CORPORATE SOCIAL RESPONSIBILITY: ENVIRONMENTAL CONCERN IN NEW ZEALAND'S WINE INDUSTRY

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by Barbora Gabzdylova

University of Canterbury

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Abstract

Corporate social responsibility (CSR) has become a worldwide issue as organizations are under increasing pressure to behave in socially responsible ways. Environmental responsibility as a part of CSR is often connected with sustainability and protection the environment. This is of a significant importance to New Zealand and its ‘clean’ and ‘green’ image. One industry having an impact on the environment, and also having a strategic position in the economy of New Zealand is the wine industry.

The aim of the research is to understand what motivates and sustains companies’ CSR practices. This exploratory study examines (1) what drives the industry to engage in CSR practices, (2) the role of stakeholders in the company’s decision making, and (3) CSR practices in the wine industry.

A qualitative research approach supplemented by quantitative measures was adopted to answer the research questions. 24 case study organizations (wineries) were studied and 31 managers interviewed. The research found that the most important drivers of CSR practices are personal values, preferences and satisfaction with this profession. This is followed by product quality and customers’ demand. Though New Zealand wine companies are also driven by the market; the market still does not value CSR initiatives and companies do not receive a price premium for sustainable or organically grown grapes.

Furthermore, environmental regulations belong to important drivers affecting companies' decision-making. However, companies do not consider current New Zealand's regulations as significantly difficult to follow. On the other hand, companies want to preempt future regulations. The research also revealed that the most important stakeholders are owners, shareholders, customers, wholesalers and international businesses. The role of communication and ecolabelling is also discussed. As a result, the study proposes a typology matrix that differentiates organizations' involvement in CSR according to the extent of CSR practices and their drivers.

This study contributes to understanding of the New Zealand wine industry status in environmental CSR at the present, the extent of drivers of proactive environmentalism and companies' stakeholders, and the description of a typology matrix of companies engaging in CSR. This contribution is valuable for those interested in CSR, and the future of New Zealand's wine industry.

1 Introduction

The aim of this research is to understand what motivates and sustains vineyards and wineries` corporate social responsibility (CSR)[1] initiatives and to assess the wine industry's movement towards more CSR orientated business practices. Specifically, three core environmentally-focused CSR issues will be considered: use of water, the release of pesticides and chemicals, and waste management. The study addresses three key questions:

1. What drives a company to engage in CSR and environmentally sustainable practices?
2. Which stakeholders are the main drivers of vineyards and wineries environmental practices?
3. What kind of environmental activities do vineyards and wineries initiate on their own?

The concepts of CSR have been developed for decades (Carroll, 1979) and have become a worldwide issue. Organizations are under increasing pressure to behave in socially responsible ways, to help solve social problems, to support charities, and to exhibit ethical behaviour and moral management. CSR also involves the protection of the environment, such as producing environmentally

[1] Corporate social responsibility (CSR) typically includes social, environmental and economic responsibility. In this study the term CSR only interference to environmental responsibility.

friendly products, recycling, waste management, animal testing, pesticide-free production, pollution control, energy efficiency, and land use.

Many authors connect CSR with the term ‘sustainability’. Sahay (2004) describes a company’s sustainability as the capacity of the enterprise to maintain economic prosperity in the context of environmental responsibility and social stewardship. The World Commission on Environment and Development (1987, p.1) defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The concept of sustainability is taken seriously in New Zealand, whose clean and green image may be easily tarnished by inappropriate corporate activity (Lawrence at al., 2006). Many academics also talk about ‘greening’, which “includes any moves either incremental or dramatic towards more sustainable/environmentally friendly production, or the auditing and branding of aspects of production that the market might perceive as ‘safe’ or ‘green’” (Fairweather et al., 1999, p. 6).

One New Zealand industry having an impact on the environment is wine, which is important in both primary production and the high-quality value-added sectors (Ministry for the Environment, MFE, 2007). Hughey et al. (2004) state: “The wine growing industry is increasingly important to the New Zealand

economy and increasingly its marketing is associated with the country's 'clean and green' image" (p.1175).

The wine industry has a strategic position within the New Zealand economy. Moreover, previous industry research and assessments (MEF, 2007; New Zealand Wine, 2007a) illustrate the importance of the New Zealand wine industry and the potential for its further development. The research also indicates a need to address CSR within this industry. Therefore, this study focuses on the environmental aspect of CSR in the wine industry.

The industry deals with environmental issues associated with both viticulture and winemaking. Vineyards and wineries use lots of water mainly for irrigation, cleaning and sanitation. Also the use of chemicals requires attention as surface water, ground water, soil and air can be contaminated (Baughman et al., 2000). Another key environmental issue is the disposal of plastic waste (Keenan, 2005) and wastewater from wineries (Knowles and Hill, 2001).

The three research questions mentioned above are examined through qualitative analysis supplemented by quantitative measures (Likert scale questions). Four regions were selected for the study: Marlborough, Hawkes Bay, Canterbury and Central Otago. These regions represent four of New Zealand's main wine regions.

31 people in 24 companies were interviewed including viticulturists, wine makers and winery owners. Interview partners were chosen to represent different perspectives and to provide an account which allowed for the development of an understanding of the drivers of proactive environmental behavior in New Zealand wine industry. Technical expertise and advice was gained from others directly involved in the industry, such as members of Sustainable Winegrowing New Zealand (SWNZ) and academics from Lincoln University. Prior to the main research, a pilot study was conducted to revise and refine the interview guide.

This thesis is organized in the following manner. Chapter Two provides an introduction to CSR. There is still no single commonly accepted definition of CSR, which makes it necessary to consider various definitions from the literature. Based on a discussion of the current literature, a working definition is developed, putting special emphasis on environmental aspects of CSR. Drivers of CSR and environmental responsibility are summarized and the stakeholder influence is discussed. As stakeholders are not alike, different stakeholders may influence company decision-making in various ways. That raises the question as to who are the most important stakeholders for the wine industry. The outcome of the literature review and understanding of the problem is conceptualized through the first and second research questions.

Chapter Three provides a description of socioeconomic effects of the wine industry in New Zealand, wine regions, and problems currently faced by the wine industry. To provide a complete picture, environmental regulations for the wine industry are listed, followed by a description of current industry standards and environmental projects. Understanding of processes of grape growing and winemaking is useful for assessing the current state of the wine industry, trends; and leads to the third research question of this study.

Chapter Four explains the research methodology. A qualitative approach based on open-ended interviews was chosen, supplemented by quantitative measures. The procedures are described and the rationale for choosing this approach is given.

The results of the research are presented in Chapter Five. The research questions are answered and examined.

The concluding chapter, Chapter Six, is devoted to the discussion and interpretation of the findings. The relevance of this research and practical implications are discussed and a typology matrix characterizes companies' engagement in CSR practices drawn followed by the specific typology matrix of CSR in the New Zealand wine industry.

2 Literature Review

Several theoretical frameworks have been used to examine CSR. Some academics study primarily CSR as a whole; whereas others focus on particular aspects of CSR or discuss the drivers. Many theories deal with assessment of social responsibility, such as the responsibility of a business to be profitable (Friedman, 1970). In this thesis the framework of stakeholder theory is taken into account. In relation to environmental practices, this overview covers the current industry standards and environmental projects. The aim of the literature review is to determine the state of the current research and formulate the research framework and the research questions.

2.1 Corporate Social Responsibility

CSR is a broad concept and the literature uses a variety of definitions, as CSR means different things to different people. Table 2.1 outlines several of these definitions. The first two are similar, though the first is presented by a political institution, whereas the second is used by industry organizations. Carroll (1979) takes a more academic approach and considers economic and legal expectations of a corporation within the context of ethical and philanthropic responsibilities.

Table 2.1 Definitions of CSR

Organization / Researcher	Definition of CSR
European Commission (2002)	CSR is a concept whereby companies integrate social and environmental concern in their business operations and in their interaction with their stakeholders on a voluntary basis (p. 347).
The World Business Council for Sustainable Development (1998)	The continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of their workforce and their families as well as of the local community and society at large (p. Section IV).
Carroll (1979)	The social responsibility of business encompasses the economic, legal, ethical and discretionary (philanthropic) expectations that society has of organizations at a given point in time (p. 500).

CSR can be understood as the voluntary integration of social and environmental initiatives into a company's decision making and mutual interactions with stakeholders (Enquist et al., 2006).

McWilliams and Siegel (2001) emphasize that CSR means going beyond requirements of the law. If a company reduces the use of pesticides in compliance with governmental regulations, that action does not mean the company is socially and environmentally responsible. Only environmental initiatives going beyond legal requirements are considered to reflect CSR. Lantos (2001) explains the structure of CSR as having three elements – ethical, altruistic and strategic; that means avoiding societal harm while doing good jobs

which also yields for business. Tullberg (2005) and others talk about the most common triad of economic, environmental and social responsibility, known as the “triple bottom line”.

The newly developed International Standard ISO 26000 has set guidance on social responsibility while considering the following core CSR issues: environment, organisational governance, human rights, labour practices, fair operating practices, consumer issues, community involvement and society development. In terms of environment, ISO 26000 includes pollution prevention, prevention of global warming, sustainable consumption and land use, preservation and restoration of ecosystems and the natural environment, and respect for future generations (ISO/WD 26000, 2005).

As Reich (1998) points out, the question here is not whether companies should be responsible to society, but rather *how* they should be responsible and how they should incorporate environmental concerns into strategic decision making (Sharma and Vredenburg, 1998). Many authors also view CSR as a proactive business philosophy and effective marketing tool to compete and maintain competitive advantage (Chahal and Sharma, 2006).

These definitions of CSR show that many authors consider being socially, environmentally and economically responsible as an important aspect of running

the business. This research will primarily focus on the environmental aspect of CSR, currently a most pressing issue in New Zealand's industry, mainly in relation to its 'clean and green' image. This thesis will use the definition of CSR from the World Business Council for Sustainable Development (1998), restricted to environmental responsibility and with emphasis on initiatives going beyond the legal requirements.

2.1.1 Environmental Responsibility

An organization can have a significant effect on the external environment in which it operates and can change that environment through its activities (Abreu and David, 2004), such as use of natural resources, landscape transformation or waste production (Crowther and Rayman-Bachus, 2004). Expansion of knowledge about the environment and its ecosystem has caused more concern about a company's effect on the environment (Sahay, 2004). A focus on environmental performance can lead to a number of advantages, such as better quality, reduced costs, improved image and the opening of new markets (Maxwell et al., 1997). Furthermore, research has shown that demand for environmentally friendly products has become a powerful force and can be a competitive resource for companies (Hart, 1995). Moreover, involvement in environmental initiatives can advance a company's performance (Corbett and Klassen, 2006; Porter and van der Linde, 1995). Thus, environmental initiatives may have a positive impact on New Zealand's wine industry. Therefore, part of

this research will address the question weather New Zealand vineyards and wineries engage in environmental initiatives because they perceive performance advantages.

2.1.2 Drivers

Despite extensive research on CSR and companies' environmental strategies, it still remains unclear why some organizations adopt environmental practices beyond regulatory compliance (Delmas and Toffel, 2004). This literature review revealed many viewpoints why companies engage in CSR and environmental responsibility. Some authors emphasize strategic drivers of CSR such as competitive advantage, differentiation strategy, entrance to market, positive corporate image (reputation), and product and service quality (Bhaskaran et al., 2006; Marshall et al., 2005; Bhattacharya et al., 2004; Tullberg, 2005; McWilliams and Siegel, 2001; Berry and Rondinelli, 1998; Carlson et al., 1996). Others describe monetary drivers such as cost saving, greater efficiency, and increasing profit (Bhaskaran et al., 2006; Marshall et al., 2005; Munilla and Miles, 2005; Vis and Standish, 2003; Beamon, 1999; Berry and Rondinelli, 1998; Menon and Menon, 1997; Porter and Van der Linde, 1995).

External drivers are, among others, demand by customers, investors, community groups and the public, pressure from competitors and compliance with regulations. Internal drivers are comprised of managerial attitude, employees' demands, organizational culture, internal pressure on business managers, and

social development activities (Chahal and Sharma, 2006; Haigh and Jones, 2006; Marshall et al., 2005; Bhattacharya et al., 2004; Bjorner et al., 2004; Tullberg, 2005; McEachern and McClean 2002; Berry and Rondinelli, 1998). Summarizing this literature review; Table 2.2 shows which factors have been emphasized as the main drivers of CSR by various authors.

Table 2.2 Drivers of CSR and environmental responsibility

Drivers	Authors
Competitive advantage	Tullberg, 2005; McWilliams and Siegel, 2001; Berry and Rondinelli, 1998; Carlson et al., 1996
Market differentiation strategy	Marshall et al., 2005; Bhattacharya et al., 2004; Tullberg, 2005; McWilliams and Siegel, 2001; Carlson et al., 1996
Entrance to market	Bhaskaran et al., 2006; Berry and Rondinelli, 1998
Cost saving	Bhaskaran et al., 2006; Marshall et al., 2005; Beamon, 1999; Berry and Rondinelli, 1998; Porter and Van der Linde, 1995
Greater efficiency	Vis and Standish, 2003; Porter and Van der Linde, 1995
Profit driven	Munilla and Miles, 2005; Business for Social Responsibility, 2001; Menon and Menon, 1997
Product / service quality	Marshall et al., 2005; Bhattacharya et al., 2004
Compliance with regulations	Bhaskaran, et al., 2006; Chahal and Sharma, 2006; Haigh and Jones, 2006; Marshall et al., 2005; Munila and Miles, 2005; Bhattacharya et al., 2004; Delmas and Toffel, 2004; Berry and Rondinelli, 1998
Reputation	McWilliams and Siegel, 2001; Carlson et al., 1996
Customers	Haigh and Jones, 2006; Bhattacharya et al., 2004; Bjorner et al., 2004; McEachern and McClean 2002; Berry and Rondinelli, 1998
Employees	Chahal and Sharma, 2006; Haigh and Jones, 2006; Marshall et al., 2005; Berry and Rondinelli, 1998

Table 2.2 Drivers of CSR and environmental responsibility *(continued)*

Drivers	Authors
Managerial attitude	Marshall et al., 2005; Tullberg, 2005
Investors	Haigh and Jones, 2006; Berry and Rondinellli, 1998
Competitors	Haigh and Jones, 2006; Berry and Rondinelli, 1998
Community groups	Marshall et al., 2005; Berry and Rondinelli, 1998
Social activities	Chahal and Sharma, 2006; Munilla and Miles, 2005
Organization culture	Chahal and Sharma, 2006

The character of the wine industry determines some of these drivers. For instance, product quality is seen as a necessity for business trying to maintain or increase their competitiveness. High quality of wine has become the standard (Orth et al., 2005).

While each driver represents a piece of the puzzle, there is still a lack of understanding of the conditions under which organizations adopt environmental practices beyond regulatory compliance (Delmas and Toffel, 2004). One aim of this research is to identify which drivers of environmental responsibility are of special importance to New Zealand's wine industry. This leads to the first research question:

RQ 1: What drives a company to engage in CSR and environmentally sustainable practices?

For the purpose of this study, the drivers of proactive environmentalism based on Marshall et al.'s (2005) research were considered. Marshall et al.'s (2005) model is the most comprehensive model dealing with the wine industry and covering all aspects, such as personal preferences of managers, demands from employees, and compliance with regulations. This research proposes that significant pressure emerges from companies' stakeholders, such as customers, employees, and national and regional regulation bodies and that there is a significant role of personal beliefs. The adapted model is extended for three core environmentally-focused CSR issues considered in this study, namely use water, pesticides and chemicals, and waste management (Figure 2.1).

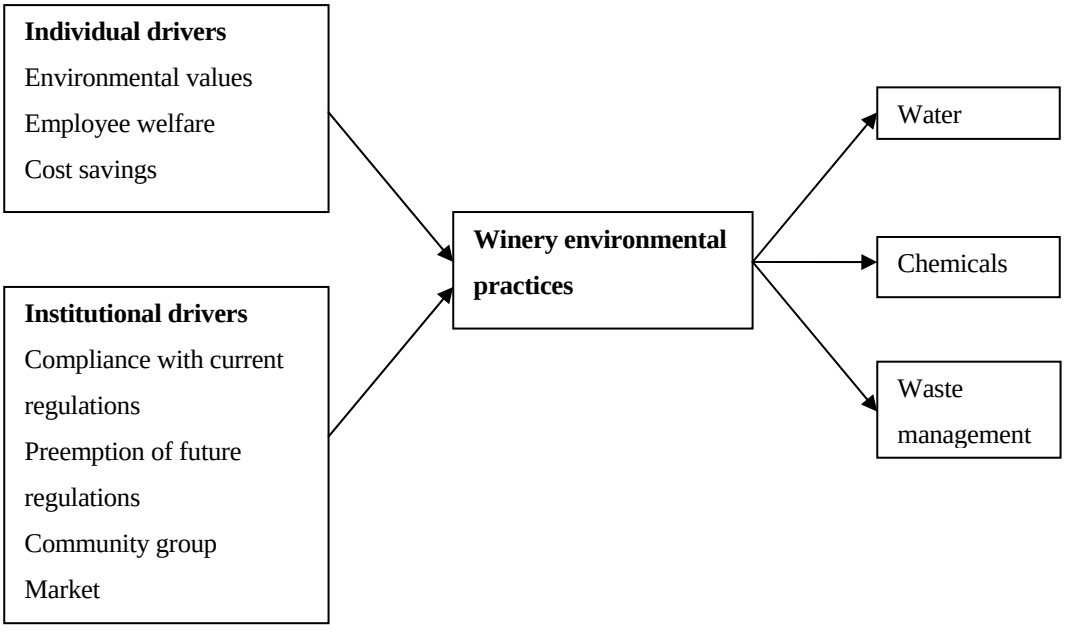


Figure 2.1 Drivers of proactive environmental practices

2.2 Stakeholder Theory

The stakeholder theory has been variously described and supported by a number of authors from a variety of disciplines (Polonsky at al., 2002; Prakash, 2001; Polonsky, 1996; Porter and van der Linde, 1995; Carroll, 1993; Freeman, 1984). The most widely accepted stakeholder definition includes “all of those groups and individuals that can affect, or are affected by, the accomplishment of organizational purpose” (Freeman, 1984, p. 84). In addition, the Social Investment Forum (2001) emphasizes that stakeholders “have both a right and a responsibility to take an interest in the company’s performance, policies, practices and impacts” (p. 14).

This theory is based on the concept of a social contract, which maintains that CSR is comprised of the agreement between business and society (Quazi, 2003). This theory also assumes that organizations are responsible to a variety of groups, as corporate behaviour and decisions affect the wider society in different ways, and at societal decisions affect corporate interests. If a lasting and productive relationship with stakeholders is created, it is expected to help the company maintain a competitive advantage (Bhattacharya and Sen, 2004), promote long-term relationships, and encourage positive customer ratings and loyalty (Quazi, 2003).

Stakeholders' influence is both direct and indirect, with different intensities of influence. Since stakeholders are not alike, the literature distinguishes various groups of stakeholders. The most obvious of these groups are customers, employees and shareholders. Others include competitors, suppliers, the community, local and national government, special-interest groups, the media, and society, or the public at large.

Several studies have found that firms that adopted environmental management practices were motivated by customer concern (Polonsky, 1996). Bhaskaran et al.'s (2006) research shows that the customer demand for environmentally friendly products has encouraged a number of businesses to adopt environmentally sustainable production and marketing standards. For instance, customers from the Western world have induced Chinese companies to improve their environmental performance and to adopt environmental management systems (Christmann and Taylor, 2001).

The local community can also affect a company's decision making. They can do it through their vote in local and national elections, through participation in environmental activism, by supporting environmental nongovernmental organizations or by using citizen lawsuits (Delmas and Toffel, 2004). For example, Shell learned how stakeholders could be powerful when it decided to dump the Brent Spar oil storage platform at sea. Greenpeace attacked Shell's

decision through its direct assaults on the firm and indirectly through the support from other concerned stakeholders. Another example is the Mitsubishi Corporation. This company, after customers' and other stakeholders' boycotts organised by the Rainforest Action Network, announced it would no longer use old-growth forest products (World Rainforest Movement, 1998).

Perhaps the most obvious stakeholders that influence an organization's adoption of environmental practices are various government bodies (Delmas and Toffel, 2004). Government can act as a coercive force by authorizing greater attention to environmental standards (Bhaskaran et al., 2006), such as ISO 14001, by enhancing the reputation of companies who adopt environmental management systems, by reducing information and search costs, and by providing technical assistance, to name a few (Delmas and Toffel, 2004).

Industry associations are also important stakeholders. Industry pressures have motivated organizations to adopt environmental management practices (Delmas and Toffel, 2004). Kollman and Prakash (2002) examined why the involvement in environmental management systems differ in the United State, the United Kingdom and Germany. They found that the decision making about certification was influenced by industry associations together with regional chambers of commerce, suppliers and regulators. As Delmas (2002) points out the decision is also significantly influenced by the institutional environment.

Stakeholder theory explains the influence of the stakeholders on a company's decision making. Companies need to identify their stakeholders, and stakeholders' power and influence, to gain better understanding, to manage their potential impact (Bourne and Walker, 2006), to know which types of CSR activities attract particular stakeholder groups (Lantos, 2001), and thus to bring the most benefits to the company. This leads to the second research question:

RQ 2: Which stakeholders are the main drivers of environmental practices in wine industry?

This study will examine vineyard and wineries' stakeholders: shareholders, customers interested in buying grapes, as well as consumers interested in buying wine, retailers, wholesalers and international businesses, employees, suppliers, local communities including district councils, government, competitors, trade unions, and the media.

3 The Wine Industry

Grapes for wine production are New Zealand's largest horticultural crop. In 2001, New Zealand had 11,648 hectares producing wine grapes, resulting in 53.3 million liters of wine. In 2007, production had increased to 25,355 hectares farmed and 147.6 million litres of wine produced, with an increase forecast to more than 31,002 hectares by 2010 (New Zealand Wine, 2007a).

The wine industry is a significant contributor to the New Zealand economy, with $1 billion worth of sales in 2006, projected to reach $1.5 billion by 2010. It is currently the fifth most valuable export to the European Union, the second most valuable export to the United Kingdom, and the seventh most valuable export to the United States (MFE, 2007). The wine industry is also important for New Zealand tourism. Total direct employment in the industry is over 10,000 workers with many more employed in supplying the industry or selling its products. The wine industry is characterized by enterprises of a wide variety of sizes, but most of them are small and medium businesses. In 2007, New Zealand had 543 wineries and 1,007 independent grape growers (Ministry of Agriculture and Forestry, MAF, 2007; New Zealand Wine, 2007a).

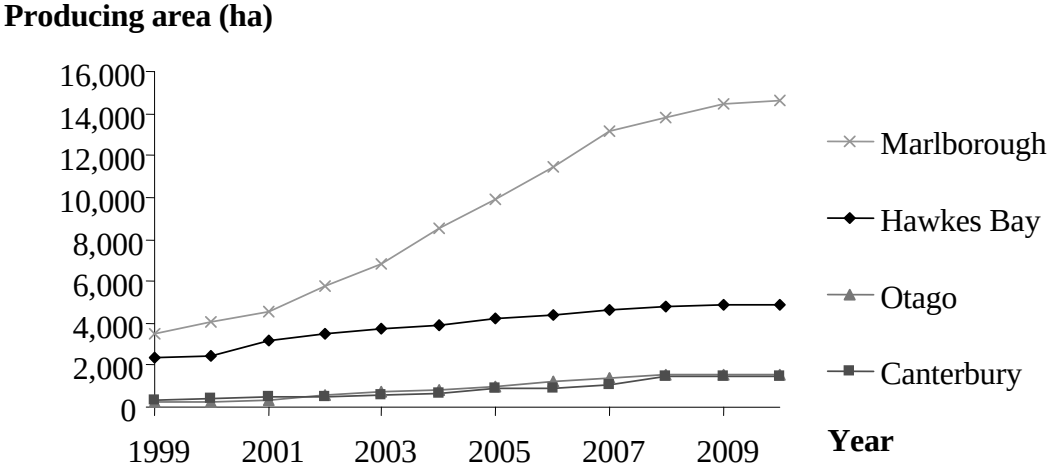
Further development of viticulture depends on the availability of good quality irrigation. Other factors influencing growth will be availability of investment capital, planting stocks of the desired variety from nurseries, and climatically

and physically suitable land. The financial benchmarking survey carried out by Deloitte ranked the most important issues facing New Zealand vineyards and wineries as compliance cost, labour supply, excise, interest rates, exchange rates and the cost of overseas marketing (New Zealand Wine, 2007a).

The expansion of the New Zealand wine industry has been rapid and the industry needs to take a precautionary approach to ensure the practices for grape growing, wine making and especially waste treatment eliminates the potential to contaminate soils, surface waters and groundwater. Therefore, in 2007, a New Sustainability Policy was adopted that targets having all New Zealand grapes and wine produced under independently audited sustainability schemes by vintage 2012 (New Zealand Wine, 2007a). This is a significant step towards the environmental responsibility and will have a big impact on whole industry. One of the aspects of CSR is going beyond the legal requirements. That raises question if vineyards and wineries will adopt sustainable practices in their business operations as a requirement by regulatory compliance and therefore sustainable farming will take the place of conventional methods. The answer to this indicates the significance of environmental responsibility as a driver of regulatory pressure from industry associations and government.

3.1 Wine Regions

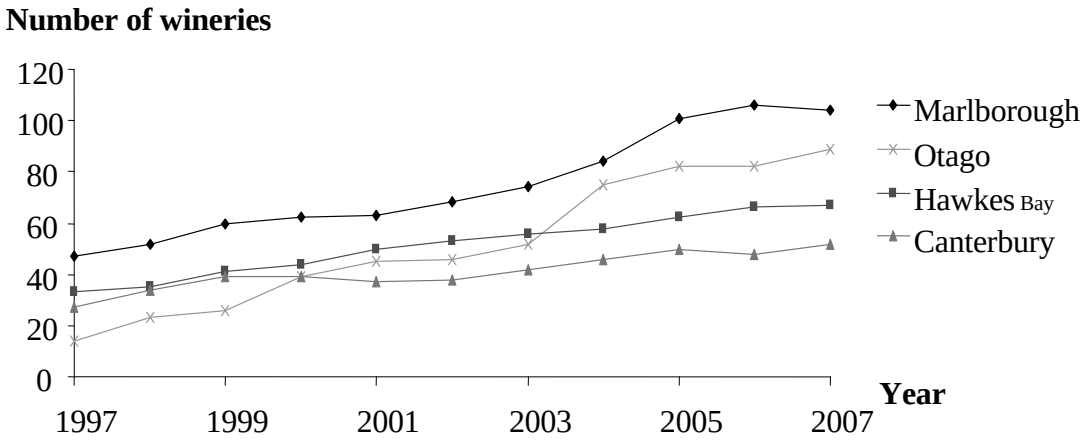
New Zealand has many wine regions. This study considered four wine regions: Marlborough, Hawkes Bay, Canterbury, and Central Otago. Marlborough is the biggest region in terms of land area and production, Hawkes Bay is the oldest and Central Otago is the youngest and the driest New Zealand wine region. Canterbury sits somewhere in the middle. In Figure 3.1 is shown growth of producing area over the period of 10 years in the four regions including total value for the whole wine industry. The producing area for years 2008 - 2010 is estimated based on the current trend in the wine industry. All regions experienced steady expansion, and according to experts from the wine industry, the growth will continue in the future. The expansion of the wine industry will require more resources, especially in water and waste management, which emphasizes the importance of this research.



(Source: New Zealand Wine, 2007b)

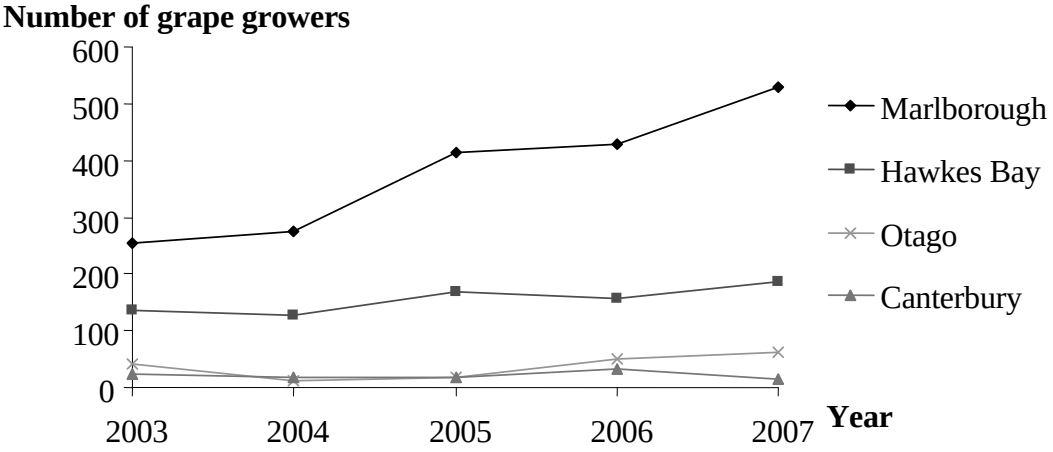
Figure 3.1 Growth of producing vineyard area in hectares

Figure 3.2 and 3.3 show the increasing numbers of vineyards and wineries in selected main wine regions.



(Source: New Zealand Wine, 2007b)

Figure 3.2 Growth of wineries



(Source: New Zealand Wine, 2007b)

Figure 3.3 Growth of vineyards

3.1.1 Marlborough

Located on the east coast of the South Island of New Zealand with mountains to the west, Marlborough is a sunny and dry area, suitable for grape growing. It is also the largest wine producing region in the country with 12,709 hectares in 2007, amounting to 50 percent of New Zealand's total active wine production. This region is still expanding, but the majority of new plantings are in areas considered more marginal with regard to climate and soil. Therefore, they will need to use more fertilizers, water for irrigation and resources to fight frost (MAF, 2007). In 2006/2007 the average vineyard expenses per hectare were about $8,300, up 9 percent on the previous year. The average grape price is $2,311 per tonne (MAF, 2007).

Most growers from this region say that there is a need for quality to be maintained or improved. Growers consider it very important to retain and enhance the recognition of "Brand Marlborough" and "Brand New Zealand". This includes grapes and wine quality, and emphasis on sustainable production methods (MAF, 2007).

3.1.2 Hawkes Bay

With growing grapes since 1851, Hawkes Bay is one of the oldest wine regions in New Zealand and the second largest wine producing region. In 2007, the vineyard area covered 4,597 hectares. As the Hawkes Bay region expands,

vineyards are being developed further inland. Inland Hawkes Bay has a different climate than the area on the coast nearer to sea level; generally, the climate is hot and sunny. The Hawkes Bay vineyard working expenses per hectare were $8,368 in 2006/2007, almost identical to the previous season. The average grape price is $1,625 per tonne (MAF, 2007).

3.1.3 Canterbury

Canterbury is one of the oldest grape growing regions in the South Island. Canterbury has many suitable places for growing grapes, although the potential of many parts of the district is yet to be explored. Consequently, the two main growing sub-regions are clustered on the plains around the region's largest city, Christchurch, and further north at Waipara. In 2007, the producing area was 1,002 hectares.

3.1.4 Central Otago

Otago is New Zealand's fastest growing wine region. At 45º south, Central Otago is the world's southernmost winemaking region. The vineyards are also the highest in New Zealand, located between 200 and 400 metres above sea level. Central Otago vineyards are relatively small at around 12 hectares average size compared to Canterbury at 17 ha and Marlborough at 98 ha. Production area, in 2007, was 1,454 hectares compared to 207 hectares in 1999.

3.2 Grape Growing and Winemaking

To better understand of the changes and trends in viticulture and wine making, it is essential to mention the fundamental characteristics of these processes. The primary character of wines comes directly from grapes and it is affected by the quality of the fruit. The secondary character relates to vinification methods and techniques. At this stage, the winemaker can influence the quality of the final product. This is followed by a process of fermentation and ageing of wines (Baughman et al., 2000). All wines are made in a common process; the variation depends on the type of wine that is wanted.

3.2.1 The Grape Cultivation Process

Growing wine grapes is a complicated and complex process. There are many factors to consider, such as farming methods, vine density, level of pruning, type of irrigation, the use of pesticides and fertilizers, water use, and which types of grapes are best for the soil and climate (Baughman et al., 2000). Climate is the key factor influencing the place where grapes can be grown and the quality of grapes (Jackson and Schuster, 2007). Grapes are grown in regions with full sun exposure, little or no summer rain, and mild frost-free winters. Vines start producing grapes about three years after planting and a useable crop after five years. Although vines can grow for hundreds of years, they reach their best crop

yield between ages 10 and 30. Thereafter, production declines as the vines age (Baughman et al., 2000).

Despite having sufficient rainfall, some wine growers use irrigation to control plant growth. To irrigate effectively, factors such as water-holding capacity and infiltration rate, the effective rooting zone of the vines, depth and soil type must be taken into account **(**Baughman et al., 2000). Grapes need to be planted in suitable soil as soil conditions affect the quality of grapes. The French word *terroir* is used to describe the type of soil, but also other environmental factors that might influence the quality of the finished wine and make the wine unique to the region of its origin.

The right choice of location can help wine growers deal with threats faced by wineries, such as irrigation, frost, diseases and pests. Table 3.1 describes and compares types of soil, rainfall, heat units in growing season, and the Latitude-Temperature Index for the wine regions chosen for this research.

Table 3.1 Soil and climates

District	Soil types and position	Annual rainfall	Heat units in growing season	LTI*
Marlborough	Silty-Alluvial loams over gravely sub soils. In parts compacted silt or clay pans of various thickness and depth are found. Flats.	650-750 mm	1150-1250°C	327
Hawkes Bay	Clay loams of medium to high fertility over gravely of volcanic sub soils. Flats.	750-830 mm	1200-1250°C	384
Canterbury	Alluvial silt loams over gravel sub soils	600-750 mm	900-1100°C	277
Otago	Silt loams with mica and schists. Moderate to steep slopes.	400-450 mm	850-1000°C	260

*'The length of the growing season is very dependent on latitude. The Latitude-Temperature Index (LTI) is a mean temperature of the warmest month x (60°latitude). The LTI gives a more accurate correlation between the grapes grown and climate then heat units. Heat units can be useful for determining the suitability of various sites in a geographical area with similar climatic patterns' (Jackson and Schuster, 2007, p. 5)

3.2.2 The Winemaking Process

As soon as the grapes are ripe enough, which means there is an optimal balance between sugar content and acidity, they are harvested either by hand or mechanically. After being delivered to the winery, grapes are carried to the crusher. The crusher separates the berries from the stems and pumps the juice, skins, pulp and seeds into a fermenting tank. Sulphur dioxide (SO_2) is added immediately after crushing, in order to prevent oxidation or spoilage of the micro-organisms' growth. Fermentation, which is the most significant stage of vinification, is the process when yeast is added to convert sugars to ethanol at

different stages. The winemakers may allow the natural yeast to ferment the wine, or add a specific yeast culture. Fermentation takes place in large vats and it takes from 10 to 30 days. Once fermentation is completed, the wine is drawn off to separate it from the sediment of largely dead yeast. The suspended particles are removed in the third phase, clarification, through racking, centrifugation, or filtration. To stabilise the wine and reduce the protein content of the wine, one of several flocculants can be added, such as bentonite clay, milk powder, egg whites, or even blood. Wine is usually aged in wooden containers made of oak or in barrels, tanks or bottles in a cellar with an even temperature around 11°C. Before bottling, wine may require blending or filtration (Baughman et al., 2000).

3.3 Farming Techniques in New Zealand's Wine Industry

The location, type of climate and soils determine the quality of grapes. In addition, the viticulturists can also influence the quality of the grapes, and consequently the quality of the wines by choosing the methods under which their grapes are grown. The grapes can be grown by using organic, sustainable or conventional methods.

One of the significant distinctions between organic and conventional farming is the application of pesticides and synthetic fertilizers (Baughman et al., 2002; Unwin, 1991). Organic grapes are grown without artificial fertilizers or

chemical sprays, and with lower sulphur levels than conventional wines (Wright, 2000); instead, organic farmers use cultural, biological and mechanical methods. The organic wines are produced from organically grown grapes with minimal chemical intervention in the winery (Wright, 2000).

Organic production also includes biodynamic production. Biodynamic methods include organic practices such as crop rotation, recycling through composts and liquid manures, and increasing plant and animal biodiversity. Moreover, biodynamic farming uses the rhythmic influences of the sun, moon, planets and stars.

Between the two completely different farming methods of conventional and organic farming, lies sustainable agriculture, environmentally sound techniques which ensure preserving the environment, while enhancing productivity and profitability of farms.

The differences between conventional, sustainable and organic viticulture techniques are summarized in Table 3.2.

Table 3.2 Difference between viticulture techniques

	Organic	Sustainable	Conventional
Fertilisers	Mineral rock (rock phosphate dolomite, gypsum, ground limestone etc.) Some trace elements Animal manures	Mineral rock Some trace elements Animal manures Synthetic (if necessary)	Synthetic: Superphosphate, Urea, DAP (diammonium phosphate), Potash
Fungal disease control	No synthetic fungicides Copper and sulphur are permitted Remove infected wood Canopy management to increase aeration and reduce humidity	Remove infected wood Protectant fungicides (copper, sulphur) Systemic only in emergency Canopy management	Canopy management Protectant and systemic fungicides
Insect control	No insecticides Aim for biological control Use bacterial insecticides Remove habitats (weed)	Use bacterial insecticides Timing of sprays is critical Understand pest Remove habitats	No restriction within registration guidelines
Weed control	Cultivation (hand/machine): Agro plow or blade plough Grazing Mowed sward Flame weeding Mulching	Undervine mulch (after initial herbicide control) Midrow: Sod / Slash Cover crop Graze Spot spraying if particular troublesome weeds - if hoeing not	Undervine herbicides Midrow: Cultivate Herbicide Slash Graze

(Source: Davidson, 1999, p. 120)

The choice of method can be restricted by climate constraints (Fairweather et al., 1999); however, it mainly depends on the people who manage the wine company. Therefore, the relevance of this study lies in recognizing the motives of the managers of wine companies to engage in environmentally sustainable practices.

3.4 Problems in the Wine Industry

Even though the wine industry gets less attention then 'dirty' industries, for instance chemical, the wine industry has to deal with several environmental issues (Marshall et al., 2005). Despite the growing relevance of the subject, not enough research effort has been devoted to it in New Zealand. However, related research has been published in USA, Australia, South Africa, European Union and Chile. Jones (2002, p. 7) has identified five environmental issues that may weaken the Australian wine industry: land-use (biodiversity, erosion, soil salinity, vegetation clearance), greenhouse (energy use, emission from waste), impact upon community (chemical spray drifts, odours, noise, genetic modification), waste (chemical storage and containers, treated posts, cleaning agents, grape marc), and water.

Sustainable Winegrowing New Zealand (2006) and Winemakers Association in Australia (WAF, 2007) have identified the importance of winery management of water, waste, especially wastewater from wineries, and the reduced use of

pesticides and other chemicals, as there is the need to care, protect and manage the natural resources, and to be aware of the risks of adverse effects of chemicals (Davidson, 1999).

3.4.1 Water

Water is a key input for all vineyards and wineries. Vineyards need water for irrigation, processing, and water based frost protection (MFE, 2007). Most vineyards use drip line irrigation, the most efficient way to irrigating the wines, to control delivery of two to four litres of water per hour (Anderson, 2006). Various sources differ in an appraisal of the quantity of water usage of vineyards and wineries. Central Otago Winegrowers Association (Anderson, 2006) points out that vines need four litres of water per day during the growth season. During the stress time, the water need can be increased up to 10-12 litres of water per vine per day.

Wineries use a huge amount of water for cleaning and sanitation (SWNZ, 2007b) as everything from grapes to bottles must be kept clean to avoid contamination and spoilage. Water is also necessary for cooling the fermentation cellars and tanks. According to SWNZ (2007b), wineries use around 2,000 to 3,000 litres of water to process one tonne of grapes. However, as they state further, there is no attested data on water use per unit of grapes

processed. McBride (1998 as cited in Knowles and Hill, 2001) says that approximately five litres of water are used to produce one litre of wine.

Agriculture, as a whole, has been under increasing pressure to reduce the use of water **(**Baughman et al., 2000). New Zealand does not face water shortages yet, but based on water studies, water shortages may occur in some regions (Murray, 2006). Solutions can include improvements in water efficiency, defining when and how much to irrigate, and reducing water in wineries (Murray, 2006) through equipment processes and better staff training (SWNZ, 2007b).

3.4.2 Chemicals

Both grape growing and winemaking use chemicals, which requires attention as chemicals may contaminate air, water and soil (Baughman et al., 2000). Viticulturists use pesticides and fertilizers. The wine making process uses preservatives and chemicals for cleaning and sanitation, such as caustic soda, citric acid, sulphur, peroxitane, and cleanskin. Some of these chemicals, such as caustic soda, belong to the category of 'hard' chemicals and may have adverse effects. At present, many researchers and practitioners also talk about problems with CCA treated timber[2] used as posts in vineyards.

[2] CCA – Copper, Chromium and Arsenic; protect wood against pests and prolong the life of outdoor wood. Recent studies have proved the possibility of leaching CCA from treated posts, more information can be found in Read, D. (2003). Report on Copper, Chromium and Arsenic (CCA) treated timber. ERMA NZ.

As the main difference between the traditional and environmentally friendly approach in the wine industry is the use of pesticides and synthetic fertilizers, these two issues will be described further.

Pesticides

The term ‘pesticide’ is a collective name for insecticides, herbicides, fungicides, and plant growth regulators. Pesticides are applied in primary production to assure a high quality production with minimal damage caused by pests or diseases (Manktelow et al., 2004). However, pesticides can also be harmful to people and the environment and contaminate surface water and ground water by leaching or by runoffs (Baughman et al., 2000). The most widely used and the least harmful is sulphur, a naturally occurring element, used as a fungicide in both conventional and organic farming.

Fertilizer

Fertilizers are used to support plant growth by providing nutrients to the soil. Nourishment of the soil can be enhanced by using organic fertilizers, such as compost and grape marc, or synthetic fertilizers. As noted earlier, the application of synthetic fertilizers is one of the primary distinctions between conventional and organic viticulture.

Heavy use of synthetic fertilizers can contaminate surface and ground water. Apart from the negative impact on the water, production of synthetic nitrogen fertilizers is a highly energy-requiring process, even though it is relatively inexpensive when produced in large volumes. Organic fertilizers prepared on-site are less energy demanding; however more labour is needed per unit of nitrogen (Baughman et al., 2000).

3.4.3 Waste Management

Another problem the wine industry faces is the problem with waste produced by both vineyards and wineries. The following 10 issues of waste production were recognized as the most pressing ones by the Australian Forum (Keenan, 2005): CCA treated timber used in posts, grape marc, waste water, plastic packaging, waste agrichemicals, water wastage, chemical residues in rinse water, loss of soil organic matter, product wastes (solid and liquid) and caustic cleaners. All of these issues relate with the three core CSR issues of this study. This section describes waste water, plastic waste and organic waste of vineyards and wineries in New Zealand.

Waste water

A key environmental issue for wineries is the disposal of waste water (New Zealand Wine, 2007a; Knowles and Hill, 2001). Knowles and Hill (2001) summarize previous research and point out that wineries generate waste water

with high organic content, acidity and unpleasant odour, which is more difficult to treat than other wastewaters and can be used only for irrigation of grazing land but not for grapes. According to Keenan (2005) industry standards oscillate around 10 litres of waste water per one litre of wine produced. The treatment options for waste water are land based treatment and disposal, biological treatment, and discharge to local authority/communal sewage scheme under a Trade Waste Consent (SWNZ, 2007c).

Marlborough District Council carries out a winery waste survey every year. In 2007, they stated that there was a significant increase in wastewater management compared to previous years. However, they found that a small amount of wastewater is still being released into the storm water system (Smart, 2007).

Plastic waste

Vineyards and wineries produce numerous kinds of waste plastic: pesticides containers, irrigation lines, old netting, vine guards, packaging waste and polythene (Keenan, 2005). Some of these materials can be recycled; however, many are contaminated and make recycling complicated and more expensive. There are four options for processing plastic products, such as mechanical and

chemical recycling, energy recovery and landfill. Currently, in New Zealand landfill processing is the most common (Plastics New Zealand, 2008)[3].

Organic waste

Lastly, there is organic waste. Organic waste from wineries typically includes grape marc consisting of grape skins, stems and leaves from the pressing of grapes. Vineyards usually have leaves from pruning the vines. Composting and mulching can help solve the problem with organic waste, as composted marc is spread under the vines to nourish the soil. Another solution is to use grape marc as feed for cattle, deer or pigs (MFE, 2007).

3.5 Environmental Regulations in the Wine Industry

Williamson et al. (2006) assert that the environmental practices are driven by business performance and regulations. Environmental regulations may cause constraints to companies in starting their business or entering markets as well as positively affecting the formation of new companies (Dean and Brown, 1995). The sections 2.1.2 and 2.2 described the importance of compliance with regulations as a significant driver of sustainable business practices.

[3] More information can be found on Growsafe – Kiwi Can Muster Project Recycling Agricultural Plastics funded by Ministry for the Environment's Sustainable Management Fund; Plastics New Zealand; Recycling Operators of New Zealand; and Zero Waste.

In New Zealand the main environmental legislation is the Resource Management Act 1991 (RMA). The RMA has employed the triple bottom line focus to define sustainable management as "managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while:

- Sustaining the potential of natural and physical resources… to meet the reasonably foreseeable needs of future generations;
- Safeguarding the life-supporting capacity of air, water, soil and ecosystems;
- Avoiding, remedying, or mitigating any adverse effects on the environment" (part II, section 5).

Therefore, the RMA focuses on the effects of activities, rather then the activities themselves. The administration and enforcement of the RMA is provided by regional/district councils. District councils are responsible for controlling the use of land, the control of noise emission and the surface water in rivers and lakes. Regional councils control the taking, use, damming and diversion of surface water, ground water and geothermal water; maintaining water quality and quantity; the discharge of contaminants to land, air and water; and the effects of land use for soil conservation purposes.

A winery and a vineyard require a number of resource consents, such as land use consent, a water permit and a discharge permit. The RMA regulates environmental issues for the wine industry, such as noise and water requirements (Bell Gully, 2007). In vineyards, noise is caused by the vineyard's operations, crop harvesting, frost fans, and bird scaring devices. Water is allocated for operations at both vineyards and wineries, such as irrigation, frost protection, processing grapes, washing and cooling in wineries and tasting in cellar doors. As all of these activities rely on a sufficient amount of water, councils have the ability to allocate water to users by setting up rules in regional plans and granting of water permits. These decisions can affect, for instance, future availability of water for irrigation and supply of allocated water for permit-holders (MFE, 2007).

Several government acts, legal regulations and standards relate to the use of chemicals, pesticides and synthetic fertilizers, their limits, dealing, storage, and also setting limits for residue levels. These include the Local Government Amendment Act 1996, the Health Act 1956 and the Hazardous Substances and New Organisms Act 1996. This study does not cover all legal requirements for vineyards and wineries in New Zealand, but how the laws are set affect a company's commitment to CSR. As mentioned in the Chapter 4.1, CSR initiatives go beyond the legal requirements. A company's reduction of

chemicals or adapted waste water treatment based on legal requirement is not considered as a CSR initiative.

3.6 Industry Standards for the Environment

The clear evidence of a company's environmental practices and involvement in sustainable or organic techniques is third-party certification. Through third-party certification, companies provide reports to diverse groups of stakeholders about their financial, social and environmental performance. Though this reporting is voluntary, some stakeholder groups may demand this.

The voluntary environmental initiatives and industry-led policies have also begun to be implemented by the wine companies (Knowles and Hills, 2001). As Hughey et al. (2004) point out, implementation of voluntary environmental management systems and industry-led policies will allow New Zealand's wine industry to be engaged in CSR practices and prevent damage to the environment. Generally, companies can adopt different types of environmental management practices based either on compliance with regulations and standard industry practices, or voluntary environmental strategies going beyond the regulatory requirements (Sharma, 2000).

To date, the wine companies in New Zealand may use certification organizations, such as ISO 14001, BioGro, Bio Dynamic Farming and

Gardening Association, AsureQuality, Green Globe 21, Enviromark NZ and Sustainable Winegrowing New Zealand, industry-led initiatives. The certification organizations and the number of participants are summarized in Table 3.3.

Table 3.3 Third party certification bodies in New Zealand's wine industry

Certification organizations	Number of participants
SWNZ	457 vineyards and 59 wineries
BioGro	9
AsureQuality	3
Biodynamics	0 certified, 1 begun the process
ISO 14001	4*
CarboNZero	1
Enviromark NZ	1
Green globe 21	1

* JAS-ANZ registers

3.6.1 Sustainable Production

New Zealand has only one scheme for sustainable viticulture. The scheme is Sustainable Winegrowing New Zealand, sector-led initiative.

Sustainable Winegrowing New Zealand (SWNZ)

SWNZ was established by volunteer grape growers in August 1995 as an industry initiative directed through New Zealand Winegrowers. SWNZ is "a proactive environmental management system that enables the production of high quality wine by employing environmentally responsible and economically

viable processes in vineyards and wineries" (SWNZ, 2007a, p. 1). The SWNZ scheme provides the framework for continual improvement (SWNZ, 2007b) and is based on a self-audit score card covering all aspects of sustainability (Manktelow et al., 2002). The positive-points scorecard system is similar to those used in Switzerland and California. Wines produced from 100 percent accredited vineyards and made in accredited wineries can carry the sustainable winegrowing logo. SWNZ (2007b) has already pointed out the need to reduce water use, avoid contaminants in waste water, minimize waste water, reduce the use of pesticides and other chemicals, and give attention to waste management. Therefore, SWNZ has been focusing on a positive environmental footprint, such as carbon neutrality, zero waste, water efficiency, and biodiversity (New Zealand Wine, 2007a).

In 2007, SWNZ had 457 vineyard members which equates to 50 percent of all wine growers across New Zealand, covering almost 60 percent of the total production area; 59 wineries which represents 10 percent of the wine companies in New Zealand (Table 3.4).

Table 3.4 Sustainable Winegrowing Membership – year end June 2007

	Region				
	Marlborough	**Hawkes Bay**	**Canterbury**	**Otago**	**Total**
Vineyard members	164	116	17	51	**457**
Vineyard area (ha)	5,579	3,626	623	780	**13,527**
Winery members	20	18	0	5	**59**

(Source: New Zealand Wine, 2007b)

SWNZ's intention is to have all grape growers and wineries in a sustainable management programme by 2012 (New Zealand Wine, 2007a).

Hughey et al.'s (2005) research about EMS within the New Zealand wine industry shows that the reasons for companies to choose SWNZ certification include the industry support and availability for all wine companies. SWNZ is more flexible than BioGro, and more practical and goal oriented than ISO 14001.

3.6.2 Organic Production

Organic certification is becoming increasingly important in organic agriculture (Herberg, 2007), and to date, there are three internationally recognized certification schemes in the wine industry, namely BioGro, Bio Dynamic Farming and Gardening Association, and AsureQuality[4]. Organic production includes such terms as eco-agriculture, natural, and biodynamic farming.

BioGro

The BioGro system for organic certification was established in 1983 as an independent, non-profit incorporated society, funded entirely by membership, inspection fees, licensing levies, donations and grants and has no commercial affiliation (BioGro, 2007). The BioGro certification scheme is recognized by the

[4] There is also Organic Farm New Zealand, certification scheme only for domestic market. However, no wine company is accredited by this organization at the moment. Therefore, this scheme is not described in this study.

International Federation of Organic Agricultural Movements (IFOAM) and is known throughout the world. The key principles governing organic farming are: encouraging and enhancing biological cycles; maintaining and improving long-term soil structure and fertility; maintaining genetic diversity; the cycling of organic matter and nutrients within a production system avoiding all forms of pollution; and integrating management of soil, crops and the environment for weed, pest and disease management (BioGro NZ, 2002). Full BioGro certification requires companies to comply with standards for a minimum of three years. At the present, nine wine companies are accredited in New Zealand (personal communication with BioGro, 2008).

Hughey et al.'s (2005) research summarizes the reasons for choosing the BioGro certification, such as the system's compatibility with the winegrowing company's philosophy, the high standards required to gain accreditation, the certification identifying the company as organic, the sustainability of the system itself, the system's IFOAM accreditation, and recognition of the BioGro logo.

The Bio Dynamic Farming and Gardening Association

The Bio Dynamic Farming and Gardening Association was established in 1945 to promote biodynamic methods. The Bio Dynamic Farming and Gardening Association is using the international certification system Demeter.

Biodynamics is a system's approach where the farm is viewed as a living whole. Biodynamic viticulture takes the principle of organic farming to a higher degree, and recognizes the influence of cosmic rhythms on soil, plant and animal life. They use biodynamic sprays to stimulate biological activity in the soil; improve retention of nutrients, such as animal waste; plant trees for multiple purposes; recycle organic waste; rotate crops to enhance soil fertility; and change from chemical pest control to prevention strategies based on cultivar selection (Demeter, 2007). Currently, the Bio Dynamic Farming and Gardening Association has approximately 53 members from within the wine industry. Members may use the biodynamic methods to various degrees. However, no vineyard and winery is certified at the moment. One company has started the three-year process and will be certified in the near future (personal communication with Demeter, 2008).

AsureQuality

AsureQuality was established in October 2007 as a merger of AgriQuality and Asure New Zealand. The organic certification organization is IFOAM accredited and allows farmers access to overseas markets around the world. AsureQuality has been using its own set of organic standards, slightly different from BioGro. Both certification schemes require no use of synthetic fertilizers and pesticides, the processing of food according to sustainable methods and the keeping of detailed records by farmers (OrganicNZ, 2002). In 2007, there were

three organic certified vineyards and wineries in New Zealand (personal communication with AsureQuality, 2008).

3.6.3 Other Certification Organizations

New Zealand's wine companies are involved in more environmental management systems which, except for ISO 14001, are not so commonly used, such as Green Globe 21, Enviromark NZ, and becoming more popular Carbon Zero certification.

ISO 14001

ISO 14001 is an international standard for environmental management systems developed by the International Organisation for Standardisation. Aims of the ISO 14001 are to help companies manage the impact of their operations on the environment, reduce the environmental risk of the company's processes and products, and prevent pollution while taking into account the socio-economic needs (Hughey et al., 2005). Processes are monitored and audited, and tailored to lead to continuous improvement in the environmental performances of companies (Hughey et al., 2005).

In February 1998, four wineries in the North Island formed the Living Wine Group and become the first group in the world to gain the ISO 14001

accreditation. The group works together to share information and reduce consulting and certification fees.

Hughey et al. (2005) point out the strong advantages of the ISO 14001 as accountability and widespread recognition. ISO 14001 focuses on the process rather than the goal.

3.6.4 Environmental Projects in New Zealand's Wine Industry

New Zealand wine companies are involved with several environmental projects: Glassrite, Wetlands, and Greening Waipara.

Glassrite explores four areas which affect carbon emissions: use of bulk containers instead of bottling the wine the place of origin; weight of the wine bottle; distance traveled; and method of transport. Combining these strategies can significantly reduce CO_2 (Glassrite, 2007).

The research-driven project in Waipara, called Greening Waipara, provides added value through bio control and other environmentally-friendly practices, including reduced reliance on herbicides and pesticides, creation of swales and wetlands with native species to filter contaminated storm water and vineyard effluent. These practices (including biological control of pests, pollination and

keeping soil fertile) enhance the natural character and resilience of the district (Wratten and Meurk, 2006).

Wetlands is another voluntary project designed to protect the environment. Native plants, grasses and shrubs have been planted near vineyards and wineries to help to increase population of birdlife and also to manifest the relationship between the nature and the wine companies.

3.7 Summary

The wine industry is important to the New Zealand economy. Due to suitable weather conditions, the number of vineyards and wineries is steadily increasing. Further development of viticulture depends on the accessibility and quality of water, and suitable land with healthy soil. The brief description of the wine regions and the processes in viticulture shows that there is a space for various styles of growing grapes. Since attitudes towards environmental sustainability differ, vineyards and wineries in New Zealand may have difficulty engaging in uniform production methods (Fairweather et al., 1999).

The wine industry affects the environment in many ways. Both vineyards and wineries require a significant amount of water. Wineries need water mainly for cleaning and sanitation; as a consequence, they produce a huge quantity of waste water. Vineyards' application of pesticides and synthetic fertilizers may

contaminate surface and ground water from leaching and runoff. Wine companies also produce plastic waste, which can be contaminated and is therefore more difficult to recycle. Problems may increase as the wine industry has been steadily growing. These effects can be influenced through environmental regulations, which can support or constrain business activities. For instance, district councils may regulate how much water vineyards and wineries will use.

A second way in which these effects can be influenced is third party certification and involvement in CSR practices, which provide customers with confirmation of the environmental standing of the companies (Bhaskaran et al., 2006). However, not all companies can afford to implement environmentally sustainable standards as they can be too complex for them and beyond their resource capabilities (Bhaskaran et al., 2006). Also, companies may not have a positive perception towards environmental management systems as there may be a lack of resources, information about and understanding of the systems, as well as their actual concerns about environmentally sustainable practices to their scale of operations (Knowles and Hill, 2001).

Thirdly, the New Zealand wine industry has several environmental management systems. Each system differs in its aims, requirements and implementation processes. SWNZ is the most commonly used scheme within New Zealand’s

wine industry. There are several reasons for that. Firstly, SWNZ is a sector-led initiative and there is pressure from the industry to have all vineyards and wineries under independently-audited sustainability schemes by 2012. From 2010 only wines produced under this scheme can enter the industry wine awards (New Zealand Wine, 2007a). Next, sustainable viticulture is more available, practicable, and offers the cheapest option for the wine companies. Wine companies interested in organic production can choose from two schemes with international recognition and one biodynamic scheme involving an encompassing philosophy.

In addition to environmental management systems, wine companies are taking part in voluntary environmental projects, such as Glassrite, Greening Waipara and Wetlands.

Understanding why vineyards and wineries enter these projects, which initiatives they choose, and what the consequences of participating in voluntary activities are is of great relevance to this study. Therefore, the third research questions will address the following:

RQ 3: What kind of environmental activities do vineyards and wineries initiate on their own?

4 Research Methodology

This chapter describes methods used for data gathering, data analyses, respondent selection and rationale of this research approach. The study is based on qualitative research methods supplemented by quantitative measures. Primarily data was gathered through semi-structured face-to-face interviews with owners of wine companies, viticulturists and winemakers. Secondary data sources which provided the background consisted of information obtained from personal communication and materials from the industry institution SWNZ; third party certification organizations, such as BioGro and the Bio Dynamics Farming and Gardening Association; viticulture consultant; Ministry of Agriculture and Forestry; district and regional councils; and academic sources. The analysis of data was determined by the nature of the research questions. Background information was reviewed in Chapter Two and Three to outline and to describe the current issues in CSR and to highlight the importance of conducting research in the wine industry. All of these above were taken into account while constructing the research questions, and choosing the research methods and data analysis.

4.1 Interview Rationale

As the aim of the study was to observe specific phenomena, an exploratory qualitative approach was chosen. Exploratory study is useful when the concepts and variables being investigated are not easy to quantify, and the existence of

many variables that have to be considered makes survey methods inappropriate (Yin, 1994). However, some of the specific questions in this research about environmental drivers and the role of stakeholders would be difficult to analyze without quantitative measures. Linking both qualitative and quantitative data supports the case at hand (Miles and Huberman, 1994).

To conduct only a mail survey was not considered as an option for this research. Firstly, it is difficult to get specific answers on in-depth questioning (Mann and Stewart, 2002). Secondly, mail surveys usually have lower response rates. Thirdly, some of the questions discussed in this study could be viewed as personal. And lastly, specifically for the wine industry, wine companies have been flooded by lots of (e)mail questionnaires during the year from industry associations, Ministry of Agriculture and Forestry, and others, so the chance of getting higher response rate was minimal.

Interviews are a powerful research tool for conducting qualitative research. Respondents in interviews are recognized as ‘meaning makers’, not only as a passive channel of information (Warren, 2002). To be able to answer the specific research questions, semi-structured interviews with open-ended questions were conducted. A semi-structured interview was chosen, as it is more flexible in what respondents say compared to a structured interview. While preparing the questionnaire, the emphasis was put on openness of the asked

questions: instead of having the question “Do wineries influence vineyards’ sustainable practices?” the question was: “How do wineries influence vineyards’ sustainable practices?” That allows deriving interpretations to special issues, rather than simple statements. The interview guide was extended by including eight Likert scale questions. The 6-point Likert scale was used with “0 Not important / Not used” to “5 Very important”. Likert scale questions allowed for qualitative measures of the importance of marketplace expectations, clarity of regulations, drivers of environmentally sustainable practices and significance of stakeholders. Likert scale questions were considered to be able to measure the answers, to help with interpreting the findings, and to strengthen the results (Miles and Huberman, 1994).

4.2 Respondent Selection and Composition

Participants for the research were chosen from the main wine regions of New Zealand: Marlborough, Hawkes Bay, Canterbury and Central Otago. Each region is special to New Zealand’s wine industry and allows taking into account different climatic constraints that may have an impact on the decision making (see Chapter 3.1).

The aim was to examine a representative variety of New Zealand wine producing companies, across the main wine regions including all sizes and with varying involvement in environmental practices (Tables 4.1, 4.2, 4.3). In each

region, representatives from four to nine companies were interviewed. The nine interviews were done in Marlborough, the biggest wine region in New Zealand; seven interviews were conducted in Hawkes Bay, the second largest wine area; and four interviews in Canterbury and four in Central Otago. All together 31 people participated from 24 vineyards and wineries (Table 4.2). The wide range of people with various backgrounds was interviewed to gain an overview of the current situations and trends from different perspectives.

Since a considerable number of studies focusing on differences between small and large companies have already been carried out (Lawrence et al., 2006; Knowles and Hill, 2001; Tilley, 1999), the aim of this research is to examine the wine industry as whole rather than comparing companies in relation to their size.

The selection of respondent companies was based on information obtained from publicly accessible resources, such as annual reports of particular certification bodies. As evident from Table 4.1, companies included in the study ranged from small to relatively large. In each region small, medium and large companies were included in the study, with a higher number of medium and large companies as the decisions made by managers of bigger companies will influence a larger area and, therefore, will have a bigger impact on the environment.

The interviews were conducted from September until December 2007. The exact number of interviews was not decided before the interviews started. The plan was to stop the interviews in each region after reaching the point of saturation; when the answers and themes tended to repeat (Strauss and Corbin, 1990). Personal discussions and/or phone interviews were undertaken with staff from SWNZ, BioGro, Bio Dynamics Farming and Gardening Association, district councils in Blenheim, Dunedin and Hurunui, and with academics from Lincoln University.

The tables below summarize the interviews, together with the number of participants and their involvement in environmental initiatives (Table 4.1, Table 4.2 and Table 4.3).

Table 4.1 Summary of regions and sizes of the involved companies

Region	Size			Total
	Small	Medium	Large	
Marlborough	1	2	6	**9**
Hawkes Bay	1	4	2	**7**
Canterbury	2	1	1	**4**
Central Otago	2	2	0	**4**
Total	6	9	9	**24**

Table 4.2 Summary of interviewees across the main four wine regions

Region	Interviewee				Total
	Owner	Viticulturist	Winemaker	Others*	
Marlborough	0	5	6	2	**13**
Hawkes Bay	0	5	4	0	**9**
Canterbury	3	1	0	0	**4**
Central Otago	0	2	3	0	**5**
Total	3	13	13	2	**31**

* Sustainable manager, office and export manager

Table 4.3 Involvement in environmental initiatives

	Number	Notes	
SWNZ	19	1 becoming	2 cancelled
Organic	7	3 BioGro	4 Biodynamics
ISO 14001	4	1 looking into	
Conventional	1		
Other*	7	2 in process	6 looking into

* Carbon Zero, Green Globe 21, Enviro Mark NZ, Glassrite, and the project Greening Waipara.

For the purposes of this study, the SWNZ classification system of the categorization of companies as small, medium or large was used (Table 4.4). The system is based on the production of litres of wine per annum. In this system, a company whose production is less then 200,000 litres of wine per annum is classified as small (Category 1), a company which produces between 200,000 and 2,000,000 litres of wine per annum is classified as medium (Category 2) and a company whose annual production exceeds 2,000,000 litres of wine is classified as large (Category 3).

Table 4.4 Wineries by category

	1997	2000	2005	2006	2007
Category 1	244	331	466	482	483
Category 2	14	23	44	42	51
Category 3	4	4	6	6	9
Total	**262**	**358**	**516**	**530**	**543**

(Source: New Zealand Wine, 2007b)

The initial intention was to interview an even number of viticulturists and winemakers to get information from both perspectives. Also, where possible, an interview with an owner of the company was set up. Three vineyard owners were interviewed. One of them owns a small vineyard and wine is made solely by contractors. The second company is family based, and the interviewee was one of the sons, who are managing the winery. The third owner runs his business by himself, so he is viticulturist as well as winemaker at the same time. Having an opportunity to talk with the staff involved in environmental initiatives within the company was also appreciated.

4.3 The Interview Process

Prior to the main research, a pilot study was conducted in two wineries in Canterbury, specifically in the Waipara region. The purpose of this study was to gain deeper understanding of specific issues related to sustainable practices in the wine industry as well as to establish the terminology used within the industry. As the pilot phase of the research progressed, it became apparent that

the preliminary questionnaire was too broad and needed further specification of the questions.

Initial contact with selected companies was made through email and phone call followed by a personal visit to conduct the interview. Interviews lasted on average 45 minutes to one hour. Interviewees were not provided with a copy of the interview questions prior to the interview and interviews were conducted face to face.

During the research, the main focus was to identify the opinion of the interviewees towards the CSR practices in the wine industry and the factors influential in decision-making. At the beginning of the interviews, the interviewees were asked to define what the term “environmentally friendly” means to them. The reason for doing this was to find interviewees’ opinions and general attitudes towards the CSR practices and also to benchmark their involvement in CSR initiatives. Further, the questionnaire targeted the following aspects: the role of stakeholders, marketplace expectation, the ability to comply with local and international regulations, drivers of proactive environmentalism, the trends in grape growing and wine making and assessing of conventional, sustainable or organic methods.

The questionnaire was structured into three parts. The first section was to gather information about environmental practices, drivers of CSR initiatives, the role of stakeholders and communication with them. Some questions were constructed as open-ended to find the interviewees opinions, for instance: “What kind of environmental activities have you initiated on your own? How do wineries influence vineyard’s CSR practices?” On the other hand, to be able to measure and analyze questions asking on ‘how important’ or ‘how much’, the Likert scale questions were used. Participants were asked to mark on a scale, where ‘0’ stood for not important and ‘5’ meant very important. Questions included: “How much does marketplace expectation influence your decision to be more environmentally friendly? Who are your most important stakeholders?” (The list of stakeholders was presented).

The second section of the questionnaire dealt with specific aspects of grape growing. Open-ended questions were used to obtain information, such as what are vineyard’s threats, produced externalities, practices of dealing with rubbish, water issues, use of fertilizers and what differences have they experienced with different farming methods.

The third section was devoted to the wine making. This section started with a six point-Likert scale question where interviewees were asked to mark the importance of particular factors in a grape purchasing decision. The rest of the

questions were open-ended, except one question asking on the retail price range of a company's wines. The questions covered a production of wines from sustainable or organically grown grapes; whether a winery needs a special distribution channel to sell wines produced in sustainable or organic manner, what kind of feedback does a winery receive from their customers about environmentally friendly practices as well as questions about the winery's risks, waste practices, externalities, used chemicals and a waste water treatment. (Appendix 1)

The interviews were not tape recorded, in order to ease the participants' mind and encourage them to speak openly. Several times it happened that interviewees said useful and interesting information while notes were being taken. The pauses in talking also allowed interviewees to take time and expand their answers. Notes taken during the interview were extended immediately after the interview finished. After completing the research, all interviewees were sent a letter with acknowledgement for their expertise and help.

4.4 Analysis Process

The data analysis process was based on Miles and Huberman's (1994) strategies, such as drafting summaries of field notes, noting patterns and themes, grouping them into larger units, making metaphors, making contrasts and

comparisons, subsuming particulars into the general, noting relationships among the categories, and making conceptual/ theoretical coherence.

Once the data were collected, they were organized in a way to answer the three research questions of this study. In the initial phase of the data analysis, patterns and themes were observed, and clustered (Miles and Huberman, 1994). Repeating patterns and themes were counted, especially for the third research question, to be able to say how often each theme occurred and how significant this was. Exploring the clusters revealed relationships between themes and allowed for comparison and contrasting individual and institutional drivers, companies' stakeholders, involvement in CSR initiatives, and practices in the wine industry. Interviewees' responses for each theme were noted to highlight typical opinions.

Chapter Six provides a picture of CSR practices in New Zealand's wine industry, using the data obtained from interviews and secondary sources. The significant outcome of this research is the creation of the typology 2 x 2 matrix of companies' CSR practices.

4.5 Summary

The chosen methods helped to understand the industry at present in terms of environmental responsibility, the extent to which environmental and/or

sustainable pressures are evident in the industry, the identification of factors in decision-making, and measuring the drivers of environmental initiatives.

The findings of qualitative studies can not be statistically conclusive, as there are limitations on standardization caused by respondents' 'meaning making' actions (Warren, 2002). Nevertheless, this is not a constraint in this study as there was not any intention to provide statistically valid research.

5 Findings and Results

This chapter analyzes and describes the results of interviews with viticulturists and winemakers in four main wine regions in New Zealand. This leads to a discussion of key findings, answering the research questions, and drawing a conclusion. The interview data are analyzed according to the main themes. Section 5.1 discusses drivers of CSR practices with an appraisal of the marketplace expectation and interviewees' view on differences between conventional, sustainable or organic farming methods, including cost saving, profit and price premium. Section 5.2 is devoted to stakeholders, the communication between companies and their stakeholders, and the attitude towards ecolabelling. Section 5.3 analyzes the three core CSR issues in the wine industry, namely water, chemicals and waste management; environmental activities of wine companies in New Zealand; what companies view as being important; and why they have chosen the particular scheme. Regional differences are briefly discussed at the end of this section. In each section, citations of interviewees are provided to represent typical interviewees' responses.

As the aim of this research is to understand what motivates vineyards and wineries to engage in CSR and environmentally friendly practices, there is a need to understand what the term 'environmentally friendly' means to interviewees. The responses varied from statements about the importance of this

issue for the wine industry, to giving more practical examples about what should be done, such as using fewer chemicals, or no man-made chemicals (from those involved in organic production), reducing waste, looking for water and air quality, and healthier soil. The theme of having a healthier soil occurred many times during the interviews. Healthy soil is crucial as it helps to maintain higher quality vines, and therefore higher quality wine. Moreover, correct soil care prevents soil erosion.

Typical responses to the question "what does the term 'environmentally friendly' mean to you" were:

"…it is important to protect the environment and to have a minimal or no impact on the environment; to have the same environment in 50 years time and to think of future generations while running the business".

"…this is the trend where the wine industry is heading now"

"…naturally, it was always like that, for instance in Burgundy, the old wine region in France, the grapes have been grown organically for centuries there".

"...market is turning for chemical-free products".

5.1 Drivers of CSR Practices

These interviews on drivers of CSR practices were based on a set of open-ended questions and six-point Likert scale questions. The six-point scale consisted of 0 representing "not important" to 5 "very important/essential". The set of drivers

was based on Marshall et al.'s (2005) research about individual and institutional drivers of proactive environmentalism in the US wine industry. The adopted model based on Marshall et al.'s research is discussed in Chapter 2.1. Marshall's team describes drivers of proactive environmental behaviour as primary and secondary drivers. The individual primary drivers are environmental values, employee welfare, cost savings and product quality. On the institutional level, the primary driver represents compliance with current regulations. The secondary drivers consist of community groups, market differentiation and preemption of future regulations. In addition to these drivers, this research focuses further on personal satisfaction with this profession, expectation of customers, and profit; compliance with regulations was split into compliance with current New Zealand regulations and compliance with overseas regulations. The reasons for researching more drivers were that all of these drivers may influence a company's decision-making. Even though CSR is based on voluntary activities, companies still want to make a profit. Furthermore, export is of great significance to the wine industry; dividing compliances into two parts helped to assess which regulations are viewed as more important. The results from the Likert scale question on drivers of CSR practices are depicted in Figure 5.1.

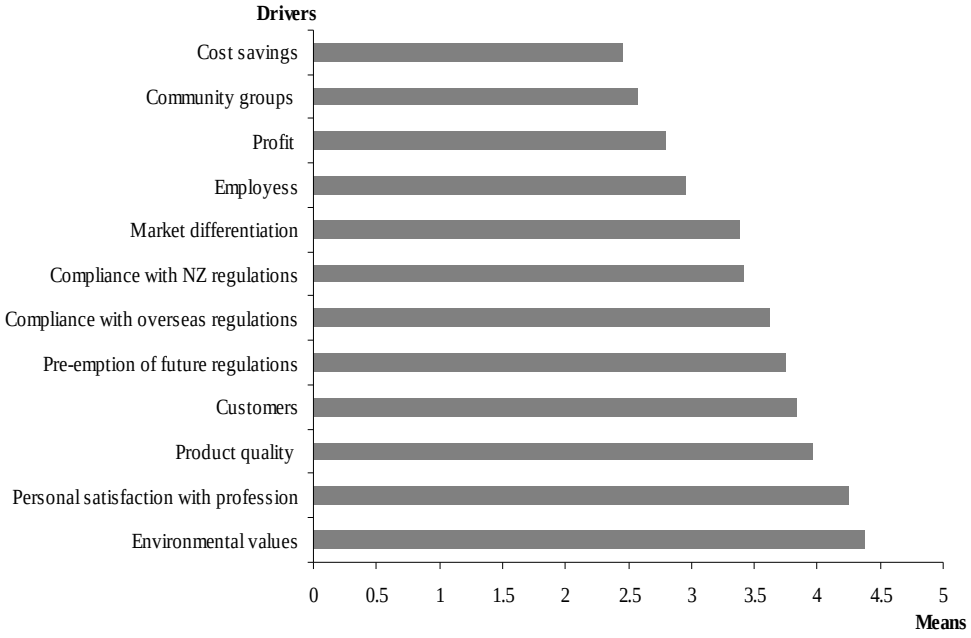


Figure 5.1 Drivers of proactive environmental behaviour in New Zealand's wine industry

According to the interviewees' responses, the environmental values of people working in the wine industry and personal satisfaction with this profession appeared to be the most important drivers of CSR practices, with the means of 4.38 and 4.25.

Just slightly below the 4.0 point are product quality and demands by customers. Product quality is very important in the wine industry. "The United Kingdom wants the New Zealand wine, not organic wine; they like our wines because of the high quality."

The interviewees view marketplace expectation as important (means 3.67). “Marketplace expectation is integral to our business.” Marketplace expectation and expectation of customers are interrelated; therefore it is not surprising that the value for customers’ demand reaches the third highest value. “[Customers] believe the product will be better under more environmentally friendly approach.” Some interviewees mentioned that still just a small percentage of customers pay attention to the environmental aspect of the product. It is a “good marketing point, but not demanded by the public yet.” What is the most important to interviewees is summarized in this quote: “[Marketplace expectation is an important factor; however, it] is less important than the expectation of ourselves and how we want to be environmentally friendly and sustainable.”

The next set of drivers is related to regulations: pre-emption of future regulations (3.75), compliance with overseas regulations (3.63), and compliance with New Zealand’s current regulations (3.42). The interviews showed that regulations are important factors in carrying out the business. Compliance with overseas regulations is also perceived as important as 19 out of 24 companies sell 50 and more percent of their wines to overseas. All interviewees who export their wines mentioned that overseas regulations are tougher, and there is a pressure to prove the environmental friendliness, especially from the UK market and its large retail groups and supply chains.

Following the regulations, there is another important driver market differentiation with the means 3.38. The less important drivers with mean value under 3 points were employees, profit, community group, and cost savings.

Cost savings, profit and price premium were discussed further with interviewees. Cost savings may not be viewed as an important driver as the perceived expenses for environmentally friendly production vary and they are not viewed as substantial. Almost half of the interviewees said there are no or few differences in costs between conventional and sustainable farming. However, interviewees admitted that sustainable farming might save money on chemicals. A viticulturist of a large company said: “Sustainable viticulture is cheaper; under a sustainable scheme we can save 15-20 percent of costs.”

The biggest differences between conventional and organic viticulture are costs for establishing organic vineyards, labour, materials inputs, and the cost of registration and certification. One third of interviewees believe that organic farming is “a little bit expensive”, as it is necessary to utilize more labour to monitor the vineyard, and there is a risk of the potential loss of crop in the case that a disease occurs. Moreover, organic vineyards have usually less yield per hectare. On the other hand, vineyards spend significantly less on fungicides, herbicides and insecticides. It was pointed out that: “Once you know how to do it, financial benefit follows”. Biodynamic farming might be more expensive as

many activities must be done by hand. “So, you can save money on spraying, chemicals and energy but you have to pay more for labour, so the cost will increase up to 10-15 percent.”

After production costs, an influential factor is the sales price. Five of the companies interviewed sell 90 to 100 percent of their production in the price range over $25 per bottle of wine. All five companies are involved in organic production; they are either organic certified or members of the Bio Dynamic Farming and Gardening Association and follow biodynamic practices. Four of these companies are small, and one is medium sized. In this price range, 60 to 70 percent of the production is sold by two companies, both belonging to SWNZ and both medium sized. Four companies sell 50 percent or more of their production in the price range of $20-25 per bottle of wine. Three of these companies are involved in sustainable production, and one is conventional. Specifically, for further contrast, the conventional company is selling 60 percent of their wines in the price range between $20-25, and 40 percent of the production for more than $25 per bottle of wine. As this company focuses on the New Zealand market, 70 percent of the production is sold in New Zealand. This confirms the opinion of many interviewees that “the New Zealand market is not ready yet for organic production” and there is “not a big demand from New Zealand’s customers at the moment”. Twelve companies are selling 50 percent or more of their production in the range of $15-20 per bottle. All of the

companies are members of SWNZ, four of them are also ISO 14001 certified and one is organic. Only one company is selling more than 50 percent of its production under $15 per bottle. This large company is involved in sustainable practices. Further, only two companies sell wine at under $10 per bottle, and this volume comprises only about 10 percent of their production. Both companies belong to SWNZ and both of them are larger companies in New Zealand.

One would expect that vineyards could get a premium price for grapes grown with sustainable or organic practices. However, the research shows that vineyards do not get a price premium for their sustainable or organically grown grapes, and wineries are not prepared to pay a price premium either. Only one organic wine company stated that they are ready to pay up to 20 percent more, and a few companies admitted they are willing to pay up to 5 percent more than the usual price. Some interviewees said that “maybe in the future will be a price premium for the organic production”.

At the moment, grape quality (means 4.9) appears to be the most important factor in purchasing grapes, followed by variety of grapes (4.52) and growing region (4.19). Price (3.5) and vineyards’ environmental practices (3.43) are viewed as important. Loyalty to suppliers (2.8) and vineyards’ third party certification (2.48) seem to be the less important in buying grapes from contractors.

To sum up, the most important drivers for interviewees' organizations are the environmental values of people involved in decision-making, their satisfaction with their profession, the quality of their products, and demands by customers. Customers, together with other companies' stakeholders are discussed in the next section.

5.2 Stakeholders as Drivers of CSR Practices

Based on the literature review, a list of the main stakeholders for the wine industry was created and provided to interviewees during the conversations. The result shows that the most important stakeholders, having means 4 and above (4.42 – 4.0), are owners, shareholders (if there are any, as some of the companies are small or medium family based companies), customers, and wholesalers and international businesses.

The next group with means from 3.5 to 3.9 belongs to retailers and employees. They are followed by media, local community, and competitors in New Zealand (means 3.2-3.0). All interviewees mentioned that there is no real competition between vineyards and wineries in New Zealand. "We all try to achieve the common goal and create the brand of New Zealand's wines, so we share knowledge …" The New Zealand wine has a good reputation overseas, and is a valuable export commodity, so no one wants to spoil this positive name.

Figure 5.2 Stakeholders in New Zealand's wine industry

According to the interviewees' responses, government and council, suppliers, and overseas competitors appear with means below 3.0. The lower value for 'government and council' obviously relates to the interviewees' perception of how easy it is to follow regional and district council regulations. As participants view that neither regional and district council (means 1.96, easy for 0 and 5 for difficult) nor international regulations (2.57) are difficult to follow, this is not considered a significant driver. However, some interviewees expressed their concern that regulations have became more difficult and that "paper work is huge". Special-interest groups and trade unions finished last, with means 1.83.

Vineyards and wineries are important stakeholders for each other; therefore, the question of how wineries influence vineyards' sustainable practices was asked. Grape growers and wine makers usually have a close relationship and cooperation. Wineries employ a viticulturist who is responsible for checking a contractor's vineyard and setting the requirements for growing grapes. "Yes, we can influence the vineyards' sustainable practices, as we are all market driven and not product driven." The relationship between winery and vineyard is individual. Therefore, a few interviewees stressed that wineries do not dictate the way grapes are grown; they can only determine when the grapes should be picked, or schedule the use of chemicals. "For example, in Marlborough, demand for Sauvignon Blanc is higher than supply, and then we have to buy what is available on the market." "[At the moment, wineries influence vineyards] very little, in the future they will. Once we get the industry under SWNZ, there will be pressure for continual improvements, and wineries will be able to influence vineyards' practices." Some wineries pay or encourage their growers to be sustainable under the SWNZ scheme, so the wineries can use the SWNZ logo. "The trend is that more wineries have got their own vineyards, so contracting won't be so popular."

These statements confirm the issue of grape purchasing factors mentioned in the previous chapter. Contractors' environmental practices are less important than

grape quality, variety and grape region. Vineyards' third party certification is viewed as not really important for wineries when purchasing the grapes.

Certification, logos and ecolabels

Vineyards' third party certification is not central for wineries; however, interviewees pointed out that this could be a way of informing customers about companies' CSR practices. More than half of the interviewees see the importance of using the logo of the certification body where they are certified. Most of the interviewees admitted that "the right way to communicate with their stakeholders" is through ecolabelling; however, most companies do not use this. Almost half of the participants emphasized the publication of their CSR involvement on the back of bottles and on companies' web sites. Members of SWNZ view the recognition of the SWNZ logo by customers as a significant advantage.

The usage of logos and ecolabels relate to the issue of becoming officially certified by a third-party organization. Some companies, even though they are certified, do not use logo as they do not want their wine to be viewed as 'strange', "I prefer that my wine is bought because of the high quality, not because it is organic." The other reason why companies do not use the logo of the certified body can be that wineries' contractors are not certified and therefore even if wineries are certified they can not use ecolabels. "Some of our

contractors are sustainable but not officially certified; they not bothered being certified, usually because of the paper work." Or vineyards are certified but wineries are not certified as "it is more difficult for wineries than for vineyards". However, companies generally can not use logo as they have not been through the process of certification.

Reasons why companies do not pursue the certification include little financial benefit from certification, and high expenses of certification: "To be certified you need a lot of time and money." Conversely, "SWNZ is quite cheap compared to ISO 14001." This could also be one of the reasons why SWNZ has become widely popular, as the cost for SWNZ certification is lower. Other constraints for not pursuing the certification are too tight restriction, slow certification process, and all the paper work that can be discouraging. "There is another level of bureaucracy for the certification, and time and expense for a small business is not sustainable." A few organic wine companies indicated that they can not get all vineyards certified organic as their neighbours use conventional methods that cause drifting of chemical sprays onto their organic vineyards, and this is not allowed in organic production. A possible reason not to certify is also the 'back up' in the case that a disease or pest occurs in the vineyard, or view that the local conditions require the use of pesticides.

However, some organic companies declared: “to be organic is a philosophical point of view, then why should we need to be certified? But that’s true that certification gives us more credibility, and that’s what customers ask for.”

Communication

The relationships between vineyards, wineries, their customers and other stakeholders are formed and influenced by communication. The most common ways for communication with stakeholders is phone, email and companies’ websites, together with personal communication. Companies also use information conveyed on wine bottle labels, followed by public relations, newsletter, and advertisement. A few interviewees also mentioned sponsorship and providing drinks at social events.

Stakeholders usually communicate with the wine company through personal communication, word of mouth, and web sites, email and phone. Publishing, customer service and visiting wine cellars are other forms used by stakeholders. All interviewees confirmed they have received positive feedback from their customers about the involvement in CSR practices and believe that this will have a positive impact on customers’ attitudes towards the brand.

5.3 CSR in New Zealand's Wine Industry

This section discusses companies' involvement in CSR practices which impact the environment. The focus of this study is on three core CSR issues: use of water, chemicals and waste management. Further, environmental activities, including integrated management techniques, environmental projects, moves towards sustainable and organic farming, and regional differences are described.

Water

Water is a fundamentally important input for vineyards and wineries. Therefore, interviewees were asked whether they have a problem of being short of water. In Canterbury and Central Otago, all participants answered that they do not feel any risk of water shortage. In Hawkes Bay, despite one participant saying that occasionally one of his vineyards has a lack of water; generally interviewees stated that there is plenty of water because of an underground aquifer. In Marlborough, more than half of the interviewees expressed their concerns of having possible water problems in the future. The conducted interviews showed that all companies have been trying to reduce water usage.

The water use for vineyards depends on many factors, such as rainfall, type of soil and climate. Most of the interviewees indicated that vines need four to seven litres of water per plant per day in the period from the beginning of

January till the end of March. If the days are hotter, the water requirement can rise up to 10 litres. An owner of a small biodynamic vineyard in Canterbury says that there is no need to irrigate vines as vines only need 20 litres of water per plant per year. This is in contrast to the statement of a viticulturist of a large wine company that is SWNZ and ISO 14001 certified. He said: “In 2004 we used 525,000 litres of water per hectare, which means 210 litres per vine per year.” In Marlborough, a large sustainable practising wine company needs approximately 300 litres of water per plant per season for their vineyards. A viticulturist of a large wine company in Marlborough asserted: “It always depends on the type of soil; in some places I don’t need to irrigate at all as rainfall is sufficient, but usually we use 300 litres of water per vine per year. If there is stony ground, the irrigation may reach up to 900 litres of water per plant per year.” A biodynamic company from Central Otago used to use 300 litres of water per vine; now they have been targeting to reduce the water usage down to 80 litres of water per plant per year.

A winery needs approximately two to six times more water than the volume of wine made. Some interviewees admitted that they have no idea how much water wineries need, whereas others indicated that a winery uses 5,000 litres per day. During the vintage the water use exceeds to 10,000 litres per day (medium sized wineries in Canterbury and Central Otago) or up to 20,000 litres per day (medium sized winery in Hawkes Bay). A large company in Hawkes Bay gave a

general overview of how much water they used in 2005/2006 vintage that was 2,856,000 litres of water.

Pesticides and chemicals use

Congruently like the water usage, the use of pesticides and chemicals differs across the industry and the farming methods. The main difference between conventional, sustainable and organic farming is the use of pesticides and synthetic fertilizers. Viticulturists involved in organic and biodynamic production do not use any synthetic chemicals. Sustainable viticulture uses so-called 'soft' sprays containing less aggressive chemicals than those found in conventional farming. While conducting the interviews it was obvious that there is a tendency to use less 'hard' or no chemicals and pesticides. Most viticulturists confirmed that nowadays, before the chemical application they monitor, and therefore reduce the amount of spraying.

The synthetic fertilizers have been replaced by organic lime, which is a natural element not so harmful to the environment. There is also a tendency to use mulches and compost to enhance the nutrients of the soil. However, making their own compost is labour and space demanding. A viticulturist from a small 11 ha organic vineyard pointed out: "I pay $4,000 per year more for the labour." Therefore, making their own compost is not widely done; and conventional and some sustainable companies still apply synthetic fertilizers. On the other hand,

companies following biodynamic or organic practices do not apply synthetic fertilizers and use only compost, direct application of winery waste or combined with seaweeds, manures and lime.

A few companies admitted that 10 to 20 percent of their fertilizers is synthetic, to support the young vines. The next group of wine companies is applying approximately 50 percent of synthetic fertilizers and 50 percent of lime, compost or mulch. Four companies are applying mainly synthetic fertilizers supplemented by the application of mulch, lime and compost.

Also in wine making processes are used chemicals which can be dangerous to the environment, such as caustic soda. These chemicals are used for cleaning and sanitation of the equipment. Some wineries have been trying to reduce the use of harmful chemicals and instead apply biodegradable resources, such as cleanskin, or they use a steam cleaner. “Through using cleanskin, which is a more environmentally friendly product, we are reducing our usage of caustic soda.” Usually wine makers use combination of different chemicals, for instance caustic soda, citric acid, and cleanskin with ozone and hot water. “We always check whether we are using the right product and always use as little as possible.” Because of the content of acid and other substances in the used water, waste water from wineries needs to be treated.

Waste management

Slightly less than half of the interviewed companies use treatment facilities to treat waste water from wineries. These companies utilise the treated water for irrigation of the grass or timber blocks. One interviewee stated: “Waste water is monitored and treated before discharge”. The other companies follow only the minimal treatment to satisfy councils’ requirements though they do not have any treatment facilities and dispose of water into the land. Four interviewees admitted the waste water represents a problem for the wine industry and therefore their aim was to reduce the volume of waste water produced.

Most companies recycle spray containers, packaging materials, plastics, cartons, papers and wine bottles. Two interviewees mentioned that chemical containers are sent back to suppliers. Four companies said that they do not recycle and everything is put into a land fill. A few companies expressed their concern with wine bottles, which are not recycled for further reuse. “It used to work in the South Island, but I think now the recycling facilities are only in Auckland and it is not possible for us to pay all shipping costs, cleaning of bottles…; after all, buying new bottles is cheaper… But definitely, if this was an option in the South Island, I would go for that rather than piling up all the bottles from the wine cellar behind the building.” Some interviewees said that they have been trying to reuse all the materials: “All glass is recycled with Fulton Hogan and

crushed into their roads,…we re-use packaging when appropriate", "Our motto is: reduce, reuse, recycle and compost."

Composting is undertaken by almost half of the companies, some companies give the grape skins and stalks to local farmers for pig or cattle feed, and a few companies send the organic waste to a composting company. Some companies in Marlborough process the seeds from grapes to make oil, which is "good for health".

Certain companies take seriously the problem with waste and aim to reduce waste, compost and recycle, and minimize and treat the waste water from wineries. One company stated: "…vintage waste is composting, what is possible is recycled, and there is actually very little that comes to the landfill."

Environmental activities in the wine industry

Conducted interviews revealed what participants view as important environmental activities in the New Zealand wine industry. Figure 5.3 shows the number of times a particular activity was mentioned.

Almost all of the interviewees see as the most important objective to reduce or not to use pesticides and chemicals in both grape growing and wine making. They see monitoring as an important step before the application of pesticides to

reduce the amount and the frequency of spraying. Also, using friendlier and so called 'softer' cleaners for cleaning and sanitation of the equipment is viewed as important.

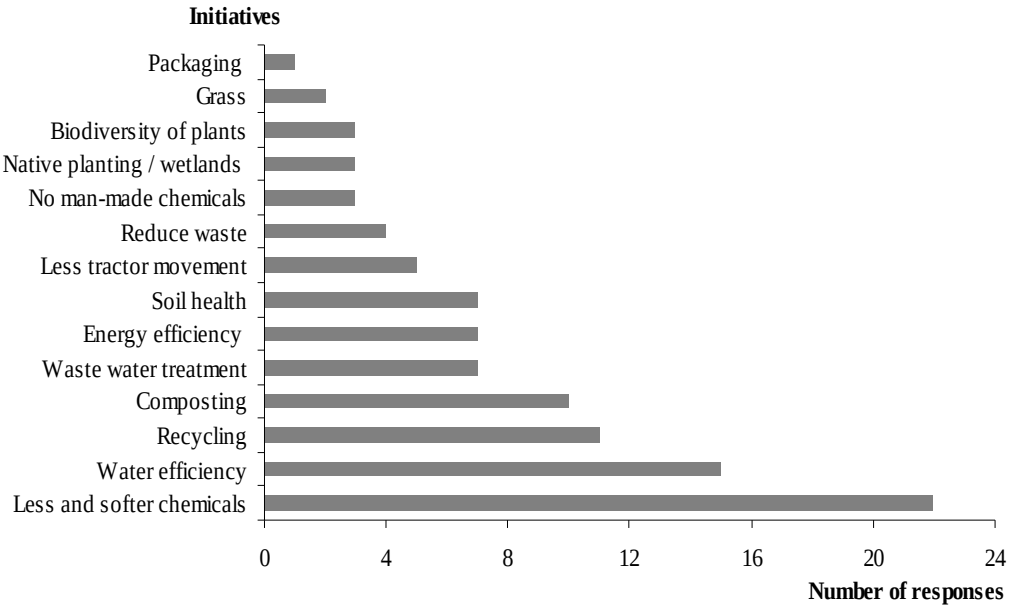


Figure 5.3 Voluntary initiatives in New Zealand wine industry

More than half of the interviewees try to reduce water use. Almost half of the companies do recycling and composting of their waste. Nearly a third of the companies emphasize waste water treatment, energy efficiency, enhancing soil health and stimulating micro-organisms in the soil. Some companies also minimize tractor movements by using multifunction machinery to prevent soil disturbance. This is followed by reducing waste in vineyards and wineries. Companies involved in organic and biodynamic farming do not apply man-made chemicals. A few companies support native planting and wetlands

together with biodiversity of plants to maintain healthy ecosystems and keeping grass between rows. One company is engaging in reducing carbon emission through reducing packaging materials. They highlighted: “Our aim for wineries is to reduce our carbon footprint and for vineyards to be carbon neutral.”

Integrated pest management techniques

Almost all vineyards in New Zealand favour techniques to decrease pests and retain moisture and nutrients in the soil, and thus, reduce the application of pesticides, and irrigation, and increase the health of vines are integrated pest management techniques. Companies are fully or partially involved in practices, such as covering crops, deterring growth of plants which are host to problematic insects, and removing leaves to reduce diseases and pests.

Some of the typical quotes why companies are engaged in integrated pest management techniques are:

“It’s the best management technique…can reduce problem of diseases, and that’s why we don’t need to use chemicals, now we have 30-40 percent less problems with diseases.”

“…reduces requirement for pesticides, so it’s cheap and effective.”

“…help to improve grape quality through air and light penetration.”

Environmental projects and third party certification

Companies' participation in various environmental projects and third party certification is clear evidence of a company's intention to be engaged in CSR practices. According to their needs, beliefs and philosophy, companies choose initiatives they want to be involved in and identify with. Most of the interviewees said that the reasons for doing so were the intention to be recognized as environmentally friendly companies, making stakeholders aware of their practices, telling customers about the premium quality they can offer through their products, providing "the guarantee of where the fruit comes from", and following the market demand especially from overseas. "Why? Because of the market advantage, it's necessary to be sustainable and certified. We won't be able to export to the UK without SWNZ, we also have ISO 14001 as we are not sure whether SWNZ has the same creditability internationally." "We are doing more as we don't want to be only followers but also leaders." For some companies, it is a part of their philosophy and personal belief that "we should minimize the impact on the environment and protect the environment". Others perceive the significant role of marketing.

Certain companies said that for them it is the combination of various motives: "We would like it to be seen that we are doing the right thing, then there are market forces and regulations, and of course a company philosophy". Many

interviewees joined environmental initiatives to obtain information, to learn and experience from others and to access guidance. As interviewees mentioned: “few are stronger than one”, and “it is essential to have a kind of cohesive group, where we help each other”.

The following quotes express interviewees’ attitudes towards the main industry standards:

“Conventional farming is focused only on production; in organic farming, there are too many restrictions; sustainable methods are the best practices.”

“SWNZ is the most practical system available, science based and widely used in industry.”

“Basically, SWNZ is a system of continuous improvement and cost saving.”

“SWNZ is a holistic system rather than separate activities.”

“Why SWNZ? Because it is the standard industry scheme, internationally recognized, balanced, and practical…”

“I would go for BioGro, but if I didn’t spray I would have a problem with Botrytis. With a sustainable programme, I can do spraying after monitoring.”

“Organic production is the next step above sustainability as sustainability is not enough for us.”

“With SWNZ, there was no room for improvement; we want to do more, that’s why we headed towards Demeter (biodynamics)”

Shifts towards sustainable and organic farming

Vineyards and wineries which converted from conventional into sustainable or organic farming have been noticing changes. All interviewees agreed that the changes have had an impact on the environment: "…it is nicer to walk in this environment, walk on the grass, and smell vines without chemicals…", "the vineyard looks different, there are more flowers, more life, and it just looks healthier". As a consequence, the quality of soil has improved: "life in the soil is not killed by herbicides and insecticides, vines are more resistant to drought and diseases and are stronger". All participants also concurred that there is a big improvement in the quality, which leads to production of better wines.

Many interviewees pointed out that they reduced pesticides after converting to sustainable or organic farming; they do not use insecticides and use only 'soft' herbicides. "Before, when we had a problem we sprayed, but now we try to have healthier vines, which produce healthier grapes. So, we have learnt to manage diseases and don't need to use so many chemicals." Some participants admitted that they converted because of market demands and market perception to be seen as 'clean and green' and to be different from others. Only a few interviewees mentioned the economical advantage in shifting to more environmentally friendly practices, such as saving money for chemicals, and a healthy environment for workers. A winemaker from a large wine company concluded that converting to sustainable practices have caused "more awareness

from all employees, which in turn creates a willingness to think about procedures and what elements they are using, such as reducing amount of water going down the drain, turning lights off in unused room. We have taken a better look around Marlborough for recycling options for our packaging waste."

In contrast, some companies conceded: "We have converted into sustainable farming as we have to be sustainable anyway by 2012, so we have started with that from now." "We have converted into sustainable farming because it was a good idea and principle to follow, not because we had any problems before."

Regional differences

While the aim of this research was not to examine the wine industry as a whole rather than to focus on the details of a particular region, the following paragraphs briefly summarize regional differences noticed during the interviews. Table 5.1 sums up the companies' involvement in environmental initiatives by region. Though companies are under particular scheme, it does not always mean they are officially certified. They can be members of a scheme and follow some practices or they can be under the process and plan to be certified soon. For instance, the Bio Dynamic Farming and Gardening Association has more than 50 members in the wine industry who practice biodynamic methods to various degree, though no company is officially certified at the moment.

Table 5.1 Involvement in environmental initiatives by regions

	Conventional	Sustainable	Organic	ISO 14001	Other*
Marlborough	0	7	4	1	4
Hawkes Bay	0	7	0	3	3
Canterbury	0	4	1	0	3
Central Otago	1	1	2	0	0
Total	**1**	**19**	**7**	**4**	**10**

* Carbon Zero, Green Globe 21, Enviro Mark NZ, Glassrite, Cleaning Waipara, Liwing Wine Group

Marlborough, the biggest wine region, has favourable climate and type of soil for grape growing. Demand for grapes from this region is higher than supply, especially for Sauvignon Blanc; therefore, wineries have to buy what is on the market and can not always freely dictate the conditions in which the grapes are grown. As the area is well populated, people in nearby areas complain about spray drifting, noise, light pollution and odour. Odour may be caused by the decomposition of grape marc or composting solid waste, or during the fermentation of the grape juice. Spray drifting from neighbours' application of pesticides can be a problem for organic vineyards. The area faces problems with Phylloxera (the main threat for vines), pests, birds, and frost. A frost risk, especially late spring frost or early autumn frost, can significantly damage a crop. Companies may also have problems with water shortages in the future. Furthermore, interviewees mentioned the problem with waste water and recycling of bottles.

Hawkes Bay's vineyards have problems with fungus, birds and in the last decade with frost. There is a big aquifer under the vineyard, so generally participants do not feel the risk of being short of water. In the Gimblett Road area with gravely soil, it is necessary to apply more fertilizers, nutrition and to irrigate more then in other parts of Hawkes Bay. Neighbours are mainly complaining about noise and odour.

Canterbury region has similar climate and soil conditions as Marlborough and vineyards face similar problems with frost, pest, and birds; excluding the problems with Phylloxera. All interviewees expressed interest in re-using wine bottles, though this is not available at the moment on the South Island.

Central Otago is smaller but the fastest growing wine region in New Zealand. This region is drier with different soil structure to other wine regions in New Zealand, and vineyards need to apply more fertilizers and irrigate more. On the other hand, the relatively low annual rainfall reduces the need for fungal disease spraying. Vineyards face problems with Phylloxera, birds and frost. Neighbours sometimes complain about spray drifting and noise.

This chapter described and discussed the results of the research. This will serve as a base for answering the three research questions of this study and drawing the typology matrix. The typology matrix differentiates four types of organizations according to their involvement in CSR based on the extent of CSR practices and organizations' drivers.

6 Discussion and Conclusion

In this chapter, the three research questions of this study are discussed, compared with relevant literature, and answered: 1. What drives a company to engage in CSR and environmentally sustainable practices? (Chapter 6.1); 2. Which stakeholders are the main drivers of vineyards and wineries' environmental practices? (Chapter 6.2); and 3. What kind of environmental activities do vineyards and wineries initiate on their own? (Chapter 6.3). A description of the typology matrix follows (Chapter 6.4) and conclusions are drawn (Chapter 6.5).

6.1 What drives a company to engage in CSR and environmentally sustainable practices?

The findings suggest that the most important drivers in New Zealand's wine industry are environmental values and personal satisfaction with this profession. This result signifies the importance of personal values, which confirms Quazi's (2003) research, that "corporations are represented by the people and therefore, corporate social commitments are maintained, nurtured and advanced by people who manage them" (p. 822) and Marshall et al.'s (2005) research that environmental values are fundamentally important drivers of proactive environmental behaviour.

The next essential driver is product quality. Product quality is one of the main drivers of companies' social initiatives (Bhattacharya et al., 2004). Respondents view product quality as crucial for success in business. Quality of the final product, wine, relates to the quality of soil. Pesticides and synthetic fertilizers kill the pests, destroy fungus attacking the plant but also kill the other life in the soil, the micro-organisms, bacteria, insects, larvae and yeasts that keep vines strong and immune against attack from diseases and parasites. By enhancing soil quality, viticulturists may grow healthier and stronger vines which produce prime grapes. An excellent wine is made only from first-quality grapes. As Wright (2000) observes, world known wineries are involved in organic principles "because the producers know their value" (p. 18). Final customers are willing to pay a price premium for high quality wines; therefore, organic companies can ask for a price premium for high quality wines, not for their organic production (Fairweather et al., 1999).

This research indicates that currently there is no price incentive for organic production; vineyards do not receive a price premium for grapes grown with organic or sustainable practices and wineries are not willing to pay extra for those grapes. This is clarified by wineries in their grape purchasing decisions. Though environmental practices of contractors are perceived as important, a vineyard's third party certification is viewed as less important. In contrast,

factors such as grape quality, variety of grapes and growing region are appreciated as important factors in purchasing grapes.

Thus, this study confirms the result from Baughman et al.'s (2000) research on the US wine industry that the average price for organic grapes is slightly lower. Further, Fairweather et al. (1999) explain: "Because demand for wine [in New Zealand] is strong they see that there is little incentive for people to grow grapes organically but that growers who are organic will have an advantage in the market when there is a downturn in the industry" (p. 15).

However, the overseas market is more demanding for environmentally friendly processes and products. New Zealand's wineries face market-related environmental pressure, especially those that export to large supermarkets in the UK. Therefore, marketplace expectations and demands by customers take a significant place in decision whether to undertake CSR initiatives.

This implies that even though marketplace expectation plays an important role in decision whether to pursue CSR, the market still does not value CSR initiatives and companies do not receive a price premium.

Environmental compliance with regulations is another aspect which needs to be taken into account in business. Especially, preemption of future regulations is

viewed as very important. For example, the New Zealand Winegrowers' initiatives plans to have all vineyards and wineries operating in accordance with an independently audited sustainability programme by 2012 (New Zealand Wine, 2007a). Companies generally see overseas regulations as more demanding than the New Zealand ones, especially those imposed by regional and district councils. This relates to the overseas demand for more environmentally friendly products and their emphasis on how the products are made, packed, and transported, to name a few.

Differences in costs and profits between conventional and organic methods exist. There is no agreement on which scheme has lower costs and which leads to a higher profit. However, neither cost saving nor profit appear very important in decision-making about CSR practices.

6.2 Which stakeholders are the main drivers of vineyards and wineries' environmental practices?

A number of various stakeholders (compiled from literature review, Chapter 2.2) were explored in this study. The research showed that the most important stakeholders are owners, shareholders, customers, wholesalers and international business. This is not surprising as it confirms the results of the previous research question. For instance, the most important drivers are personal preferences and personal satisfaction with this profession, which interrelates with owners and

shareholders. Customers and international businesses, as the next important stakeholders, are connected with important drivers such as product quality, demand by customers, and regulations. On the other hand, regional and district council regulations are not viewed as difficult to satisfy, therefore government and councils do not appear to be important stakeholders for New Zealand's wine companies. Wineries and vineyards can influence and determine each other's decision-making, such as by supporting environmentally friendly initiatives, and affecting the way the grapes are grown, their quality and variety.

Communication about companies' involvement in CSR initiatives to various stakeholder groups takes many forms. The most obvious ways are through third party certification, companies' web sites, email or phone, and personal communication. Companies also inform their stakeholders of their commitment towards CSR through packaging and information provided on the bottle labels. Even though ecolabelling is viewed as an effective way to convey environmental commitment, companies do not take advantage of this at the moment. The reasons could be that final customers are not fully aware what particular ecolabels mean, and therefore wineries do not want their wine branded as 'strange'.

Commitment to environmental responsibility is also communicated through membership in various organizations or groups, and involvement in

environmental projects. Currently, the most popular scheme in New Zealand's wine industry is SWNZ, which is an industry-led initiative. This confirms Delmas and Toffel's (2004) study that industry pressures significantly influence organizations' decisions to adopt environmental management practices. The research also shows that wine companies in New Zealand are looking into reducing greenhouse gas emissions and are considering becoming Carbon Zero certified.

The reason for certification is not always limited to marketing but also involves obtaining information, education, and training. "Local, regional and industry associations are important sources of information exchange and initiating market-driven certification programs" (Marshall et al., 2005, p. 106).

6.3 What kind of environmental activities do vineyards and wineries initiate on their own?

The wine industry has a significant impact on the environment in both positive and negative ways; however, vineyards and wineries try to minimize the negative impact. They reduce their use of chemicals and utilize softer chemicals. They monitor prior to application of sprays and this helps reduce the amount and frequency of application. The trend to reduce the use of chemicals has already been confirmed by Manktelow et al. (2004). Synthetic fertilizers also impact the environment. Vineyards replace synthetic fertilizers by compost,

direct application of winery waste and lime. However, for some companies, making compost is expensive and space demanding, and therefore composting is not widely used. “Fertilizer is usually not overused in premium wine grape cultivation, as there is an inverse relationship between yield and grape quality” (Baughman et al., 2000, p. 98). In addition, companies become more aware of water use, recycling, composting, and waste water treatment. The research showed that only some companies treat waste water, and water has wasted by some companies. The amount of water needed to grow and process grapes varies. It will always depend on the region. Growers, especially in Marlborough, are concerned about the availability and quality of water supplies, particularly in new growing areas. “As vineyard development expands, existing growers are very concerned that their water supply will be adversely affected by demand from new vineyard developments” (MAF, 2007, p. 80).

According to their philosophy and needs, companies are involved in different farming methods, associations and third party certifications. Willingness to grow grapes in sustainable and organic ways has been increasing, despite the possible higher costs, such as labour costs, and lower crop yield in organic production. However, Fairweather and Campbell (2001) find that: “The economic analyses generally show that while yields decline profits increase under organic production” (p. 22). Nonetheless, viticulturists who converted to

organic farming are delighted by vineyards' appearance with grass, flowers, and healthy soil instead of having burnt soil after application of chemicals.

New Zealand's "clean and green" image and unspoiled nature play a significant role in the perception of New Zealand's products in overseas, and no one wants to spoil this positive picture. Moreover, the "clean and green" image may be perceived by some overseas customers as more powerful than organic production.

6.4 Typology Matrix of Companies Engaging in CSR

Answering the three research questions enabled construction of the typology matrix of this study leading to a more general level of CSR initiatives. The results reveal a link between the extent of CSR practices and companies' drivers. The typology matrix generally characterizing the interviewees' organizations is depicted in Figure 6.1. The specific typology matrix for the New Zealand wine industry will follow in Figure 6.2.

The most important drivers and stakeholders define the horizontal axis. Marketplace expectations, customers' demands, and compliance with regulations are significant drivers influencing the decision-making. Research also showed that the involvement in CSR practices varies across companies, while it always depends on people working in the company as personal values

are the most important drivers of CSR practices. Two conditions need clarification. First, even though CSR is described as a voluntary activity going beyond the law, some companies do only the minimum required for being successful in business. And second, though environmental values appear to be the most important drivers in almost all companies, the perception of the environmental values is individual and varies among managers and companies. Therefore, the compliance drivers have a significant role.

Knowing the extent of companies' CSR activities defines the vertical axis. Companies' involvement in CSR practices varies from limited to enhanced engagement.

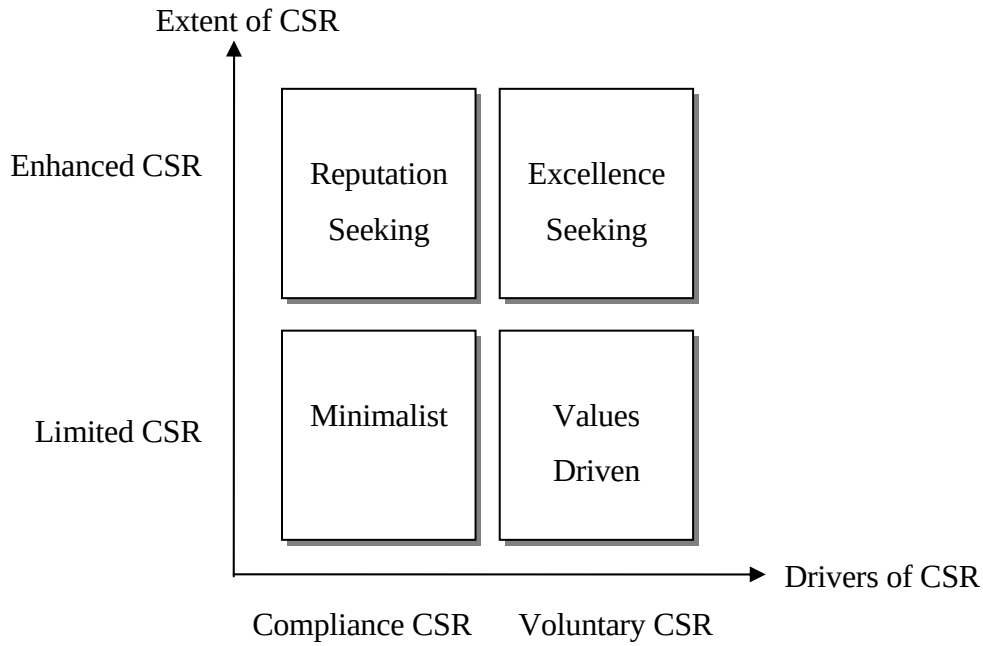


Figure 6.1 Typology matrix of companies engaging in CSR

Thus, the 2 x 2 typology matrix is designed with drivers of CSR initiatives ranging from compliance CSR to voluntary CSR, and the extent of CSR initiatives spanning from limited CSR to enhanced CSR. By dividing the space into quadrants, prototypes of four companies emerge.

Minimalist

The first company type can be called “minimalist”. Managers of this company initiate only limited CSR practices, usually just to cover the compliance standard given by an industry, countries they are exporting to, or retail chains and distributors, to name a few. Their activities are necessity driven. For instance, regulations given in the UK are more demanding in terms of protection of the environment than those in New Zealand. Therefore, if a company wants to export to the UK market, it must follow their environmental requirements and prove that final products were made in sustainable manners with no chemical residues. The reasons why a company is doing more than is required by law includes: following the trend in the industry, attempt to stay competitive in domestic and overseas markets, marketplace regulations, and demands by customers. Companies do not undertake significant investment into CSR, because fulfilling the targets does not require major investments. Marketing of CSR practices is playing a significant role.

Values Driven

A “values driven” company is also involved in limited CSR practices but compared to a “minimalist” company, this involvement is not necessity driven. Personal values, beliefs and satisfaction with this kind of activities are the most important drivers. A company may have restricted resources, such as financial, labour, site location, and climate to be fully engaged in CSR initiatives.

Reputation Seeking

A company initiating an enhanced range of CSR activities while being compliance driven is called a “reputation seeking” company. A “reputation seeking” company wants to be perceived as a leader, not only a follower. This company implements a triple bottom line approach, such as environmental, social (and ethical), and economic responsibility, across the whole company to enhance a company culture. A company has an environmental conscience while pursuing an aim to produce high quality products by utilizing natural resources. Usually all the company’s processes are audited by third party organizations. The company culture and high quality of products are publicized and used for marketing. A company promotes their initiatives by using signs, logos and statements on a packaging and tends to develop ecolabels for further recognition of its brand. A company believes that being proactive brings, for instance, good reputation and image, easier access to domestic and overseas markets, and a

greater ability to attract suppliers and partners. A company also acts on their suppliers to be involved in CSR practices. A “reputation seeking” company tends to benchmark its performance with performance of others in the industry and is based on long-term targets.

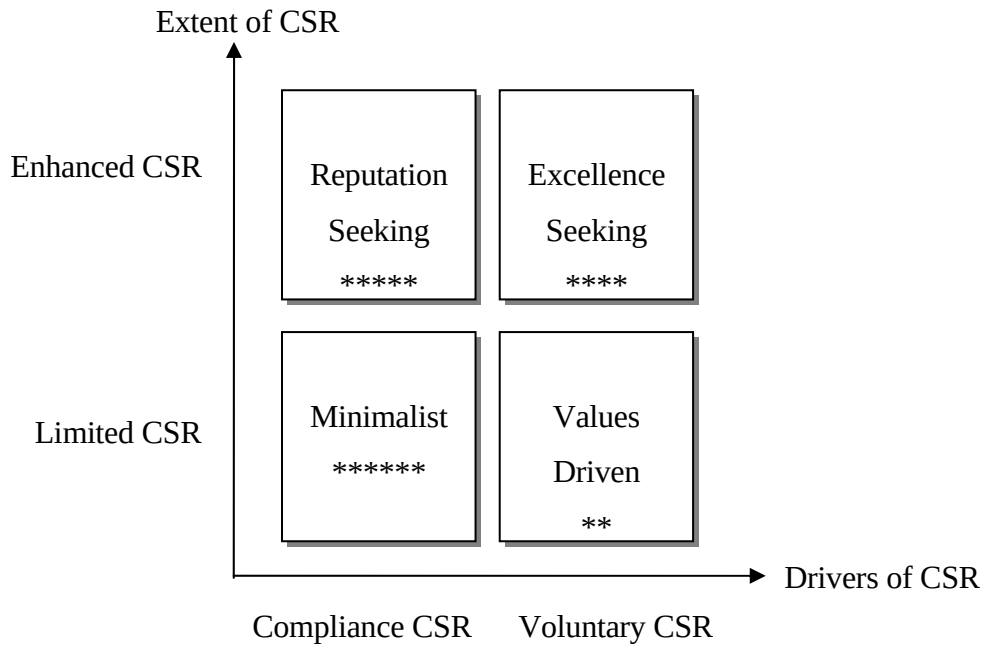
Excellence Seeking

An “excellence seeking” company is involved in a great scale of CSR activities initiated as part of its philosophy. Therefore, all initiatives are voluntary, based on personal beliefs and preferences. For an “excellence seeking” company, the relationship with nature is of great importance and it is considered a long term commitment. Higher labour and costs are tolerated by this kind of company. Its own expectation is usually higher than marketplace expectations and customers’ demand. This company is typically involved, for instance, in organic or biodynamic practices, using it in perpetuity without harming the environment, being self sufficient and reusing everything what has been produced. This allows producing high quality of final products for which the company may ask a price premium.

Practical implication of the typology matrix in New Zealand’s wine industry

Based on the research, the respondents’ organizations were divided according to the general typology matrix into the typology matrix for New Zealand’s wine

industry. The extent of CSR practices and the importance of drivers vary; therefore, various ranges of involvement occur. Some companies fit clearly into their respective boxes, whereas others appear in between. Therefore, the moderate categories were also considered. Figure 6.2 represents the typology matrix for the New Zealand wine industry.



* Number of companies falling into the category

Figure 6.2 Typology matrix of CSR in New Zealand's wine industry

Dividing vineyards and wineries according to the typology model shows that:

- six companies fall into a "minimalist" category;
- five companies belong to a "reputation seeking" category;
- two companies are described as "values driven" companies;
- four companies belong to a "excellence seeking" category;

- two companies are involved in moderate CSR practices being compliance driven;
- two companies practice moderate scale of CSR practices while being values driven;
- two companies are engaged in partially voluntary limited CSR practices;
- and one company is involved in partially voluntary enhanced CSR initiatives.

To sum up, half of the companies are compliance driven, and one-third of companies are engaged in CSR because of their beliefs and values and a few companies initiated partially voluntary CSR activities. Slightly less than half companies are involved either in limited CSR practices or enhanced CSR. A few companies practice moderate range of CSR practices, that means they are doing more than only limited CSR practices; however, it is still not a full engagement.

The following section is based on a general description of the typology matrix from the previous section, including the typical initiatives of New Zealand's vineyards and wineries.

Minimalist in New Zealand's wine industry

A "minimalist" company is involved in practices such as reducing use of chemicals, recycling, composting, monitoring and minimizing water usage and

waste water. A “minimalist” wine company in New Zealand is usually a member of SWNZ.

Values Driven in New Zealand’s wine industry

The company’s activities include minimizing use of chemicals, reducing waste, efficiency in water and energy, treating waste water, recycling, composting, reducing machinery passes, enhancing soil health and supporting micro-organisms and life in the soil, supporting wetlands and biodiversity of plants, and native planting. Apart from being a member of SWNZ, “values driven” wine companies become members of organic and biodynamic associations and various environmental projects.

Reputation Seeking in New Zealand’s wine industry

This type of companies initiate recycling of all rubbish including office waste, composting, reducing energy use and exploiting electricity from renewable sources. A company goes further with reducing carbon emissions, for instance by reducing packaging materials, and bulk shipping. A company also acts coercively on its grape growers, bottles and labels suppliers, and transport companies to name a few, to be involved in CSR practices. A “reputation seeking” wine company is usually a member of SWNZ, ISO 14001 certified, and looking into Carbon Zero certification.

Excellence Seeking in New Zealand wine industry

This company is typically involved in organic or biodynamic practices and while running its business trying not to harm the environment, being self sufficient and reusing everything what has been produced. This company does not apply synthetic fertilizers, minimizes use of chemicals, preferably 'softer', or no man-made chemicals. Recycling, composting, water and energy efficiency, water treatment and enhancing health of the soil and vines are the norm for an "excellence seeking" company. An "excellence seeking" wine company goes beyond sustainable farming and is involved in organic or biodynamic methods.

The research on environmental CSR practices in the New Zealand wine industry indicates that presently, all companies highlight the significance of environmental values; however, half of the companies engage in CSR because of the compliance driven factors. Though, this result was expected and therefore clarified at the beginning of this section. As the lay out of companies in the "minimalist" and the "reputation seeking" sections is approximately the same, it is hard to say what the tendency is.

6.5 Conclusion

Vineyards and wineries in New Zealand have begun to realize the importance of involvement in CSR practices and environmental issues. The aim of this study was to understand what motivates vineyards and wineries in New Zealand to engage in CSR practices, what the drivers of companies' initiatives are, who the most important stakeholders are, and what kind of practices companies initiate on a daily basis. To answer the research questions, open-ended interviews supplemented by quantitative measures were conducted in four wine regions across New Zealand. In terms of the drivers of CSR, the referent model of proactive environmental behaviour proposed by Marshal et al. (2005) was tested.

The research shows that the most important drivers of CSR initiatives are environmental values, personal preferences and satisfaction with this profession. The demand for CSR practices is driven by marketplace expectation and comes mainly from overseas customers. However, even though marketplace expectation plays an important role, the market still does not value CSR initiatives and companies do not receive a price premium for sustainable or organically grown grapes or organic wine. Environmental regulations also play a significant role in decision-making. The reason why preemption of future regulations has obtained such a heavy weighting could be the industry-led

initiative to have all vineyards and wineries in New Zealand under the sustainable scheme by 2012. Overseas regulations are perceived as more demanding compared to the New Zealand ones, especially those implemented by regional and district councils. Overseas markets usually require third party certification to prove companies' environmental commitment. Therefore, third party certification is becoming more common among wine companies.

Owners, shareholders and customers appear to be the most important stakeholders. In New Zealand's wine industry, friendly and helpful relationships between competitors prevail. Even though each company wants to be successful, no one wants to spoil the positive image the New Zealand wine industry has overseas.

The wine industry has significantly reduced the use of chemicals, especially pesticides. Synthetic fertilizers have been replaced by compost and organic lime. Moreover, fertilizers are usually not overused as they can cause a lower quality of grapes. However, the problem with waste water from wineries still exists and there is also some evidence that the wine industry may face serious water shortages in the future.

Answering the three research questions provided the base for constructing the typology matrix characterizing the wine companies' attitude towards

environmental CSR initiatives. The typology identifies four types of companies: Minimalist, Values Driven, Reputation Seeking, and Excellence Seeking. At the moment, half of wine companies in New Zealand are compliance driven with an approximately equal split between limited and enhanced CSR practices; and one-third of companies initiate CSR because of their personal values and beliefs. These companies are rather fully involved in CSR practices than only performing limited CSR.

Practical application of this research extends beyond the wine industry and includes generalizations for involvement in environmental responsibility as a part of the CSR agenda.

6.5.1 Limitations and Implications for Future Research

This research does not attempt to describe differences between particular regions or different companies' sizes; rather it focuses on the industry as a whole. Further limitations of this study, such as method that has been used and time restriction, did not allow focusing on social and economic responsibility and giving the statistical relevance. However, the findings of this study could be used as a base for further qualitative research. Future research could focus on social responsibility as part of the CSR agenda and examine whether the typology matrix is applicable to the social aspect; compare a practical application of this study with other agricultural sectors; or go beyond the wine

industry and New Zealand's market. Other research could examine the role of education, training and providing information by industry organizations and associations as a significant aspect of joining and becoming a member. Future research may focus in more detail on communication between companies and their stakeholders, especially the communication between councils and companies. Further examination would be useful in assessing how customers view logos and ecolabelling used by companies. Arguably, if there were greater awareness, companies may be more willing to become certified by a third party organization. Therefore, there is a need for more extensive research about the drivers and the extent of CSR practices as a whole.

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8 Appendix

Appendix 1: Questionnaire for Semi-structured Interview

General

1. What does the term “environmentally sustainable” mean to you? How could you define it?
2. Please tell me three environmentally sustainable practices in your industry.
3. How can I identify which vineyards and wineries use these practices?
4. What environmental factors do you need to take into account in carrying out your business? How do you take these factors into account?
5. What kind of environmental activities have you initiated on your own?
6. How do wineries influence vineyard’s sustainable practices? (Do wineries influence the way they would like their grapes grown?)
7. How much does marketplace expectation influence your decision to be more environmentally friendly?

   Please mark on a scale: ***Not Important 0 1 2 3 4 5 Very Important***
8. How difficult or easy is it for you to follow regional/district council regulations and regulation for overseas markets?

	Please mark on a scale
Regional/district council regulations	***Easy 0 1 2 3 4 5 Difficult***
Regulation for overseas markets	***Easy 0 1 2 3 4 5 Difficult***

9. Which are the most important drivers of your environmental activities?

   Please mark on a scale: ***Irrelevant 0 1 2 3 4 5 Essential***

   Personal satisfaction with this profession

   Environmental values (personal preference)

   Product quality

   Cost savings

   Profit

   Employees

   Market differentiation

   Demands by customers

   Community groups

   Compliance with current NZ regulations

   Compliance with current overseas regulations

   Preemption of future regulations

   Others (please named them)

10. Who are your most important stakeholders?

    Please mark on a scale: ***Not Important 0 1 2 3 4 5 Very Important***

    Owners

    Shareholders

    Employees

    Customers

    Suppliers

    Local community

    Government/council

    Special-interest groups / Trade union

    Retailers

    Wholesalers and international business

    Competitors in NZ

    Competitors in overseas

    Media

Others (please named them)

11. How do your stakeholders communicate with you?

Please mark on a scale: ***Not used 0 1 2 3 4 5 Well used***

Contract

Word of mouth

Publishing

Web sites / Phone/Email

Customer service

Personal communication

Visiting wine cellar

Other (please specify):

12. How do you communicate with your stakeholders?

Please mark on a scale: ***Not used 0 1 2 3 4 5 Well used***

Newsletter

Advertisement

Personal communication

Phone/Email

Public relations

Packaging

Other (please specify):

13. Do you use ecolabelling to mark your products?
14. What kind of relationship do you have with your competitors? Do you cooperate?
15. What environmental programmes are you involved in or are you member of?
16. Why are you involved in them? What kind of benefits do you have from that?
17. What price premium do vineyards get for grapes grown in organic / sustainable practices?

18. Are wineries willing to pay price premium for these grapes? How much extra are they willing to pay?
19. What are the differences in total costs to maintain and operate an organic / sustainable and conventional vineyard?

Vineyard

What is the planted area in hectares?
When were you established?
When did you converted into sustainable/organic practices?
Do you grow grapes for yourselves or do you also sell grapes?
How many percent of the production is for sell?

1. What kind of practices do you use?
   Organic farming / Sustainable farming / Conventional farming
2. Why have you moved from conventional farming into sustainable farming?
   OR why you haven't used sustainable practices yet?
3. What kind of threats do vineyards face?
4. What do your neighbours complain about?
5. How do you deal with the common rubbish / waste from vineyards? What are the waste handling practices?
6. What percentage of the vineyards fertilizer needs to come from each of the sources?
   …… % synthetic fertilizer
   …… % compost or direct applications of winery waste
   …… % other (please specify):
7. Do you have a problem with water shortages?
8. How much water was required last year and this year for irrigation? (per ha)
9. What type of irrigation system do you use?

10. How many hectares of the vineyards you manage have been certified organic or sustainable by an independent certification agency, such as SWNZ, BioGro, and Demeter?
11. On what percentage of the vineyard do you use 'integrated pest management' techniques?

    …… % Cover crop encouraged or planted in vine row middles

    …… % Winter cover crop maintained for erosion control

    ……..... % Cover crop chosen as an effective habitat for beneficial insects

    …… % Deterring growth of plants which are host to problematic insects

    …… % Removing leaves in the fruit zone to reduce disease, pests, or improve wine quality

    Why do you do / don't do that?
12. What are the criteria in the decision not to pursue certification? Please mark on a scale: No Influence 0 1 2 3 4 5 Very Important

    Restrictions are too tight

    Expense of certification

    Little financial benefit

    Local conditions require pesticide use

    Slow certification process

    Other (please specify):
13. What differences have you noticed after converting into sustainable /organic farming?

Winery

How many percent of the production is for export and for local market?

How many litres of wine are produced?

When did you started with wine making?

When did you become sustainable / organic?

1. Please rate the importance of the following factors in your grape purchasing decisions

   Please mark on a scale: ***Not Important 0 1 2 3 4 5 Very Important***

   Grape quality

   Price

   Growing region

   Variety

   Assurance that vineyard uses organic / sustainable practices

   Vineyard having third party certification

   Loyalty to supplier

   Other (please specify):
2. What kind of feedback do you receive from your customers about sustainable practices?
3. What percentage of your wines fall into each of the following retail price ranges?

   ……% less then $10 per bottle

   ……% $10 - $15 per bottle

   ……% $15 - $20 per bottle

   ……% $20 - $25 per bottle

   ……% more than $25 per bottle
4. What kind of threats does winery have?
5. What do your neighbours complain about?
6. What are the common rubbish / waste from winery?
7. How do you deal with them? What are the waste handling practices?
8. Did you have a problem with water shortages in 2006 and 2007? If so, how did you deal with this?
9. Approximately how much water do you require per year to operate the winery? (include all uses)
10. What is your average wastewater flow per month?

11. What chemicals do you use? How much do you use? How could winery reduce use of chemicals?

Comments and suggestions