and eventually for competitive advantage for the whole micro-cluster (see table 1).

Table 1 here

The largest locational advantage is the close proximity to Sydney which provides both a domestic and international market for tourism and wine. Second the institutional advantages the close connection with Sydney, both through business contacts, but also the business network and business acumen the ex-professional lifestyle residents in the Hunter Valley have. The density of small and well-reputed wineries in the Hunter Valley makes for a perfect tourist destination for high end tourists (see table 2).

Table 2 here

Major threat to locational advantage is the expansion of coal mining and in particular the coal seam gas industry. The lack of appropriate planning instruments or strategies to protect specific areas from coal seam gas extraction is a major threat to the future of the wine tourism area as a whole. Another major threat is the current wine glut, which gives the larger producers purchasing power. Small grape producers which don't have long term contracts are forced to sell grapes at unsustainable prices. Some vineyards are being ripped up and used for other purposes. Minor threats include the lack of road and waste collection infrastructure for professional tourist operations.

Limitations of the research are that the study is only based on self-reported environmental action and as such does not document actual environmental action. The survey is only representative of the Lovedale micro-cluster, and does not represent all aspects of the Hunter Valley Wine Tourism industry. There were no large businesses among the survey respondents, and therefore some of the findings with relation to differences in environmental behaviour between large and small businesses were only found in the qualitative data.

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Strategic Capability	Environmental Driver	Key Organisational Process	Competitive Advantage
Pollution Prevention	Minimize resource use. Minimize emissions effluent and waste.	Continuous improvement Environmental management	Lower costs Increased profitability.
Product stewardship	Minimize life-cycle costs of products. Re-use of waste and water, renewable energy sources, packaging, reduced transport	Stakeholder integration Resources in value chain assessed. Environmental certification and standards.	Preempt competitors through exclusive access and/or environmental barriers
Sustainable Development	Minimize environmental burden of firm growth and development.	Shared vision Environmental Strategy	Securing future position.

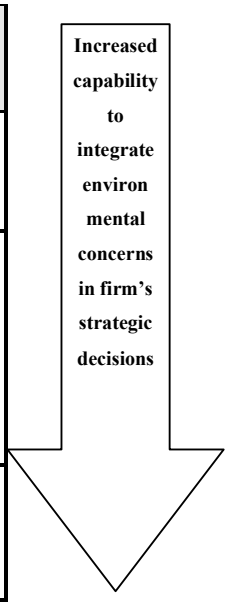

Figure 1. A Natural Resource Based View of Wine Tourism Business Competitive Advantage (Adapted from Hart (1995)).

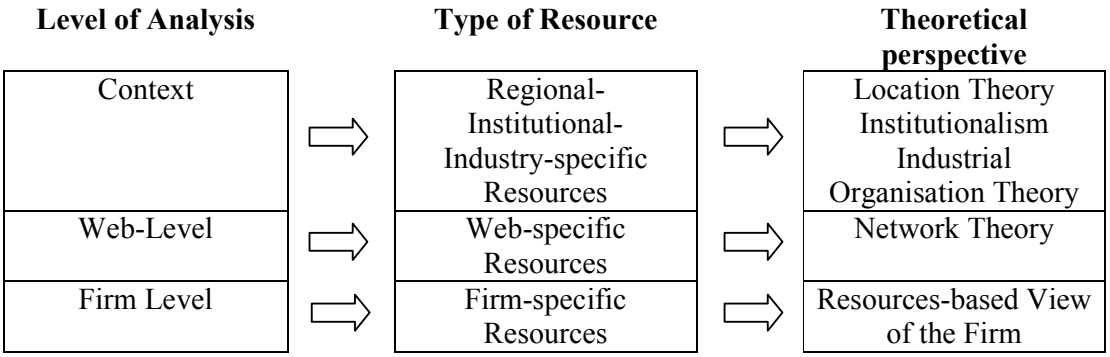

Figure 2. The Value Adding Web (Brown, et al., 2007)

Strategic Capability	Environmental Driver	Key Organisational Process	Competitive Advantage of Environmental Action at Firm Level	Competitive Advantage of Environmental Action at Micro-cluster level
Pollution Prevention	Minimize resource use Reduce emissions, effluents & waste. Reduce pesticides	Continuous improvement Environmental Management and Total Quality Management	Energy-efficiencies in tourism operations reduce costs. Reduced use of inputs reduces costs. Water saving activities and sorting of waste reduces costs of private contractors.	PID assists in water supply for growers. Members have a competitive advantage as they have secure water. (potential for joint waste arrangements)
Product stewardship	Minimize life-cycle costs of products. Re-use of waste and water, renewable energy sources,	Stakeholder integration Resources and firms in the value chain assessed/monitored. Environmental and Organic Certification, ISO, Global GAP etc.	No secure outlet for organically certified grapes. Some competitive advantages in organically certified wine. No secure competitive advantage of environmentally certified tourism operators. Mandatory retailer-driven environmental certification if exporting. Renewable energy sources cost more than coal-fired energy, yet can be cost effective if new transformers are required instead of grid connection.	Higher use of renewable energy (solar panels) reduces pressure to develop grid. Positive reputation of being green destination.
Sustainable Development	Minimize total environmental burden of firm growth and development.	Shared vision By actors within and outside the firm.	Long term environmental plans including native vegetation and rural aesthetics. Assessment of suppliers.	Securing aesthetic of the landscape to promote Lovedale as rustic less developed destination.

Table 1 Lovedale Environmental Competitive Advantage

Contextual Resources for Lovedale	**High/Low Value** Does the resource enable cluster actors to exploit external opportunities or neutralise external threats?	**Is the resource rare?** Controlled by small number of competing locations?	**Is it a Locational advantage?** Assessment if resources have potential to generate locational advantage
Regional resources **Type of area** Small vineyards in Lower Hunter Valley.	High Value High density of small wineries in close proximity to major domestic and international market (Sydney). Cluster actors well connected to Sydney. The wine-glut threat for smaller producers.	YES. This density of wineries close to major market is unique.	YES, already has.
Natural Resources Land – Climate – Mediterranean but changing. Crops – Hunter Valley Famous for Semillon and Shiraz wines.	High value for wine tourism and mining. Biggest threat is Coal seam gas. Cluster actors joined in action to preserve land for wine tourism. But this issue is unsettled. YES, actors joined to examine climate change mitigation strategy for grape growers. May involve focus on other types of grapes. Semillon grape under threat due to climate change.	YES, Australia is currently being pushed towards mining of land resources. Neutral Semillon is grown elsewhere.	Neutral Semillon demand may change according to fashion. Big companies have fashion-proofed their wine adding high altitude wines.
Infrastructure Limited council investment in roads, telecommunications and waste collection.	NO, lack of infrastructure limits professional tourism operations, yet provides rustic image which is sought by urban Sydney-ites.	Neutral	Neutral Lovedale is less developed and may attract niche tourist markets.
Industry-related resources High bargaining power of grape buyers High bargaining powers of land buyers High bargaining power of suppliers	YES, due to the wineglut, it is buyers market. Grapes are sold at under cost price. Large wineries pressures prices. NO, vineyards prices are generally higher than surrounding land. Due to the wineglut and threat of CSG, vineyard prices have dropped and difficult to sell. Neutral	NO NO NO	Neutral. Proximity to wealthy Sydney professionals, wanting to invest in vineyard for treechange/ semi-retirement purposes.
Low rivalry between horizontal cluster actors	NO High rivalry due to wine glut. Especially difficult between large companies and small lifestyle vineyards	NO	NO
High to medium entry barrier to cluster.	Neutral. Normally high entry barrier, but due to wineglut and CSG they are decreasing.	NO	NO
Threat of substitutes	YES. Land for mining and CSG extraction. Wine-glut creates unsustainable competition	NO	YES Proximity to Sydney and cannot be substituted.
Institutional resources Normative/Cultural Cognitive	YES Resourceful community of likeminded professional people with Sydney focus. Less contact with local community.	YES	YES Influential contacts with Sydney,
Regulatory	NO Planning regulations that do not protect agricultural land from mining and CSG	NO	YES

Table 2. Contextual level resources leading to competitive advantage in Lovedale (from (K Brown, et al., 2010)