MASTER OF BUSINESS

An Investigation Of Web-based Social And Environmental Disclosure Practices In The New Zealand Wine Industry

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ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial degree has been submitted for the qualification of any other degree or diploma of a university or other institution of higher learning.

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ABSTRACT

This research aims to investigate web-based social and environmental disclosure (SED) practices in the New Zealand (NZ) wine industry which consists of both the industry body (NZ Winegrowers) and individual member wine producers.

The method of content analysis of websites was adopted to determine and differentiate 644 member wine producers registered with their industry body and wine industry body's web-based SED. Only 45 of the member wine producers disclosed SED practices via their websites. Further, legitimacy theory was used as the lens to analyse the level and content of disclosures in web-based SED in the NZ wine industry.

The findings were that a legitimacy gap currently exists between the industry body, NZ Winegrowers' expectations and the individual member wine producers' actual performance regarding social and environmental disclosure practices. This study also provides evidence to support previous literature that a positive relationship is observed between the company size and SED. In addition, findings related to the content of the disclosures have revealed that the web-based SED seems to be a strategic method to enrich the NZ Winegrowers and its members' reputation for business success.

Three limitations were considered in this research, (1) the selection of communication media of SED in this study (only focused on web-based disclosures); (2) timing issues of data collection where web disclosure are collected at one point in time; and (3) the use of content analysis which does not analyse how disclosures are being presented or their effects.

The findings of this research provide an insight into web-based SED in the NZ wine industry and identify potential implications for the NZ wine industry – implications which might be beneficial to the NZ wine industry in trading expansion in overseas markets.

CHAPTER ONE: INTRODUCTION

The objective of this study is to investigate the web-based SED of the NZ wine industry and its member wine producers. Chapter one aims to give an overall introduction to the present study, which encompasses four sections. Section one provides a brief background information of SED via websites, whilst, section two discuss the SED practices in the NZ wine industry. Both of these two sections outline the rationale of this research. Further, the third section discusses the research objectives and the three research questions. Finally, the structure of the present study is provided in the last section.

1.1 Background

Over the past decade, business organisations have increasingly recognised the importance of corporate social and environmental responsibilities. Indeed, the importance of social and environmental concerns is globally accepted (Joshi & Gao, 2009). Wilmshurst and Frost (2000) indicate that increased community attention has risen toward the identification of approaches to deal more effectively with environmental issues. In particular, customers are becoming more concerned about the business practices, which influence their purchase behaviours. Berens (2004) reveals that 20% of European consumers are willing to pay more for products believing that to be socially and environmentally responsible. Thus, it appears that consumers are increasingly willing to buy environmentally friendly products. Further, Joshi and Gao (2009) state that consumers may seek to align themselves with business organisations that have a reputation for social responsibility.

Under the pressures of the general public and various stakeholders (e.g., consumers), business organisations have begun to deal with social and environmental issues firmly (Gray & Bebbington, 2001). In other words, business organisations are becoming more responsive to their impact on the environment and society, and attempt to effectively

manage such impacts. As a result, business organisations have increased communication to the community about their responsiveness to social and environmental issues, in particular through SED. Thus, the objective of the business organisation is not simply to maximise stakeholders' wealth, but rather undertake a moral obligation to act in a community acceptable manner (Shocker & Sethi, 1973). In fact, many corporations have benefited from the good corporate citizenship, which has enabled them to greater access to capital, reduced operating costs and enhanced brand reputation (Williams, Medhurst & Drew, 1993).

To achieve such benefits from social and environmental practices, the ability to communicate the organisation's attitudes and performance to stakeholders becomes crucial (Nielsen, 2001). It should be noted that many stakeholders expect a high level of transparency, not only in relation to the environmental performance and practices relevant for organisations, but also communicating performance and practices to stakeholders (Bolivar, 2009). Therefore, the communication media of SED is important to establish a good stakeholder relationship.

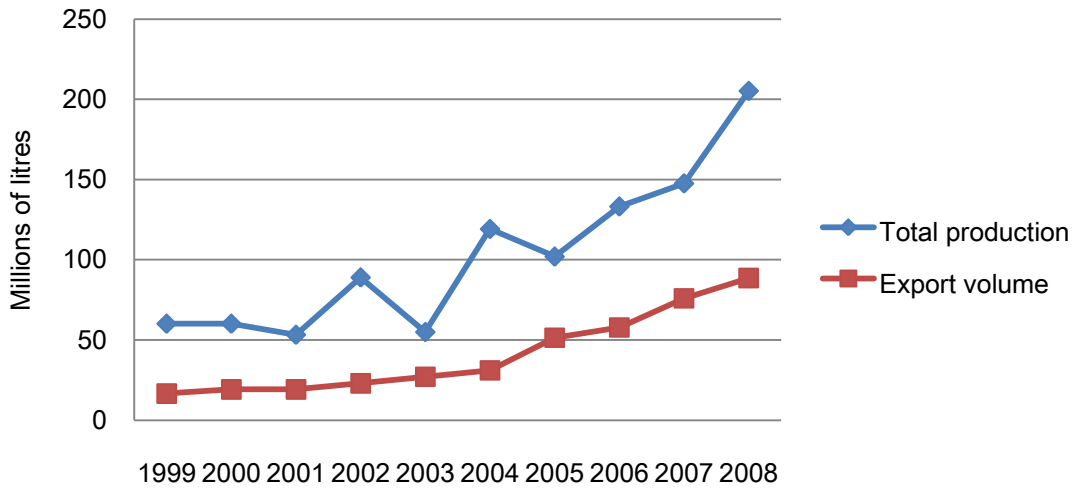
Evidently, numerous studies have encouraged disclosing SED through websites rather than traditional printed reports, because the World Wide Web offers various advantages over the hard copy reports (Bolivar, 2009; Hoffman & Novak, 1996; Griffin, 1993; Keeler, 1995; Liu & Hodonos, 1996; Unerman, 2000; Williams & Pei, 1999; Zeff & Aronson, 1997; Zhivago, 1995). In particular, disseminating disclosures via websites reduces costs when compared to hard-copy reports. Besides this, websites also enables access by a wide range of interested stakeholders (global rather than just national). Websites, therefore, offer high flexibility in presentation and high quality of the information supplied in order to fulfill the interested stakeholders' needs at the right time and in the right format. Indeed, disclosing SED through websites enables business organisations to establish a closer relationship with stakeholders. Although recent studies have investigated web-based SED in different countries and by different industries (Bolivar, 2009; Jose & Lee, 2007; Scott & Jackson, 2002; Williams & Pei, 1999), there appears to

be lack of research done in the NZ context and in the wine industry. Thus, the context for this study, is discussed in the following section.

1.2 SED Practices in the NZ Wine Industry

In order to investigate the SED practices in the NZ wine industry, it is important to study the background and structure of the NZ wine industry. Thus, this section provides a brief summary of the development of the NZ wine industry. Further, the relevance of SED in the NZ wine industry is also discussed to indicate the rationale of this research.

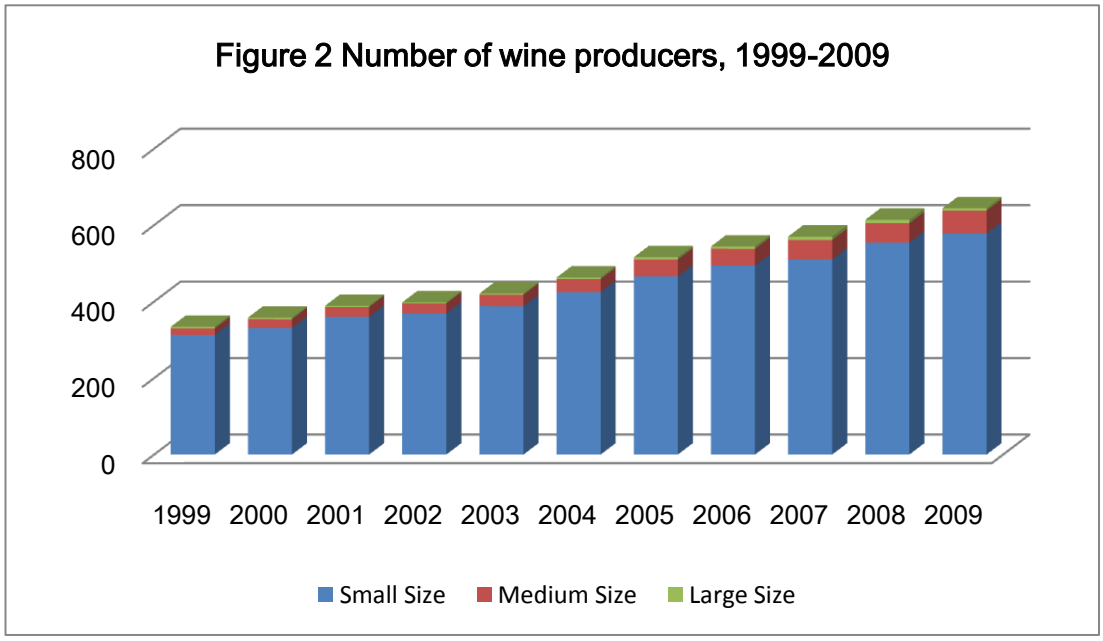
Figure 1 NZ wine industry, total production, export volume, 1999-2008



Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 4

Recently, the NZ wine industry has become one of the fastest growing industries in the NZ economy. As presented in Figure 1, the total production of NZ wine has increased by 241% from 1999 to 2008. Production reached 205.2 millions of litres in 2008. One of the remarkable features is that the export volume has gone up to 88.2 million litres in 2008, which has risen by 700% in the past ten years. Indeed, NZ Winegrowers (a NZ wine industry body) has estimated that the industry has sold 1 billion glasses of wine in nearly 100 countries (Business: At the sweet spot, 2008). Among these, Australia, Europe, the

United Kingdom (UK) and the United States (US) are the major export markets for NZ wines. Further, the number of wine producers has also significantly increased, and the total number for the current year is 644 (Figure 2). Indeed, the fast growth of the NZ wine industry has created an industry which contributes greatly to the NZ economy. This is the primary reason for choosing the NZ wine industry as a site for the present study and analysis.



Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 4

Since the NZ wine industry has now become one of the main economic players in NZ, the general public and stakeholders (e.g., consumers, investors, employees) have an increasing attention in terms of environmental sustainability in the NZ wine industry (Gabzdylova, Raffensperger & Castka, 2009). Considering the growing global perception of environmental protection and rise in export in NZ made wine to overseas markets, it is imperative to undertake innovative environmental practices to add value to the entire NZ wine industry. In fact, NZ has a 'clean and green' country image in the world, which while debated, is a great asset for the wine trading in the overseas markets (Bowden & Gilinsky, 2005). Hence, the present study will attempt to make significant contributions to the NZ wine industry by providing valuable information regarding SED practices via websites.

1.3 Objectives and Research Questions

The purpose of this study is to investigate the SED practices in the NZ wine industry and its member wine producers, specifically, the web-based SED. There are three main reasons for choosing the web-based disclosures and this particular industry. Firstly, the NZ wine industry is currently an un-researched industry in relation to web-based SED. Secondly, as mentioned above, the NZ wine industry is a fast growing industry and becoming more and more important for the country's economy. Thirdly, the researcher is interested in this industry, because an increasing amount of wine is being exported to the researcher's country – China.

There are three research questions examined in this study. The first research question aims to investigate to what extent the NZ wine industry and its member wine producers disclose social and environmental information on their websites. In other words, this research question emphasises the level of the web-based disclosures, which involves the number of the disclosing wine producers and the volume of the disclosures.

The second research question aims to identify what social and environmental information is being disclosed by the NZ wine industry and its member wine producers via their websites. Indeed, the research technique of content analysis will be applied to investigate the contents of the web-based disclosures of the NZ wine industry.

The third research question aims to investigate how legitimacy theory can help to explain the level and content of web-based SED by the NZ wine industry and its member wine producers. Thus, the purpose of this question is to explain the findings from research questions one regarding the level of disclosures and question two the content of disclosures. As such, legitimacy theory and its relevant concepts are applied to explain the level and content of disclosures.

The present study creates an initial understanding of the SED practices for the NZ wine industry by revealing the current SED practices that are followed by the NZ wine

industry and wine producers. The contribution of this research is to add benefits to existing studies in the NZ wine industry (Barker, Lewis & Moran, 2001; Benson-Rea, 2005; Bernabeu, Burgarolas, Martine-Carrasco & Diaz 2008; Beverland, 1998; Beverland & Lockskin, 2001; Clayton & Stevens, 2007; Cooper, 1988, 2002; Dodd, 1995; Fuller, 1997; Hughey, Tait & O'Connell, 2005; King & Morrior, 1997; Wilson & Goddard, 2004). The additional benefit of this study is to enrich the existing literature on SED practices in NZ.

1.4 Structure of the Study

The structure of this study is organised as follows. The following chapter, Chapter Two, provides a detailed review of the previous literature related to web-based SED and legitimacy theory. This review identifies a gap in the literature and subsequently the three research questions are introduced to address this gap. The data collection and research method applied in this study are then discussed in Chapter Three. Some limitations in the techniques used during this study are also included in this chapter. Findings from this study are detailed in Chapter Four, followed by a discussion of the major implications from the results presented in the Chapter Five. Finally, conclusions, limitations and suggestions for future research are outlined in Chapter Six.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relating to SED and legitimacy theory. First, a brief background of SED practices is introduced, which consists of the definitions, driving forces and potential issues. Second, the review examines the most efficient communication media of SED by illustrating stakeholders' pressure and advanced technologies used. In particular, a comparison between website disclosures and traditional hard copy reporting format is made. Third, the review focuses on legitimacy theory, the theoretical framework adopted for the present study. The central idea of legitimacy theory, as it is considered in this research is clarified, followed by a discussion of the related concepts of the social contract and the legitimacy gap. Further, a nexus between SED and legitimacy strategies is identified explaining how business organisations manage their legitimacy. Numerous studies utilising legitimacy theory in SED are summarised. In addition, legitimacy theory and how it relates to this research study is discussed. Finally, the review draws conclusions and presents the research questions which guide this study.

2.2 SED Practices

For years, many business organisations treated social and environmental practices as expenditure and waste capital, which seemed to be irrelevant to business (Evans, 2005). Nowadays, the environmental movement has become an increasing concern around the world, and there appears an increasing demand for SED (Belal, 2000; Yongvanich & Guthrie, 2007). Kolk (2003) indicates countries, such as Japan, Denmark, and the Netherlands, have passed regulations that require some sort of public disclosures of corporate social and environmental information. However the status of disclosing social and environmental information in New Zealand, the context for this study, is currently voluntary.

2.2.1 Definition of SED

Jackson (2005, p. 86) has defined SED as a term to describe the disclosures including "environmental risks, environmental impacts, polices, strategies, targets, costs, liabilities or environmental performance" by an entity. Guthrie and Mathews (1985) illustrate that SED is the provision of financial and non-financial information that discloses an organisation's interactions with its physical and social environment. Thus, SED presents the business organisations' operational practices in the context of society, economy and the environment. SED's are often made within the companies' financial annual report, or a standalone report (e.g., Triple Bottom Line Report, or Social and Environmental Report), or increasingly through mediums, such as company's website. SED in this study includes two formats, which are text and pictorial formats. The text format SED focuses on the word description of the organisations' social and environmental practices, such as such as water and energy waste, organic resource, environmental sustainability development. The pictorial format SED is entirely focusing on the disclosed social and environmental certificate symbols and/or images, such as SWNZ certificate, CarboNZero certificate.

2.2.2 Driving Forces

Jose and Lee (2007) have summarised two distinctive driving forces of the business organisations becoming environmental concerns, namely regulatory pressures and product market concerns (competitors). Indeed, legal and regulatory pressures are the primary determinations of SED. In other words, the increasing concern for environmental issues is primarily driven by the government regulation, which is recognised as a compliance-based paradigm. In that case, corporate environmental responses are more likely to be reactive to the public pressures, in particular regulatory pressures. A number of studies have provided evidence that a higher level of public pressure cause a greater amount of SED (Brown & Deegan, 1998; Deegan, Rankin & Tobin, 2002; Neu, Warsame & Pedwell, 1998; Patten, 2002).

Further, concerns for environmental issues drive business organisations to gain competitive advantage. In fact, it tends to be an external force. Nielsen (2001) points out that gaining competitive advantage from social and environmental practices increasingly depends on a company's ability to communicate the organisations' attitude and performance to stakeholders. Therefore, SED becomes a stakeholder requirement (Jones, Alabaster & Walton, 1998). In the context of the stakeholders' pressures, more and more business organisations have realised the potential benefits of strong reputation for good corporate citizenship through disclosing social and environmental information. Benefits that it could bring about are enhanced brand image, greater access to capital, reduced operating costs, and improved financial performances (Williams et al., 1993).

2.2.3 Potential Issues of Social and Environmental Reporting

Despite known benefits of SED, there appears to be two major problems in social and environmental reporting. Firstly, there is no standardized framework for such reports (however, see discussion of Global Reporting Initiative below) (Jose & Lee, 2007). Thus, the environmental reports are entirely depent on the business content, and vary among the disclosing business organisations. The second problem related to the method of disseminating these reports. Jones et al (1998) note that it is not practical to disseminate all hard copy reports to all interested groups, such as investors, public communities, employees, and consumers.

To overcome these problems, the non-governmental organisations (NGOs) and advanced technologies offer some innovative solutions. NGOs and a number of associations, such as International Standards Organisations' ISO 14001 guidelines and European Union's Eco-Management and Audit Scheme (EMAS), have been introduced as a method to standardize social and environmental practices (Jose & Lee, 2007). Indeed, some standards have been created to provide consistent guidelines for disseminating social and environmental information, for example, Public Environmental

Reporting Initiative (PERI), and the Global Reporting Initiative (GRI) (Jose & Lee, 2007). Among these standards, some common denominators are made in terms of the recommendations for business environmental management, such as environmental policy, management systems, and projects. All these supporting programs are facilitating high quality SED, and also open up a dialogue for business organisations with different stakeholders. Further, the dissemination problems have been mostly resolved by the World Wide Web, which provides a faster, cheaper and customised dissemination tool compared to hard copy reports (Marken, 1998). More details on website disclosures are discussed in the following section.

2.3 SED and Websites

2.3.1 Stakeholders Pressures

According to Oyelere, Laswad and Fisher (2003), web-based disclosures are a recent but fast-growing phenomenon due to stakeholder pressure. Bolivar (2009) also indicates that stakeholders expect a high level of transparency for the disseminating SED. In order to meet stakeholders' expectations, business organisations are increasingly turning to their websites rather than traditional hard copy reports for disclosures (Snider, Hill & Martin, 2003). In fact, the website seems to be the most efficient communication channel to establish good relationships with all interested stakeholders (Bolivar, 2009). Hence, increasing use of websites for SED has become a part of the organisation governance strategy (Shepherd, Abkowitz & Cohen, 2001; Williams & Pei, 1999).

A number of research studies have provided evidence of increasing amount of web-based SED. A study conducted by Paine (2008) found that 40 of the Fortune 50 companies disclose environmental sustainability information on their websites. Likewise, Williams and Pei (1999) investigated Australia and Singapore based companies, and found that they provided more SED on websites than in hard copy reports. Further, in

2002 the KPMG Survey of Corporate Sustainability Report showed an increasing number of companies using the website as a tool to communicate their social and environmental performance (Jose & Lee, 2007). It can therefore be seen more and more that business organisations use websites for SED. Apart from stakeholders' pressures, advanced technology also facilitates the use of websites instead of hard copy reports for SED.

2.3.2 Comparison of Websites and Hard Copy Reports in the Literature

Websites offer various advantages over traditional hard copy reports (Williams & Pei, 1999). The comparison of websites and hard copy report from the literature are summarised in Table 1. One of the main advantages of web-based SED is that it is cost-effective in comparison to hard copy reports. When business organisations disclose social and environmental information on their websites, they no longer bear any realised costs, such as printing and postage, which usually contribute a great deal to the organisation's budget (Bolivar, 2009). In addition, the cost of updating online information is relatively small. Therefore, disseminating SED through websites is effective in saving costs when compared to print media.

Moreover, the website format also enables stakeholders to access the SED in virtual real time, whereas hard copy reports are comparatively less timely and less useful to decision makers (Ashbagh, Johnston & Warfield, 1999; Koreto, 1997; Spaul & Green, 1997). Obviously, websites can be updated immediately, and stakeholders can therefore always access up-to-date information at any time of the day. By contrast, if the hard copy reports are delayed due to reasons such as mailing from overseas countries, the information in the hard copy reports could be out of date once received (Williams & Pei, 1999). Therefore, the hard copy format may result in a gap between stakeholders' needs and information that business organisations provide. Hence, the website format

could be more efficient to meet the stakeholders' needs by providing updated SED at any time.

Table 1 Comparison between hard copy reports and websites

Characteristic	Hard copy reports	Websites
Nature of Stakeholders	Active	Active
Users of information	Limited	All the users of the corporate website
Two way communication	No	Yes
Speed of communication	Moderate	Fast
Level of stakeholder interactivity with medium	Moderate	Very high
Nature of disclosed information	Standard, to meet compulsory rules	Customised social and environmental disclosures
Stakeholder control over content received	Limited	Yes
Updating information	Regularly, with a certain delay regarding the date of issuance	Continual
Ability of the medium to establish one-to-one relationship with stakeholder	No	Yes
Time to access the message by the stakeholders	Dependent upon when stakeholder wants to read hard copy reports	The website is available whenever stakeholder wants
Space availability of medium	Limited by page size	Unlimited
Graphic contents	Yes	Yes
Audio contents	No	Yes
Flexibility to move the site to a more suitable location	No	Yes

Sources: Bolivar (2009); Hoffman and Novak (1996); Griffin (1993); Keeler (1995); Liu and Hodonos (1996); Williams and Pei (1999); Zeff and Aronson (1997); Zhivago (1995)

The ability to build a one-to-one relationship with stakeholders via websites is another feature that business organisations may find advantageous compared to the production of hard copy reports (Isenmann & Lenz, 2001). Unerman (2000) indicates that websites are recognised as the most efficient communication tool compared to others such as hard copy reports, because it enables the business organisations to reach a wide range of stakeholders. Further, William and Pei (1990) state that websites have e-mail facilities and other communication devices, which enables stakeholders to clarify and query the

provider immediately upon receiving information. This feature is not available with hard copy reports. In facts, some business organisations provides feedback forms with the hard copy reports to stakeholders, but there is a timing concern to collect the forms back and respond to the stakeholders. Therefore, the website provides an opportunity to discuss between the business organisation and their stakeholders at the right time. Further, the website format can also maintain the relationships with stakeholders by building continual dialogue (Graafland, Eijffinger & SmidJohan, 2004). As a result, a closer relationship with stakeholders can be established through the use of website format.

In addition, websites allow business organisations to disclose a larger volume of information than by traditional hard copy reports (Cormier, Ledoux & Magnan, 2009). In other words, the website format enlarges the capacity of disclosures. Bolivar (2009) states that traditional hard copy reports have limited capacity to respond to all interested stakeholders' information demands. Apart from the disclosure capacity, the advanced technology also increases the capacity of information storage in computer. Accordingly, additional computer storage devices empower the business organisations to expand the amount of SED that they wish to disclose through their websites (Williams & Pei, 1999).

Websites also has international congruence that potentially promotes harmonisation in SED practices (Williams & Pei, 1999). Scott and Jackson (2002) state that websites provide a global meeting ground for all parties interested in social and environmental communication. In particular, through the websites, the independent numbers of interested stakeholders can easily be accessed and social and environmental information exchanged from any location at any time. Indeed, the providers' reputations can be enhanced by actively fostering social and ecological values. In other words, a strong reputation for good corporate citizenship can be gained through disclosing social and environmental information.

In short, websites enables business organisations to fulfill most interested stakeholders'

needs at the right time and in the right format so that stakeholders can benefit from the information disclosed. To date, websites offer high flexibility in presentation and high quality of the information supplied, making it an efficient communication channel for SED practices compared to hard copy reports. Due to the increasing move towards web-based disclosures of social and environmental information, this study focuses on the web-based SED. Whilst considering the importance of disclosing media for SED, the theoretical framework for such disclosures is also important for the present study. Accordingly, legitimacy theory will be introduced in the following section.

2.4 Legitimacy theory

This section provides an overview of legitimacy theory. Legitimacy theory has been widely used in accounting studies as a theoretical framework to explain SED. As Gray, Kouhy and Lavers (1995a) mention, legitimacy theory is the dominating theory in SED studies. However, legitimacy theory is still considered to be an under-developed theory (Deegan, 2002). In relation to the present study, a legitimacy theory framework is adopted to interpret the legitimacy strategies of the SED by the NZ wine industry and its member wine producers.

Legitimacy theory is viewed as a positive theory used to provide explanations of why business management undertake certain actions, such as SED (Deegan, 2007). Legitimacy theory is also considered to be a systems-oriented theory. According to Gray and Owen and Adams (1996, p. 45), “a systems- oriented view of the organisation and society … permits us to focus on the role of information and disclosure in the relationship(s) between organisations, the State, individuals and groups”.

In terms of systems-oriented explanation, business organisations are assumed to be influenced by society, whilst, society also influences the operations of the business organisation (Deegan, 2002). Thus, a systems-oriented perspective represents the interaction phenomena between business organisations and the broader social system.

To influence the external perceptions of the environmental activities of business organisations, strategies of corporate disclosures are seen to be one major tool for management (Buhr, 1998; Neu et al., 1998; Suchman, 1995).

Further, legitimacy theory is derived from political economy theory, which consists of social, political and economic framework in which human life is taking place (Deegan, 2002; Gray et al., 1996). Thus, the political economy theory identifies the power conflicts between various groups within society (Deegan, 2002). Since legitimacy theory is embedded in political economy theory, it creates a broader societal issue that how economic activities operate within the social, political and economic contexts and what information should be elected to be disclosed (Deegan, 2007). In other words, a business organisation is part of a broad social system that does not have an inherent right to operate independently (Mathews, 1993; Patten, 1991). But, if society considers the business organisations are operating in a legitimate manner, society will confer resources for the organisations continuing survival. Hence, there is a social contract between the economic activities of the organisations and society.

2.4.1 Social Contract

Legitimacy theory is based on the notion of the 'social contract'. The social contract is an intangible agreement that is used to explain the ongoing relationship between business and society (Shocker & Sethi, 1973). The social contract is used to represent a multitude of expectations that society has on how an organisation should conduct its operating practices (Guthrie, Petty, Yongvanich & Ricceri, 2004). However, society's expectations are not always fixed, rather they change over time (Deegan, 2002; Dowling & Pfeffer, 1975). Therefore, business organisations need to be responsive to the changing context within which they operate.

Gray et al (1996) note that the social contract itself consists of both explicit and implicit terms. The explicit terms are considered to be the legal requirements, whereas the implicit terms are in the form of non-legislated societal expectations. Thus, the implicit

terms are interpreted among business organisations and vary from one to another. As a result, business organisations respond differently to society's expectations (or perceived expectations). Even though, business organisations should be aware of their obligations, not only to maximise shareholders' wealth, but also operate in a socially and environmentally responsible manner. Thus, in order to serve stakeholders, management must attempt to obtain and maintain legitimacy to continue operating (Mathews, 1995). Therefore, it can be considered that the social contract has a direct link with the notion of legitimacy.

2.4.1.1 What Is Legitimacy?

Lindblom (1994, p. 2) defines legitimacy from an organisation's perspective, as "a condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy". Accordingly, legitimacy results in access to resources on which business organisations are dependent on survival (Dowling & Pfeffer, 1975; O'Donovan, 2002). Legitimacy is conferred by the external parties that outside the business organisations, but may be controlled by the organisations (O'Donovan, 2002; Woodward, Edwards & Birkin, 2001). According to this strategic perspective of legitimacy, Suchman (1995, p. 572) has defined that "strategic organisational legitimacy views legitimacy as a resources that management can use by manipulating and deploying evocative symbols to obtain societal support." Therefore, under such a strategic perspective, legitimacy can, to a certain extent, controlled by organisations (Ashforth & Gibbs, 1990; Oliver 1991).

In order to secure legitimacy, business organisations should operate as a legitimate organisation to meet society's expectations (Dowling & Pfeffer, 1975). In other words, business organisations have obligations to operate in a society's acceptable manner in context of social contract. During the legitimation process, business organisations are

attempting to increase their perceived legitimacy in order to fulfill expectations of the social contract. As a result, it will achieve congruence between the organisations and society.

An organisation's survival may be threatened if society perceives that the organisation has breached its obligations to the social contract (Deegan, 2002; Dowling & Pfeffer, 1975). When an organisation's operations are not acceptable by society, there is a threat to the social contract. Society may then revoke the resources needed for an organisation to continue its operations. For instance, the customer demand for the product of the business may drop. The brand image of the business may also be destroyed (Deegan, 2007).

2.4.1.2 Legitimacy Gap

Threats of the social contract can lead to a legitimacy gap. The term legitimacy gap describes the inconsistency between society's expectations and actual or perceived behaviours of an organisation. Wartick and Mahon (1994) have summarised three conditions where a legitimacy gap may arise. First, a legitimacy gap can be incurred when societal expectations of corporate performance are changed, while the organisations are operating in the same manner as they always have (Deegan, 2007). This relates to the fact that legitimacy itself is a dynamic concept (Lindblom, 1994). Second, when corporate performance changes and society does not, legitimacy gap can occur even though the societal expectations of corporate performance remain the same. Third, a legitimacy gap can exist when organisation's operations and societal expectations diverge or turn into the same direction with a lead/lag relationship (Wartick & Mahon, 1994).

To minimise the legitimacy gap, business organisations can respond to the changing context in which they operate (Deegan, 2000). Dowling and Pfeffer (1975) indicate that business organisation may take certain actions to increase their perceived legitimacy,

because high a level of legitimacy may attract required resources for their continued operations. For instance, business organisations may attempt to change social perceptions, expectations, or values during the legitimation process. Indeed, to effectively manage organisational legitimacy, it is important for business organisations to implement legitimacy strategies that rely upon disclosures. Hence, the link between SED and legitimacy are discussed below.

2.4.2 Managing Organisational Legitimacy

2.4.2.1 The Importance of Disclosures to Legitimacy

As mentioned above, legitimacy is conferred by external parties of organisations. Legitimacy, therefore, heavily dependent on the communication between business organisations and relevant public (Staden & Hooks, 2007). Thus, it is crucial that business organisations provide disclosures about its operations to the relevant public (Buhr, 1998; Deegan et al., 2002). Deegan (2002) also emphasises that information is necessary to change perceptions. Therefore, business organisations' voluntary disclosures of social and environmental practices is an efficient method to manage legitimacy (Joshi & Gao, 2009).

Legitimacy theory claims that the intentions of business organisations who produce SED demonstrate their responsibilities to operate in an acceptable manner. In other words, certain management action, such as disclosing SED, appears a reflection of actual conformation with society's expectations, or a result of the business organisations attempts to increase their perceived legitimacy (Dowling & Pfeffer, 1975). Further, Deegan and Rankin and Voght (2000) found that business organisations change their disclosure policies around the time of industry related social events.

2.4.2.2 Legitimacy Strategy

Legitimacy theory highlights that strategies are considered as one important means for management to influence relevant public perceptions about their organisation. Many research studies have been undertaken to address the strategy to obtain and/or maintain legitimacy in order to achieve congruence between society's expectations and business organisation operations. According to Aerts and Cormier (2009), they have indicated that a strategic legitimacy perspective has been widely utilised in environmental disclosures research in recent years. A strategic perspective of legitimacy theory is also the focus of the present study. Especially, Lindblom's (1994) four alternative legitimacy strategies are utilised.

Lindblom's (1994) four course alternative strategies have developed on the basis of Dowling and Pfeffers' (1975) three legitimacy tactics. According to Dowling and Pfeffers (1975, p127), firstly, business organisations "can adapt its output, goals and methods of operation to conform to prevailing definitions of legitimacy". Secondly, business organisations "can attempt, through communication, to alter the definition of social legitimacy so that it conforms to the organisations' present practices, output and values" (Dowling & Pfeffer, 1975, p127). Thirdly, business organisations "through communication can attempt to become identified with symbols, values or institutions which have a strong base of legitimacy" (Dowling & Pfeffer, 1975, p127).

Consistent with Dowling and Pfeffer's (1975) legitimacy strategies, Lindblom (1994) refines how business organisations can gain, and/or maintain legitimacy by articulating four alternative legitimacy strategies. The first strategy involves the internal adjustment by the organisation to bring its outputs, methods, and goals into conformity with the relevant publics' expectations (Lindblom, 1994). Thus, business organisations may use corporate social disclosures to "educate and inform the relevant public about the changed performance" (Lindblom, 1994, p. 13). In other words, business organisations can change their operating practices and subsequently disclose these practices through

SED. This represents actual changes of business operations in order to fulfill society's expectations.

Gray et al (1995a) indicate that this strategy is chosen in response to an arising of a legitimacy gap from an actual failure of performance by the organisations and where correct actions are taken to rectify that failure. Deegan (2007) provides an example to explain, which is from the leading sportswear company, Nike. It is well know that Nike have been heavily criticised due to its sweetshop (underpaid wages to manufacturing employees), which significantly impacted the retail power of Nike's products (Deegan, 2007). Hence, a legitimacy gap arose. In order to react to the relevant public concerns, Nike took certain actions to reduce the gap, which they disclosed through their websites. The outcome of the implementation of such legitimacy strategy, Nike regained (at least some) legitimacy by disclosing its changing business practices.

Suchman (1995) also uses organisations' tactical objectives, such as repairing legitimacy to illustrate Lindblom's (1994) first legitimacy strategy. Repairing legitimacy represents a reactive response to different levels of unforeseen events adverse to the organisations (Suchman, 1995). For example, the Exxon Valdez oil spill and the Union Carbide's Bhopal chemical accident are the precipitated legitimacy crisis for the business organisations (Mobus, 2005). Thus, a legitimacy gap arises due to its unacceptable business operations. As a result, the familiar legitimating routines of the organisations may no longer be effective. Hence, business organisations need to restructure to regain the organisational legitimacy. Corporate social and environmental disclosures are often part of this strategy (Suchman, 1995). It is observed that disclosing actual changing practices seems to be an effective legitimacy strategy to implement when a legitimacy gap exists.

Lindblom's (1994, p. 14) second strategy involves business organisations "attempt to demonstrate the appropriateness of outputs, methods, and goals to the relevant public through education and information with no changes in organisations behaviours and

societal expectations". Accordingly, the strategy is chosen to alter society perceptions of an organisation's actions when business organisations decide that no corrective action is required, despite a legitimacy gap arising from misperception of the relevant public (Gray et al., 1995a; Yongvanich & Guthrie, 2007). Indeed, corporate social disclosures can be used to change the misperception of the relevant public (Lindblom, 1994).

In considering the objective of undertaking such legitimacy strategy, business organisations aim to gain organisational legitimacy. Suchman (1995) states that gaining legitimacy is an objective when business organisations enter into a new area with little knowledge of operating conditions. Thus, business organisations need to proactively make efforts to win acceptance. In particular, gaining legitimacy can only focus on the qualification given by the new area, but also for the practice itself within in the culture domain. To achieve the objective of gaining legitimacy, business organisations are required to define and negotiate the parameters of legitimacy, and then disclose to the relevant public with its fully legitimate activities in conformity to its proposed parameters (Mobus, 2005). Those illustrations of Suchman's gaining legitimacy objective provide insight to the Lindblom's second strategy.

An example of the second legitimacy strategy identified by Lindblom would be explained regarding the activities of tobacco companies. More recently, society has given an increasing critique about tobacco companies because their products are considered harmful to health (Deegan, 2007). To respond to the community's concerns, a number of tobacco companies have started to disclose social and environmental information and produce social and environmental reports. Within the reports, companies have disclosed that the customers make a choice to smoke cigarettes, and that this shows their responsibility to fulfill the legal requirements (Deegan, 2007). Further, the reports also emphasised the work of the tobacco companies within the community, such as supporting sporting events (Deegan, 2007). In that way, the tobacco companies are seeking changes of the society's definitions through its efforts to discourage younger

smokers and satisfy legal demands. As a result, the business organisations reduced the legitimacy gap by seeking changes of the society's definitions.

A third legitimacy strategy, according to Lindblom (1994, p. 15), involves "identifying organisational outputs, methods, and goals with the popular perception of what is appropriate" without any attempt to change actual performance. Hence, corporate social disclosures may be used to manipulate perceptions by deflecting attention from the issue of concern to other related issues through associating with symbols which have high legitimate status (Lindblom, 1994). Therefore, this strategy consists of the manipulation of perception, and is chosen where business organisations do not take corrective actions or change societal expectations, but rather make disclosures to deflect attention from issues of concern through an appeal to emotive symbols (Yongvanich & Guthrie, 2007).

Gray et al (1995a) provide some illustrations of Lindblom's third legitimacy strategy. When an organisation with a legitimacy gap regarding its polluting operations chooses to ignore the unacceptable pollution practices and instead discloses its involvement with environmental charities. Further, Deegan and Unerman (2006) have used one Australian industry as an example to demonstrate this point. The Australian Mineral Council has developed a code of environmental management, which is required to be followed by its members (Deegan & Unerman, 2006). Indeed, the code is conceived to be a symbol of legitimacy. Accordingly, the companies that have this symbol could be an environmental qualified participant in the industry, even with a legitimacy gap. As a result, those membership companies have achieved a legitimacy status without a change to their actual performances or society's expectations.

Lindblom's (1994) final strategy involves attempts to change the relevant public's expectations of business organisations. In other words, business organisations seek an adjustment to societal expectations. Gray et al (1995a) determine the condition to choose this strategy, especially, when business ogranisations perceive the relevant

pubic have unrealistic or incorrect expectations of their responsibilities. Therefore, business organisations decide not to take corrective action, and instead undertake or attempt to undertake an alteration to society's expectations. Further, Lindblom (1994) emphasises that the corporate social disclosures can be used to bring society's expectations in line with business organisations' output, methods, and goals.

The example of Australian Mineral industry mentioned earlier can also be explained by Lindblom's final strategy. The companies that have the industrial code of environmental management will be recognised as environmentally friendly. Thus, even though there is a legitimacy gap exists, the companies can still gain and/or maintain its legitimacy by bring society's expectation in line with their operations. In other words, the code is conceived to be an industrial assurance to fulfil the society's expectations. Accordingly, the membership companies can alter the society's expectation without undertake any corrective actions in their operations.

Maintaining legitimacy can be one crucial objective for the business organisations to adopt in all cases referred to above (Suchman, 1995). As Mobus (2005) suggests, a big challenge to legitimacy that requires maintenance is due to the inconsistencies and/or transgressions, or modifications of its definition. Consequently, business organisations should have abilities to anticipate changing community perceptions by disclosing evidence of ongoing practices. Suchman (1995) also outlines that equal weight of concerns should be given to both actions, which are forecasting future changes and protesting past accomplishments. In other words, business organisations cannot rely on its beliefs, rather they need to keep monitoring business practices and societal expectations to ensure they are in close alignment. At the same time, business organisations should also be more careful to protect the legitimacy they have already gained (Suchman, 1995). In short, the aim of maintaining legitimacy is to avoid the organisational legitimacy deviation from standards that have already been established.

By reviewing Lindblom's four alternative legitimacy strategies, it appears that a legitimacy strategy can be reactive or proactive in nature dependent on organisational management decisions (Lindblom, 1994). As mentioned previously, a reactive legitimacy strategy is more likely to be used to reduce the legitimacy gap, such as repairing legitimacy. In contrast, a proactive legitimacy strategy will be undertaken by business organisations to prevent incurring a legitimacy gap, such as gaining and/or maintaining legitimacy. Therefore, each of the four legitimacy strategies is applicable in both the context of reactive and proactive strategies (Lindblom, 1994).

Importantly, all legitimacy strategies rely upon disclosure. Deegan (2007) points out that disclosing information to the relevant public is essentially needed to influence the perceptions of legitimacy. Therefore, to effectively manage organisational legitimacy, business organisations should adopt suitable legitimacy strategies for SED. A number of the social and environmental studies that use legitimacy theory to analyse SED practices will be drawn upon in the following section to illustrate these links.

2.4.3 Legitimacy Theory in SED Studies

Legitimacy theory has been widely used in social and environmental studies in accounting. Numerous accounting studies have adopted legitimacy theory to explain and predict management activities in relation to SED (Adams, Hill & Robert, 1998; Brown & Deegan, 1998; Deegan, 2002; Deegan & Gordon, 1996; Deegan & Rankin, 1996; Roberts, 1992; Staden & Hook, 2007). Deegan (2002) clarifies that legitimacy theory influences the management strategies to use externally-focused reports to benefit organisations. Such strategies will improve organisation's reputation, enhances borrowing capacity, and fulfill community expectations. Thus, the importance is to change the management thinking regarding SED of organisations in order to achieve legitimacy.

In Gray et al's (1995a) study, they found an increasing trend of SED in the health and safety industry. Evidently, the increased disclosures not only did demonstrate the improved health and safety records, rather gave increasing concerns for protecting and training their workforce (Gray et al., 1995a). Thus, the disclosures enable the organisations in the health and safety industry to achieve the congruency with the society's expectations.

Indeed, legitimacy theory is effectively applied to investigate the motivations of the organisations that disclose SED. In Brown and Deegan's (1998) study, they found that media can be an influencing factor to cause increasing corporate social disclosures. In other words, the high level of media concerns results in a significant high level of SED in annual reports.

Moreover, legitimacy theory is also applicable to predict relationships between environmental responsiveness and disclosures. Staden and Hook (2007) evaluated the quality and the extent of organisations' corporate social disclosures in terms of legitimacy theory. They found that the organisations' corporate social disclosures reflect their environmental responsiveness and the disclosing organisations have undertaken a proactive approach to organisational legitimacy (Staden & Hook, 2007). In addition, Cormier and Gordon (2001) have recognised that ownership status and size of the organisation may also have an effect on legitimacy which influences the magnitude of the corporate social disclosures.

In addition, legitimacy theory has been used to explain the corporate disclosure reactions to a major social and environmental incident (Deegan & Rankin, 1996; Patten, 1992; Aerts & Cormier, 2009). Patten (1992) found that there is a significant increase of environmental disclosures in an annual report of the petroleum companies, due to the effects of the Exxon Valdez incident in Alaska in 1989. Patten (1992) also argued that the impacts of oil spilling considered as a threat to the legitimacy of the petroleum

industry. The results of the study show a strong correlation between threats to legitimacy theory and increasing environmental disclosures in the annual reports.

Likewise, Deegan and Rankin (1996) identified there was a positive correlation between organisations who were prosecuted for environmental damage and their level of SED. The intention of the organisations with increasing SED is to offset any adverse effects of environmental prosecutions (Deegan & Rankin, 1996). They also explore that disclosures of the prosecuted organisations were more significant on social and environmental impacts compared to non-prosecuted organisations. Similarly, Aerts and Cormier (2009) found that perceived environmental legitimacy was positively affected by reactive environmental press releases rather than proactive press releases. Thus, business organsiations were likely to disclose more social and environmental information when there was a negative media release about them.

Legitimacy theory is also useful to investigate the relationship between the business organisations characteristics and the volume of disclosures. In particular, a positive relationship between the size (turnover) of the business organisation and the magnitude of disclosures has been heavily emphasised in the past literature (Cowen, Ferreri & Parker, 1987; Deegan & Gordon, 1996; Elibert & Parket, 1973; Gray et al., 1995a; Pang; 1982; Spicer, 1989; Trotman & Bradley, 1981; Watts & Zimmerman, 1978). Further, a positive relationship between environmentally sensitive industries and the volume of SED has also been revealed by the previous literatures (Campbell, 2003, 2004; Savage, Cataldo & Rowlands, 2002; Wilmshurst & Frost, 2000). Evidently, the environmentally sensitive industries, such as oil, mining and chemical industries, have been found to impart a greater level of legitimacy to the relevant public than organisations operating in industries that have stable environmental conditions.

2.4.4 Legitimacy Theory and the Present Study

Legitimacy theory is the most appropriate theoretical framework for the present study. This study aims to investigate the SED practices in the NZ wine industry, the adoption of legitimacy theory framework enables an in-depth analysis to be conducted, especially, some rational explanations of the disclosure patterns. Accordingly, the concept of social contract will be used with regard to the obligations of the NZ wine industry. By exploring the legitimacy definition of the NZ wine industry, some SED practices can be explained. Indeed, the legitimacy strategies will be highlighted in order to understand why the NZ wine industry undertakes certain social and environment actions. In summary, legitimacy theory is utilised as a theoretical foundation to conduct this research.

2.5 Conclusion and Research Questions

This chapter has provided a background of the SED practices through business organisations' websites. Due to the regulatory and stakeholders' pressures, business organisations are becoming more and more aware of their moral obligations to voluntary disclose SED. In order to fulfill interested stakeholders expectations, websites seem to be the most efficient communication channel to establish a closer relationship with stakeholders. Further, in respect of legitimacy theory, social contract represents that business organisations are required to be responsible for their operational practices. Thus, business organisations should not breach its obligations and operate in society in an acceptable manner. In addition, legitimacy strategies that rely upon disclosures are likely to be an effective method for the business organisations to manage their legitimacy. By reviewing a number of SED studies that use legitimacy theory, it is observed that legitimacy theory is the central theory in the field to explain organisational management decisions on SED.

After summarising the relevant literature, it can be noticed that a number of studies have investigated the efficient communication media for SED, especially websites format. Similarly, studies have utilised legitimacy theory as theoretical framework to explain why business organisations undertake SED practices in variety of industries in different

countries. However, there is a lack of research investigating the SED practices in an important and growing NZ industry – the NZ wine industry.

Therefore, the following research questions are developed for this study:

1. To what extent does the New Zealand wine industry (consisting of both the wine industry association and wine producers) disclose social and environmental information on their websites?
2. What social and environmental information is being disclosed by the New Zealand wine industry (consisting of both the wine industry association and the wine producers) on their websites?
3. How can legitimacy theory help explain the level and content of social and environmental web-based disclosures by the New Zealand wine industry?

CHAPTER THREE: RESEARCH METHOD

3.1 Introduction

This chapter illustrate the methodology used in this study, and comprises of three sections. The first section, section 3.2, reviews the NZ wine industry and provides background knowledge for this research study. The second section discusses the data collection process and the data collected in this research project. The third section presents detailed discussions on method of data analysis for each of the three questions. Finally, conclusions are drawn on the data and method.

3.2 NZ Wine Industry Review

3.2.1 Introduction

This section reviews the NZ wine industry in order to provide a detailed background to the study. The development of the NZ wine industry has been initially clarified. An overall view of the growth and status of the NZ wine industry is introduced. This is followed by an explanation of the industry structure that lays out the main players and groups that dominate the development of the NZ wine industry. Further, the operations of the wine industry in the NZ context are discussed by focusing on the domestic economy with special reference to employment, tourism, and export earnings.

3.2.2 The Development of the New Zealand Wine Industry

3.2.2.1The Nineteenth Century

The origins of the NZ wine industry commenced when Samuel Marsden planted the first grapevine at Kerikeri in the Bay of Islands in 1819 (Cooper, 1988). Twenty years later, James Busby, was appointed as the first British resident (in NZ at the Bay of Islands in

1932, and was regarded as the first wine producer in NZ (Benson-Rea, 2005). However, in 1845, Busby's vineyard was ruined by troops camping at Waitangi. A few years after, the French Marist missionaries arrived at Hokianga bringing French vine cuttings on board, and the first vineyard was established in Hawkes' Bay in 1851, named as the Mission vineyards, which became the oldest enterprise in NZ.

In 1869, Joseph Soler, a Spanish winemaker who made his first wine at Wanganui, produced 20,000 bottles of wine annually (Cooper, 1988). Following Soler's example, Joseph Vidal established a large vineyard in Hawkes Bay, which belonged to the Villa Maria Estate now. In the end of the century, the New Zealand Department of Agriculture was reformed, and appointed Romeo Bragato as the government viticulturist to advise on phylloxera problems and national wine productions (Cooper, 1988). Accordingly, Cooper (2002) stated that the NZ wine industry was increasingly viewed as a new and potentially major avenue for the economic development of the country.

3.2.2.2 The Twentieth Century

In the early twentieth century, Corban established his 4 acres vineyard in Henderson, which became the oldest Dalmatian vineyard in NZ (Cooper, 2002). Due to the First World War, the wine industry was prohibited. But the wine industry flourished during the period of the Second World War opened. Furthermore, government regulations and legislation on making and selling NZ wine also facilitated the growth of wine industry from 1956. For instance, the taxation adjustments and wine sales in restaurants encouraged the demand for table wines, which resulted in double the number of wineshops in 1965 (Cooper, 1988).

From 1970 onwards, the NZ wine industry heavily focused on the trade protectionism that encouraged foreign investments (Barker et al., 2001). Large companies such as Montana, Corbans and Penfolds New Zealand, benefited significantly from the foreign investments. Besides, three large private wineries were also dominating the industry,

namely Villa Maria Estate, Delegat's and Nobilo. During that period, the NZ Winegrowers also played a crucial role in developing and executing an industry plan in order to meet the government policy and regulations. In 1990, there was a dramatic increase of NZ wine exports by promoting quality wine. At the same time, supermarket wine sales took half shares of local retail wine market (Barker et al., 2001).

3.2.2.3 The Twenty First Century

Montana, Corbans and Penfolds were partially controlled by the foreign ownership in the twenty century, whilst Australia BRL Hardy gained control of NZ wineries in early 2000. Thereafter, the ownership of the NZ wine industry started to transform to overseas companies. Currently, over 80% of the companies in NZ winemaking industry is owned by overseas companies (Bowden & Gilinsky, 2005). As mentioned previously, there are six large wine companies that have annual sales more than 2 million litres. However, half of them are controlled by overseas interests.

NZ's largest wine producer Montana was acquired by Pernod Ricard NZ Ltd in 2001, which is controlled by a French spirits conglomerate. The second largest NZ wine company, Constellation New Zealand is controlled by the world's largest wine producer, US based Constellation, and owns Nobilo Wine Group, Kim Crawford, Dryland and Monkey Bay brands. Likewise, Matua Valley, NZ sixth largest wine producer was acquired by Australian Foster Group during the period of 2001-2004. Due to the fact that many of the largest wine producers are controlled by overseas companies, more than half of the NZ wine outputs are in foreign hands. Another three NZ large wine producers, Delegat's, Villa Maria Estate and Giesen, remain private family owned.

Except for the large global conglomerate which has obtained controls of the NZ wine industry, some private foreign investors are also interested in NZ wineries and vineyards to develop their own brands. Cooper (2008) has outlined some NZ wine companies that are partially or wholly controlled by overseas companies, such as, Sacred Hill, Dry River,

Crossroads, Palliser, Trinity Hill, and Craggy Range.

This global trend of ownership consolidation brings big challenges for the NZ wine industry. Indeed, the increasing foreign controls of NZ wine business have facilitated the development of the industry in many different ways. Obviously, overseas conglomerates have given support to expand the NZ wine industry. For instance, overseas investors help NZ wineries and grape growers to manage the problem of supply shortage in varieties grapes, such as Sauvignon Blanc (Robobank, 2006). Further, joint ventures with larger foreign wine group enable the local wineries to easily access the international markets and new technology, which the NZ wineries have never gained before.

Furthermore, the owner of Villa Maria Estate, George Fistonich worries that the large foreign owned companies focus on their individual needs rather than the industry needs of the domestic market (Campbell, 2008). To support this observation, Ross Spence, one of the founders of the Matua Valley, has observed that Pernod Ricard is currently making a great effort to expand its vineyards in the top grape growing area to ensure the overall quality of the company's wines (Cooper, 2008).

Based on the above discussions, it is observed that the foreign investments are not always creating positive influences to the NZ wine industry. The annual report of the NZ Winegrowers in 2008 has highlighted that “becoming one of the world’s great wine countries means understanding what we have been looking after rather than exploiting it” (NZ Winegrowers, 2008a, p.3). It is therefore important to draw attention to the impact of foreign investment in the NZ wine industry, whilst the foreign investors also need to pay more attention to the local needs. In that way, the NZ wine industry will continue to flourish. The following section discusses the composition of the NZ wine industry.

3.2.3 The Composition of the NZ Wine Industry

The NZ wine industry has rapidly grown since the middle 1980s (Barker et al., 2001). The key indicators of the NZ wine industry are summarised in Table 2 (for detailed information refer to Appendices 3, 4, and 5), which shows a significant growth of the wine industry over the last decade. Typically, the number of major wine growing regions has gone up from only one in 1819 to ten in 2008 (refer to map in Appendix 3), at the same time, the NZ wineries have kept pace with growing regions. From 1990 to 2008, the number of licensed wine producers has increased from 334 to 585 (Table 2). Currently, the total number of NZ licensed wine producers has reached 644.

Table 2 Key indicators of New Zealand Wine Industry

Indicator	1999	2008	% change
Number of wineries	334	644 (year 2009)	**93**↑
Producing area(tonnes per hectare)	9000	29,310	**226**↑
Average yield (tonnes per hectare)	8.9	9.7	**9**↑
Average grape price (NZ$ per tonne)	1,054	2,161	**105**↑
Tonnes Crushed (thousands)	79.9	285	**257**↑
Total Production (millions of litres)	60.2	205.2	**241**↑
Domestic sales of NZ wine (litres NZ wine)	38.4	46.5	**21**↑
Consumption per capital NZ wine (litres NZ wine)	10.1	11.1	**10**↑
Export volume (millions of litres)	16.6	88.6	**434**↑
Export value (million of NZ$ FOB)	125.3	797.8	**538**↑

The NZ Winegrowers has categorised the NZ wine producers into three categories based on annual turnover. Category I is formed by six producers consisting of Pernod Ricard (Montana), Constellation (Nobilo), Delegat's, Villa Maria Estate, Matua Valley and Giesen Wine Estate, with annual sales of more than 2 million litres by each company. The number of companies in category I has dropped from 9 to 6 from last year, and still continues to perform satisfactorily. Evidently, Montana and Nobilo Wine Group are now controlled by global wine companies. Further, the local family-owned Villa Maria still continues to performances well (Bowden & Gilinsky, 2005).

Category II comprises 60 wine producers that have annual sales between 200,000 and 2 million litres, and includes brands such as Palliser Estate, Sacred Hill, Cloudy Bay and Mission Estate. The category III consists 578 small size wine producers that have annual sales less than 200,000 litres, which shows a significant increase of 85% during the past ten years (Appendix 4). Even companies with small turnover are still marketing strong, high-class brands, such as Dry River, Ata Rangi, and Fromm Winer. Wilson and Goddard (2004) comment that the biggest portion of small wineries in the NZ wine industry represents small investors and lifestylers that are highly attracted to this industry.

In line with the growth of wine regions and wineries, the total production of grapes has dramatically gone up from 9,000 hectares in 1999 to 29,310 hectares in 2008 (Table 2). Simultaneously, the production of grape varieties have been transformed from generic grape varieties (such as Albany Surprise, Baco 22A) to the French vinifera varieties, such as Sauvignon Blanc, Chardonnay, Pinot Nori, Merlot, and Riesling grapes (Barker et al., 2001) (refer to Appendix 6).

Whilst, the average yield has fluctuated during 1999 to 2008, the domestic wine sales have dropped during 2007 to 2008 due to economic pressure (NZ Winegrowers, 2008a). Further, taking an overall view of the domestic market, the total volume of wine sales has gradually grown from 38.4 litres in 1999 to 46.5 litres in 2008 (NZ Winegrowers, 2008b). Hence, it is noted that the NZ wine industry is enjoying growth over the last ten years. To create a clear understanding of the NZ wine industry, it is important to study the structure of the NZ wine industry in more detail.

3.2.4 Industry Structure

The Wine Institute of New Zealand (WINZ) was formed in 1975 to self-regulate and focus on national activities to collect and disseminate relevant information to the local wineries and grape growers. WINZ was a key industry body in the structure of the NZ

wine industry. In March 2002, the NZ Winegrowers was established by a merger between the WINZ and the NZ Grape Growers Council (established in 1968), and became a unified industry organisation to represent, enhance and develop the collective interests of winemakers and grape growers in NZ (NZ Winegrowers, 2007). In other words, the NZ wine industry body is no long known as the WINZ, rather renamed as the NZ Winegrowers. The objectives of the NZ Winegrowers are to promote, represent and research national and international interests of the NZ wine industry and NZ wine makers (New Zealand Winegrowers, 2007). Indeed, each grape grower and/or wine maker is required by law to belong to the single industry body.

Sustainable Winegrowing NZ (SWNZ) is an industry initiative directed through NZ Winegrowers, and was established in August 1995, and commercially introduced in 1997 (NZ Winegrowers, 2007). SWNZ conducts programs for continual improvements, and aims to develop and enhance "best practice" (environmentally sound, social responsible, economically viable best practices) in both vineyards and wineries (Clayton & Stevens, 2007). Accordingly, SWNZ was formed to encourage and assist the local grape growers and wine makers to develop their environmentally sustainable strategies.

In addition, SWNZ also provides guidelines to assist members in development of environmental management systems. Taking advantage of the assistance given by SWNZ, Hughey et al (2005) in their study reported that over 60% of NZ wine companies have adopted environmental management systems. Likewise, the vineyards and wineries membership to SWNZ has dramatically increased (Table 3). The NZ Winegrowers statistical annual report 2008 shows that SWNZ membership of wineries has increased by 50% during the period 2004 to 2008, and the total membership of wineries is 77 (refer to Table 3). Similarly, SWNZ membership of vineyards has gone up from 403 to 683 since 2004 to 2008[1]. The figures indicate that more and more vineyards and wineries are taking advantage of SWNZ program in order to achieve "best practice"

[1] The difference in two different membership numbers (NZ Winegrowers & SWNZ) is due to the fact that producers who have vineyard and manufacturing unit have multiple memberships for SWNZ

operations. The following discussions will explain operational practices of the NZ wine industry in a greater detail.

Table 3 Membership of Sustainable Winegrowing New Zealand from 1999-2008

	1999-2003	2004	2005	2006	2007	2008
Sustainable Winegrowing NZ Membership Vineyards	N/A	403	431	432	457	683
Sustainable Winegrowing NZ Membership Wineries	N/A	30	51	53	59	77
Total Membership	N/A	433	482	485	516	760

Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 4

3.2.5 How does the Wine Industry Operate in NZ

3.2.5.1 Employment and Contribution to Economy

It is well known that the NZ has a small population and agricultural economy. Economic data for the country is presented in Table 4. In 2008, the population of NZ reached to 4,271,100, and the number of people employed was 2,209,000 (Statistics NZ, 2008).

Table 4 Selected New Zealand Country Data

	Annual Data	Historical Averages
Key Economic Data	Actual 2008	2003-2008
Population	4,271,100	
Population growth		1.2%
Real GDP Growth	0.2%	3.3%
CPI inflation		3.1%
Current account balance as a % of GDP		-7.5%
Employment	2,209,000	
Unemployment rate	4.7%	
Exchange rate (avg) US$: NZ$	0.71	
Key Tourism Data		
International visitors	(000s)	
Australia	976	
United States of America	212	

United Kingdom	285
Japan	102
South Korea	79
China	112

Source: Statistics New Zealand

Since the NZ wineries have rapidly grown over the last ten years, it reflects significant contributions of the wine industry to the country's GDP and employment levels. The NZ Institute of Economic Research (2009) has reported that the wine industry employs about 16,568 full time equivalent workers, which adds $1.52 billion in the value (GDP) to the NZ economy. The NZ wine industry especially important to some regions for example, in the Marlborough region, the wine industry contributes 20% of the regions GDP, and approximate 4,000 local people are working in the industry (NZ Institute of Economic Research, 2009).

3.2.5.2 Wine Tourism

Wine tourism also creates benefits for the country (Dodd, 1995; Fuller, 1997; King & Morris, 1997). In respect of travel motivations, wine tourism is becoming an additional driver for NZ tourism. In 2006, about 225,000 international wine tourists visited NZ and spent around $907 million (NZ Institute of Economic Research, 2009). Thus, wine tourism draws significant income to the NZ economy. The benefits of wine tourism are not only for the country's economy, but also provide challenges for local wineries and grape growers. For instance, foreign wine tourism provides education opportunities for the NZ wine producers, and an alternative distribution outlet, especially for small wineries (Beverland, 1998).

Further, increasing wine tourism also enlarges the growth of the overall tourism industry. Alonso and Fraser and Cohen (2007) have indicated that tourism is one of the large contributors in foreign exchange earnings of the country. In 2007, NZ tourism had experienced a significant growth showing that the total tourism income had reached $20.1 billion. Based on that, the international tourism contributed $8.8 billion to the total

NZ exports in 2007 (Statistics NZ, 2008). By the end of June 2009, there were 2.4 million international visitor, who contributed $6,016 million to the economy. In comparison to the previous year, income dropped by 2.6% in total international visitor income. However, the average spending by the tourists continues to show an increase from $2,742 in 2007 to $2,750 in 2009 (Statistics NZ, 2008). It should be noted that the Ministry of Tourism has forecast that international visitors will increase to 2.9 million in 2015 (Statistics NZ, 2008).

3.2.5.3 Export Sales

Apart from the contribution to international tourism, the NZ wine industry is also rapidly growing in international export markets. Over the past decade, NZ wine exports have increased by 700%. The NZ Winegrowers annual report 2008 indicates that NZ wine exports had increased from $125 million in 1999 to $797 million in 2008 (refer to Appendix 7). According to a Robobank report for 2006, the varietal wines made from Sauvignon Blanc grapes are sitting at the top of the markets, and account for about 30% of domestic production and 70% of NZ wine exports (Robobank, 2006).

Further, NZ Winegrowers has estimated that the industry has sold 1 billion glasses of wine in nearly 100 countries (Business: At the sweet spot, 2008). Among these, Australia, Europe, the UK, and the US are the major export markets of the NZ wines. The Winegrowers has summarised that the NZ wine sales has increased by 7% in volume in the UK, whilst, increase 24% in volume in Australia from 2007 to 2008 (NZ Winegrowers, 2008a). At the same time, the NZ wine in the US market has gone up by 4% in volume, and rose 39% in volume in Canada. Besides these, NZ wine is continuing to flourish in Germany and Asia.

However, the volume of NZ wine in the worldwide standard only comprises a small percentage. Bowden and Gilinsky (2005) point out that NZ wines only take 0.2% of the world’s total production, even though the NZ wine bottle price remains high with its

guaranteed high quality. Beverland (1998) comments that NZ wine has been successfully achieving its strategy as a high quality wine producer by ranking second only to France, which has the highest free on board price per litre in the UK's sale charts. For instance, the selling price of the NZ wine in UK's supermarkets has gone up by 85% since 2006, and has increased to 5 pounds (NZ$12.5) or over per bottle in 2007 (Robobank, 2006). The average bottle sale price in Germany has attained to NZ$70.67 (NZ Winegrowers, 2008b). It is observed that the high returns of NZ wine exports seem to be the driving force for local wineries to continue promoting quality wines. As Beverland (1998) says the development of the export market is seen as the key for future success in the NZ wine industry. Accordingly, the future development of the NZ wine industry should be given equal weight to its economic aspects and operations.

3.2.6 Conclusion

In conclusion, the NZ wine industry has been performing remarkably well over the past ten years by achieving its strategy of being a global quality wine producer. During that period, NZ Winegrowers has provided support to local wineries and grape growers through education and providing valuable resources. Especially, NZ Winegrowers and its initiative program have made efforts to educate and assist member wine producers to produce environmental friendly products. Thus, the wine industry body has concern regarding to social and environmental issues. The outcome of the process shows in different ways that the employment in the wine industry, wine tourism and wine exports contribute significantly to the NZ economy. The following section discusses the process of data selection and collection.

3.3 Data Selection and Collection

The purpose of this section is to explain how data was selected and used in this research. Since the main objective of the research is to investigate the web-based SED practices in the NZ wine industry, the research is conducted on the NZ wine industry

body – NZ Winegrowers and NZ wine producers.

Accordingly, the study focuses on the entire NZ wine industry. The reasons for choosing the NZ wine industry as the vehicle for the present study are summarised into three facets. Firstly, the wine industry is one of the fastest growing industries in NZ. The NZ wine industry is becoming more and more important to the economy. Secondly, the industry is currently under researched in SED practices. Thirdly, the researcher is interested in this industry, because an increasing amount of wine is being exported to the researcher's country – China.

Further, this research focuses on secondary data that is available in the wine industry and wine producers' websites. As Bryman and Bell (2007) comment, secondary data benefits researchers due to the less time consuming process of data collection. Since secondary data is validated data, it enables researchers to create high quality of data analysis. Besides, secondary data may offer new interpretations (Bryman & Bell, 2007).

In the initial stage, all current associated membership wine producers (these include grape growers and/or wine makers) of the NZ Winegrowers were selected. The NZ Winegrowers is the single body of the NZ wine industry, and all wine producers are legally required to register with the NZ Winegrowers (for detailed information refer to section 3.2.4). Therefore, the inclusion of all wine producers for membership enables the present study to generalise the industrial analysis. Consequently, 644 wine producers were selected as target wine producers (refer to Appendix 1).

Since this research aims to investigate the SED practices in the NZ wine industry, the selection of the population was based on the criteria of the wine producers that disclose social and environmental practice through their websites. Hence, in the second stage, the process was to check the websites of each member of the population.

As a result, 45 out of 644 wine producers were identified as those who disclose social

and environmental information and practices through their websites. Among these 45 disclosing wine producers, 4 large size producers had annual sales of more than 2,000,000 litres, whilst 18 wine producers had a turnover between 200,000 and 2,000,000 litres. The others (23 wine producers) had their annual sales below 200,000 litres (Table 5). The sample size was limited to these 45 representative wine producers.

Table 5 Summary of the SED disclosing wine producers

Category I Large wine producers, annual wine sales exceeding 2 ,000,000 litres		
Pernod Ricard NZ Ltd (Montana)	Delegat's Wine Estate Ltd	Kim Crawford Winery
Vidal Estate Ltd		
Category II Medium wine producers, annual wine sale between 200,000 – 2,000,000 litres		
Ager Sectus Wine Estate Ltd	C J Pask Winery Ltd	Cape Campbell Wines
Craggy Range Vineyards Ltd	Hunter's Wines (NZ) Ltd	Jackson Estate Ltd
Kahurangi Estate	Palliser Estate Wines of Martinborough	Sacred Hill Wines Ltd
Seifried Estate	Sileni Estate Ltd	Spy Valley Wines
Te Mata Estate Winery Ltd	The NZ Wine Company Ltd	Waimea Estate (Nelson) Ltd
Yealands Estate Wines Ltd	Mission Estate Winery	Wairau River Wines Ltd
Category III Small wine producers, annual wine sales not exceeding 200,000 litres		
Amisfield Wine Company	Askerne Winery	Ascension Wine Estate Ltd
Bridge Pa Vineyards Ltd	Brunton Road Wines Ltd	Dry River Wines Ltd
Gibbston highgate Estate	Gladstone Vineyard	High Plains Wine Co Ltd
Kaimira Ventures	Martinborough Vineyard Estates Ltd	Mt Rosa Wines Ltd
Mondillo Vineyards	Mudbrick Vineyard/Shepherds Point Vineyard	Mundo Vira Winery
Nga Waka Vineyard	Orinoco Vineyards	Owhanake Bay Estate
Ra Nui Wines Ltd	Ruby Bay Vineyard	The Hay Paddock Ltd
Te Whau Vineyard Ltd	Woollaston Estate Ltd	

The wine producers consist of two groups, namely wine growers and winemakers. The wine growers are the owners of the vineyards, and the winemakers are the wineries and wine companies. However, some of the wineries or vineyards are owned by the same wine company, which leads to potential issues for data analysis. Therefore, the third stage was to clarify the business structure of the 45 representative wine producers, and refine the size of population. Accordingly, the 45 selected wine producers were divided into three categories as vineyard, winery, and wine company, and then identified the

structure of the selected wineries and vineyards to ensure the reliability of the population.

A review of the 45 wine producers shows that there are 10 vineyards, 6 wineries, and 29 wine companies. However, none of them are owned by the same wine companies, rather they are privately owned, or partially and wholly owned by overseas controls. Since the present research aims to investigate an industrial analysis, the final population of wine producers was kept at 45.

Furthermore, the involvement of two groups (wine makers and winegrowers) referred to above is also adding value to the data analysis and finding generalisations. According to Gabzdylova et al (2009), vineyards and wineries use lots of water which can cause wastewater environmental problems. Similarly, the wine companies use chemicals, which can also pollute air, surface water and soil. Besides, disposal of plastic waste should be taken into account as well. Hence, the operational practices of different groups of wine producers enabled the researcher to conduct a comprehensive analysis of the NZ wine industry regarding its SED practice.

Furthermore, since the study investigated both the NZ wine industry body and wine producers, the web-based SED that had disclosed by the NZ wine industry body was also collected. As mentioned in section 3.2.4, NZ Winegrowers is the signal body of the NZ wine industry, and SWNZ is the initiative program for environmental sustainable development. Therefore, the web-based SED was collected from both NZ Winegrowers and SWNZ's websites in order to create a meaningful analysis for the NZ wine industry as a whole.

In view of the current global need of the environmental practices, the selection of web disclosures data is of paramount importance. The web-based disclosures are all from the current year of 2009. Dates when the information was accessed is which shown in the Appendix 2. However, disclosures in websites are updated more regularly compared

to hard copy reports. For instance, some websites are updated monthly, and some even weekly. Therefore, it should be noted that there could be modifications to the contents of the web-based disclosures subsequent to collection of data to the present study (refer to Appendix 2). The following section discusses the research method for data analysis.

3. 4 Method of Data Analysis

This section discusses the method of data analysis. This discussion is divided into three sub-sections on the basis of the three research questions presented previously. Section one focuses mainly on the process of analysing data to address question one on the level of the disclosures, while question two addresses the content of the disclosures. Research question three uses legitimacy theory as a theoretical framework to explain the level and content of the disclosures.

3.4.1 Level of Disclosures in SED

The aim of the first research question is to investigate to what extent the NZ wine industry discloses social and environmental information on their websites. In other words, this research question emphasises the levels of disclosure. Accordingly, two relevant considerations are taken into account to examine this question, namely the number of wine producers disclosing SED, and the volume of disclosure. The methods of analysis for these two angles are as follow.

3.4.1.1 Number of Wine Producers Disclosing SED

There were three steps involved in defining the number of wine producers disclosing SED. Since this research is designed as an industry analysis, the selection of the wine producers should represent the entire wine industry in NZ. Therefore, the first step was to find out the total number of wine producers within the industry. As mentioned previously, NZ Winegrowers is the single body of the NZ wine industry, and all wine

producers (include wine makers and winegrowers) are legally required to join the membership of the NZ Winegrowers. Hence, accessing all wine producers from NZ Winegrowers website (http://www.nzwine.com/) was undertaken. Appendix 1 represents a list of membership of wine producers of the NZ Winegrowers, and the total membership is currently 644.

The second step is to access the websites of each member of NZ Winegrowers, and then check for disclosure of SED. Some of the producers' websites do provide a clear link to social and environmental information, such as an Environment Policy, Sustainability, and Virtual Philosophy. However, websites of a few wine producers did not give clear links, for example to information to Vineyards, Achievements and Further Directions. Therefore, it was necessary to click all links that are available on the websites to ensure the complete validity of the checking process. It should be noted that the text format web-disclosures is entirely focusing on the word description of social and environmental information and practices. Thus, the disclosed web-based social and environmental documents were not included, such as PDF documents[2]. Besides, the forms of such disclosures were not only relying on text, but also on the pictorial presentations, such as SWNZ certificate symbol. Bryman and Bell (2007) have stated that pictorial disclosure enriches the understanding of the organisational process. Thus, the criteria for disclosing SED encompass both text and pictorial formats.

Having checked websites for SED, the third step moves into the business structures classification of the wine producers. At this stage, the researcher only focused on the wine producers that disclose SED via websites. As known, business structures were commonly reported in the organisations' websites, the researcher needed to look over the wine producers' websites to find out their business structures, in particularly, business profiles and/or history. Accordingly, the number of the wine producers disclosing SED can be accurately identified (Refer to the section 3.3).

[2] It should be noted that the NZ Winegrowers annual report year 2008 have been read to gain understanding for the section of NZ wine industry review.

3.4.1.2 The Volume of Disclosure

In considering the volume of disclosure, it is important to define the criteria of disclosure measurement at the initial stage. Once the measurement criteria were defined, the researcher could measure the disclosures. Hence, the key factor of measuring the volume of disclosure was to establish efficient criteria. Since the disclosure contains two different formats, namely text and pictorial, the measurement criteria for each format are different.

In terms of text format disclosure, there are three main methods of disclosure measurements, namely words, measurement proportions per page, and sentences (Ahmad & Slainman, 2004). Among these measurements, sentence counting is more accurate compared to the other two units, because word counting might lead to difficulties in convey meanings and proportions of pages may make measurement process subjective (Hackston & Milne, 1996). Milne and Adler (1999) also comment that using sentences for measurement is likely to create complete and meaningful data for further analysis. Therefore, sentence counting is the most appropriate criteria to measure the volume of text format disclosure.

Defining criterion is comparably easier in pictorial disclosure than in text format. As mentioned in Literature Review, the pictorial disclosures are only focusing on the environmental certificate symbols and/or images that wine producers and industry body have disclosed on their websites, such as CarbonZero Certificates, ISO 14001 certificates. Thus, the measurement of pictorial disclosure focuses on the number of disclosing pictorials per page. In particular, the environmental certificate symbols and/or images are disclosed on each page. The use of disclosure page as measurement basis enables a comparative analysis to be developed. Thereby, the criteria for pictorial disclosure rely on the measurement of environmental certificate symbols and/or images per page.

Based on the above discussion on criteria of disclosure measurements, both text and

pictorial disclosure can be counted. In respect of text disclosure, the researcher counted the number of sentences that each wine producer and industry body had disclosed, and then summarised in the table. As mentioned earlier, the web-based social and environmental documents were not included in web-based SED, but the sentence provided on the indication of the social and environmental reports were counted. For instance, Palliser Estate Wines of Martinborough has disclosed:

> Click on the links for our full environmental policy or triple bottom line report (Palliser Estate Wines of Martinborough, 2009)[3].

Accordingly, the triple bottom line report was not analysed, but this sentence was counted into the web-based SED.

Further, the pictorial disclosures were simply counted as how many environmental certificate symbols and/or images had been disclosed on each page. Hence, the established criteria ensure accurate measurements to be undertaken when counting the volume of text and pictorial disclosure.

3.4.2 Content of Disclosures in SED

The second research question aims to identify what social and environmental information is being disclosed by the NZ wine industry on their websites. Evidently, this question addresses the content of the disclosures. Thus, content analysis is adopted as the research technique to examine this question. The use of content analysis involves three essential technical requirements, which are discussed below.

3.4.2.1 Content Analysis

As mentioned above, the objective of this research question is to analyse the content of the disclosure. Content analysis has been adopted as the primary tool for analysing the disclosure. Weber (1990) defines content analysis as a method of codifying the content

[3] For detailed information refer to Appendix 12

or text into categories based on chosen criteria. Further, Bryman and Bell (2007) indicate that content analysis is a powerful technique to systematically and objectively identify the characteristics of documents and texts. It can be seen that content analysis seeks to analyse published information systematically, objectively and reliably (Guthrie & Parker, 1990; Krippendorff, 1980; Weber, 1990).

Content analysis has been widely utilised in the social and environmental accounting literature to identify the characteristics of corporate social and environmental disclosure (Adams & Harte, 1998; Bowman & Haire, 1976; Freedman & Wasley, 1990; Gray et al., 1995a, 1995b; Gray, Owen, & Maunders, 1987; Guthrie & Parker, 1990; Ingram, 1978; Ingram & Frazier, 1980; Jaggi, 1980; Neu et al., 1998; Spicer, 1989; Wiseman, 1982). Among the SED literature, a number of disclosure issues have been addressed by using content analysis as a research technique, such as what the disclosures indicate, what they bring to light regarding the impact of the organisations' operating practices upon the environment, and what openness they bring in regard to other dimensions of the impact of organisations' operation (Kuasirikun & Sherer, 2004)

Accordingly, using content analysis in SED research enables researchers to provide insights into actual and potential practices, and contributes to the development of better disclosure practices (Kuasirikun & Sherer, 2004). Indeed, content analysis as a technique in SED research has been held to be empirically valid (Gray et al., 1995b; Guthrie & Parker, 1990). Therefore, the utilisation of content analysis in this study ensures that SED is described and analysed to pursue the research questions.

3.4.3.2 Technical Requirements of Content Analysis

Berg (1989) indicates that content analysis encompasses the interaction of two processes, which are the examination of specific content characteristics and explicit rule applications for classifying and coding these characteristics. Consequently, there are three essential technical requirements that need to be followed in order to analyse the

content of SED. Firstly, a method of measuring each relevant disclosure needs to be selected. Secondly, a construction of the strategies for coding categories is defined, and then coding data to each relevant category is conducted. Thirdly, during the coding process, the content analysis must demonstrate some characteristics for reliability and validity to enhance the consistency (Guthrie & Mathews, 1985; Milne & Adler, 1999). By following these three technical requirements, content analysis can be effectively used in the present study.

The first requirement indicates that the unit of analysis must be clearly and operationally defined. Holsti (1969, p. 116) states that a recording unit is "the specific segment of content that is characterised by placing it into a given category". As mentioned previously in the discussion of the first research question, sentence counting is a more accurate measurement than other units, such as word counting and proportion of pages. Further, it should be noted that sentences are commonly used to convey meaning (Gray et al., 1995b; Unerman, 2000). Thus, sentence counting is more preferable when measuring written communication. In addition, most SED content analysis research uses sentences as the basis for coding decisions (Milne & Adler, 1999). Hence, sentence counting has been selected as the measure for this research.

The second requirement involves two tasks, namely establishing categorisation schemes and codifying data into pre-defined categories. Previous literature which uses content analysis as a technique in SED studies were referred to when constructing categorisation schemes. Guthrie and Parker's (1990) study defined two dimensions based on the SEDs, namely theme and evidence. The theme dimension consists of the disclosures that contain environment, energy, human resources and management, product, and community involvement (Guthrie & Parker, 1990). The evidence dimension is concerned with how to determine SED, and whether the disclosure was provided in monetary, quantitative, or narrative forms (Guthrie & Parker, 1990; Walden & Schwartz, 1997; Williams & Pei, 1999; Zeghal & Ahmed, 1990). Moreover, Gray et al (1995a, 1995b) suggest an additional dimension of news about organisations' SED practices,

which is used to evaluate the levels of disclosing news, such as good news, bad news and neutral. Indeed, both of the evidence and news type dimensions aim to investigate the nature of disclosures in web-based SED. Therefore, ten content categories within three testable dimensions of SED have initially developed (Table 6), based on the prior literature (Detailed information for each category refer to Appendix 8).

Table 6 Coding categories based on the prior literature

Dimensions	Categories
Theme	Environment Energy Human resources and management Product Community involvement
Evidence	Monetary Quantitative Narrative
News type	Good Bad Neutral

In addition to these, further categories were developed from the web-based SED themselves by using thematic analysis to ensure all relevant content was captured. By applying thematic analysis, it enables the present study to get a clear picture of the basic content of SED (Bryman & Bell, 2007). Indeed, themes are suggested by the data, which enhance the sensitivity of the coding scheme (Lee & Fielding, 2004). Besides this, themes are also derived from theoretical concepts and research question, which evolves interplay between data and theory. Therefore, use of thematic analysis as an additional support for coding categories enriches consistency between data analysis and the research question.

In considering the collected SEDs, a number of additional categories have been developed. However, the content of the web-based SED between the industry body and the wine producers are different. Therefore, the additional categories for theme dimension are developed and presented separately for the industry body and wine

producers. Table 7 summarised coding categories for the NZ wine industry body, whilst Table 8 presents the coding categories for the disclosing wine producers.

As shown in Table 7, theme dimension consists of six facets, namely NZ environment, objectives of social and environmental practices, member wine producers development, environmental sustainable development, environment management system and the background of the SWNZ. NZ environment describes the general environment condition of the country, whilst objectives represent the industry body's philosophies regarding social and environmental practices. Further, member wine producers development indicates what kind of guidelines, resources and facilitates that the industry boy has provided to its members. The environmental sustainable development relates to information pertaining to environmentally sustainability practices and issues, and the environment management system addresses the organisational structure, planning and resources for developing, implementing and maintain for environmental protection. Besides, background of the SWNZ includes the information that provide on the history and development of SWNZ (for detailed information refer to the checklist in Appendix 8).

Table 7 Coding categories based on the collected SED by the NZ wine industry body

Dimension	Categories
Theme	NZ environment Objectives of social and environmental practices Member wine producers development Environmental sustainable development Environment management system Background of the SWNZ
Evidence	Monetary Quantitative Narrative
News Type	Good Bad Neutral

In respect of disclosing wine producers, as summarised in Table 8, theme dimension consists of seven sub-themes, namely environment, energy, human resources and management, product, waste, community involvement, and others. In the environment

sub-themes, it includes thirteen sub-categories that entirely focus on the environmental issues of the wine producers' operational practices. Moreover, the energy sub-theme describes the effects of the energy uses, and the implementation of relevant projects by the disclosing wine producers. The human resources and management sub-theme relates to information pertaining to employee involvements, whilst, the product sub-theme focus on the product developments. In respect of waste sub-theme, the two categories considered are recycling and organic waste. Further, the community involvement indicates the environmental practices for the well being of the community of the disclosing wine producers. Finally, the others sub-theme reveal sentences located in text related to social and environmental issues that do not fall into the above environmental sub-categories (for detailed information refer to the checklist in Appendix 8).

The second task is undertaken to code collected SED into relevant categories. Since the coding categories for the NZ wine industry body and the wine producers are different, the coding procedures are discussed separately. In consideration of the NZ wine industry body, the collected web-based SED was only coded into number of the disclosing sentences (Table 9). It should be noted that the decision rules for coding procedures need to be initially defined to enhance the reliability and validity. The evidence dimension aims to analyse the nature of SED. Thus, each sentence was coded into one of three categories, namely monetary, quantitative and narrative. Likewise, in the news type dimension, each sentence was classified and coded into three categories as good, bad and neutral. By following that process, the total number of disclosures for these two dimension would be the same, which equals to the total volume of SED (Research question one). In relation to the theme dimension, sentences were coded into the relevant categories based on their content.

Table 8 Coding categories based on the collected SED by the disclosing wine producers

Dimension	Categories
Theme	Environment Philosophy Environmental responsibilities Environmental impacts Environmental reports Environmental policy Environmental awards Environmental project Environmental audit Environmental management systems Sustainability SWNZ Vineyard environment Environmental aesthetics Energy Human Resources and Management Product Waste Recycling Organic waste Community involvement Others
Evidence	Monetary Quantitative Narrative
News type	Good Bad Neutral

Table 9 Forms for coding collected SED into pre-defined categories for the NZ wine industry body

	Number of Disclosed Sentences (amount)	Number of Disclosed Sentences a Percentages of All Sentences
Evidence		
Monetary		
Quantitative		
Narrative		
Total		
News Type		
Good		
Bad		
Neutral		
Total		
Theme		
NZ environment		
Objectives of social and environmental practices		
Member wine producers development		
Environmental sustainable development		
Environment management system		
Background of the SWNZ		
Total		

Table 10 Forms for coding collected SED into pre-defined categories for the disclosing wine producers

	Disclosing Wine producers	Disclosing wine producers as a percentages of total sample	Number of disclosed sentences (amount)	Number of disclosed sentences as a percentages of all disclosed sentences
Evidence				
Monetary				
Quantitative				
narrative				
Total				
News type				
Good				
Bad				
Neutral				
Total				
Theme				
Environment				
Philosophy				
Environmental responsibilities				
Environmental impacts				
Environmental reports				
Environmental policy				
Environmental awards				
Environmental project				
Environmental audit				
Environmental management system				
Sustainability				
SWNZ				
Vineyard environment				
Environmental Aesthetics				
Energy				
Human and resources management				
Product				
Waste				
Recycling				
Organic waste				
Community involvement				
Others				

Total				

In terms of the disclosing wine producers, the collected SED was coded into two sets, which are number of disclosing wine producers and number of disclosing sentences (Table 10). The coding criteria for the wine producers are same as the NZ wine industry body. In both, evidence and news type dimensions, each disclosed sentences was classified and coded into the sub-categories. In respect of environment themes, sentences are coded into relevant sub-categories by recognising their content. Indeed, if any sentence has more than one possible classification, the sentence is classified as to the activity most emphasised in the sentence. However, if a sentence contains more than one classification, and has equal weightage, they are counted as separate categories. For example, if the sentence reads as “power and water consumption is monitored”, it is categorised under ‘energy’ and ‘water’. Therefore, the volume count may not be same as the total count of categories. Further, the total number of the disclosing wine producers for each dimension is different in the sentences counting measurement.

Once the decision rules are defined, the collected SED is effectively coded to identify the qualitative and quantitative nature of information. According to Krippendorff (1980), the frequency indicates the importance of the subject matter. Therefore, the quantity of disclosures within a category signifies the importance of that category (Deegan & Rankin, 1996; Gray et al., 1995a; Krippendorff, 1980; Neu et al., 1998). Further, in consideration of the qualitative nature of this research or data, it enables the researcher to explore the patterns of such disclosures. In addition, a comparison analysis can be conducted among the categories.

With regard to the final technical requirement, the researcher needs to enhance the reliability and validity of the content analysis to ensure the quality of data analysis. Milne and Adler (1999) state that reliability encompasses two elements, one element is relating to the coder, and the other is consisting with the coding instrument. As mentioned in the second procedure, the code categories have initially derived from well grounded relevant literature, and then using thematic analysis to provide additional

categories based on the collected SED. Thus, the coding instruments reflect the concerns of reliability in the present study. Likewise, during the coding process, the researcher (coder) has followed the established rules to place SED into established categories (Table 9 & 10). Therefore, the researcher has given serious consideration of the reliability in order to permit replicable and valid inferences to be drawn from findings of the study.

3.4.2.3 Limitations of Content Analysis

As with all methods, the use of content analysis is subject to several limitations (Gray et al., 1995b; Milne and Adler, 1999; Unerman, 2000). Carney (1972) indicates that the subjectivity is the major issue involved in content analysis. Indeed, it leads to a great amount of narrative presentation of disclosures. Further, the content analysis is a process to capture quantity of disclosures rather than quality characteristics (Guthrie & Abeysekera, 2006). In other words, content analysis is mostly used for the frequency and volume of disclosures. Evidently, a number of past SED studies have shown that content analysis has failed to explain the quality of the disclosures (Deegan & Gordon, 1996; Deegan & Rankni, 1996; Guthrie & Parker, 1990; Hackston & Milne, 1996). To minimise these limitations, Milne and Adler (1999) state the reliability of both the data and instrument must be achieved. Therefore, the researcher has followed the three research techniques mentioned before, in order to ensure the reliability for the present study is achieved.

3.4.3 Insight from Legitimacy Theory

The last research question focuses on explaining the level and content of social and environmental web-based disclosures by the NZ wine industry drawing on legitimacy theory. Accordingly, the purpose of this question is to explain the findings from research question one and two.

3.4.3.1 Level of Disclosures in SED

Since the level of disclosures in SED consists of two aspects, the number of wine producers disclosing SED, and volume of disclosures in SED, the legitimacy theory is used to explain the two aspects separately. The number of wine producers disclosing SED represents the accountability of the NZ wine industry to operational environment. In particular, this study's findings of the number of the disclosing wine producers addressed how the NZ wine industry concerns itself within the social contract. In other words, the number of disclosing wine producers may present the perceived legitimacy of the entire wine industry. Further, it also enables the study to explore whether there is a threat or not to the social contract of the NZ wine industry. In addition, in terms of SED non-disclosing wine producers, the past SED literature provides some meaningful explanations which can be applied to the present study.

In respect of volume of disclosures, legitimacy theory can be used to explain how the NZ wine industry and its members define legitimacy within their operational practices. Since the understanding of legitimacy among organisations is different, the volume of SED may present the perceived legitimacy of the NZ wine industry and disclosing members. In other words, the higher volume disclosure suggests the industry body and its members attempt to perceive a higher level of legitimacy, whilst, the lower volume disclosure reveals the industry body and its members have perceived a comparative lower level of legitimacy. Besides this, legitimacy theory is also applicable to an investigation of the relationships between the characteristics of the disclosing wine producers (and/or NZ wine industry) and the volume of disclosures, which has been done in past SED studies (Refer to the section 2.4.3).

In summary, an investigation of the level of disclosures indicates the perceived legitimacy of the NZ wine industry from two aspects, namely the number of disclosing wine producers and volume of disclosures. The notion of social contract is useful to explore the moral obligations of the wine industry and disclosing members, whilst, the non-disclosing wine producers can be explained by referring to the previous SED

studies. Further, the volume of disclosures provides evidence to justify the perceived legitimacy among the disclosing wine producers. In addition, legitimacy theory enables the present study to investigate the relationships between the disclosing wine producers' characteristics and the magnitude of disclosures in SED. The following section outlines the method used to analyse the content of disclosures in SED.

3.4.3.2 Content of Disclosures in SED

In analysing the content of disclosures in SED, legitimacy strategies have utilised to explain why wine producers disclose such information. As mentioned in Chapter 2 Literature Review, the present study focuses on Lindblom's four alternative legitimacy strategies, and these four strategies can be used aggregately and/or separately depending on the organisational management decisions. Besides that, all the legitimacy strategies outlined by Lindblom rely upon disclosures, and therefore, the SED of wine producers represents the management intentions in terms of legitimacy strategies.

For example, if producer A is a member of SWNZ and have only disclosed positive information of their environmental practices, Lindblom's third strategy can be applied to provide some rational explanations. In particular, producer A may use an environmental symbol that is recognised by the wine industry to gain and/or maintain legitimacy. Further, if another producer B discloses about changing operational practices in social and environmental context, Lindblom's first strategy might provide explanations about its management intentions with regard to perceived legitimacy. As these examples illustrate, using legitimacy strategies to analyse the content of disclosures in SED, possible management objectives of the disclosing wine producers can be explained.

3.5 Conclusion

To sum up, this chapter summarises the background and development of the NZ wine industry, which provides a better understanding for this research. Further, the population

of the present research is 644 wine producers and the industry body. Since these wine producers are legally required to be the membership in the single industry body - NZ Winegrowers, an industrial analysis can be conducted on basis of selected wine producers. Indeed, among the member wine producers, only 45 disclosed SED via websites. Therefore, the final sample of wine producers is 45. Moreover, content analysis is used as a dominating research technique in this study to efficiently analyse the web-based disclosures. Finally, a legitimacy theoretical framework is utilised to explain the level and content of the SED. The next chapter provides the findings of the data collected.

CHAPTER FOUR: FINDINGS

4.1 Introduction

The purpose of this chapter is to present the findings of this study. The chapter includes three sections. Section one presents the findings of the disclosed SED that has been made by the NZ wine industry body – NZ Winegrowers and its initiative SWNZ program. Section two reveals the findings of the SED of NZ wine producers. Indeed, both sections one and two aim to investigate the level and content of disclosed SED by the NZ wine industry and its member wine producers. Lastly, conclusions will be drawn which summarise the key findings.

4.2 SED and the NZ wine industry

This section presents the analysis of SED by the NZ wine industry, which includes the industry body and its initiative program. Since the main objective of the present study is to investigate SED in the NZ wine industry, it is crucial to involve the web-based SED that is made by the industry body - NZ Winegrowers. SWNZ is an initiative program which aims to facilitate sustainable development within the industry (Refer to section 3.2.4 Industry Structure). Thus, the web-based information on SED practice by SWNZ is taken into account along with the SED web-based disclosure of NZ Winegrowers for the NZ wine industry analysis.

4.2.1 Level of Disclosures in SED by the Wine Industry Body

As Table 11 shows, the total volume of sentences disclosed by the NZ wine industry body is 229. Among these, NZ Winegrowers has disclosed 24 sentences, whilst, SWNZ has reported 205 sentences in web-based SED. It is observed that SWNZ as the single initiative to foster the social and environmental practices, have made a significant amount of volume of SED through its website. Accordingly, the level of the disclosed

sentences that have been reported by the NZ wine industry body appears relative high.

Table 11 Volume of disclosed SED by the Wine industry body

	Volume of disclosed SED (Number of sentences)
NZ Winegrowers	24
SWNZ	205
Total volume	229

4.2.2 Content of Disclosures in SED by the Wine Industry Body

Since the second research question aims to investigate the content of disclosures in SED, this sub-section presents what social and environmental information which is being disclosed by the NZ wine industry via their websites. As mentioned in Chapter Three Research Methods, content analysis is adopted as a research technique in this study. By using this research method, three dimensions with 12 coding categories are constructed to efficiently code the contents of disclosed SED that have made by the NZ wine industry body. Thus, the findings for each dimension are discussed below.

4.2.2.1 Evidence Dimension

Table 12 summarises the analysis of the categories of the SED practices for the NZ wine industry body. The evidence dimension intends to investigate the nature of the disclosed SED, in particular, the nature of each sentence that wine producers have disclosed. According to the previous literature, this dimension consists of three categories, namely monetary, quantitative and narrative. As shown in Table 12, 93% of the disclosed sentences are categorised into narrative form. Thus, the dominant nature of SED by the industry body is narrative in form.

Table 12 Summary of the content of disclosures in SED by the NZ wine industry body

	Number of Disclosed Sentences (amount)	Number of Disclosed Sentences a Percentages of All SED Sentences
Evidence		
Monetary	0	0
Quantitative	16	7%
Narrative	213	93%
Total	**229**	**100%**
News Type		
Good	13	6%
Bad	0	0
Neutral	216	94%
Total	**229**	**100%**
Theme		
NZ Environment	8	3%
Objectives of Social and Environmental Practices	16	7%
Member Wine Producers Development	152	66%
Environmental Sustainable Development	44	19%
Environment Management Systems	6	3%
Background of SWNZ	3	1%
Total	**229**	**100%**

4.2.2.2 News Dimension

The news dimension is similar to the evidence dimension as it also aims to investigate the nature of the disclosed web-based SED. This dimension contains three categories, which are good news, bad news and neutral news. As presented in Table 12, 94% of the reported sentences are neutral in nature, whilst 6% of the reported sentences are identified as good news disclosures. For instance, NZ Winegrowers (2009) has provided sentences that they are proud NZ has earned 'an unspoiled paradise' in the world.

> New Zealand's small population, distant location and agricultural economy have earned the country a 'clean green' image. Visitors often describe it as 'an unspoiled paradise' (NZ Winegrowers, 2009)[4].

[4] For Detailed information refer to the Appendix 12

None of the disclosed sentences have addressed unfavourable incidents and/or negative effects. Therefore, the NZ wine industry body provides SED via neutral or good news dimensions.

4.2.2.3 Theme Dimension

In terms of the theme dimension, seven categories are included, namely NZ environment, objectives of social and environmental practices, member wine producers development, environment sustainability development, environment management system and the background of the SWNZ. The findings for each category is presented followed.

As presented in Table 12, the industry body has mentioned the development of the member wine producers, which amounts to 133 sentences out of 229. Further, 19% of the disclosed sentences in SED have addressed the environmental sustainable development, whilst 7% have reported the objectives of the social and environmental practices by the NZ wine industry body. The remaining categories, NZ environment consists of 8 sentences, environmental management systems comprises 6 sentences, and the background of SWNZ includes 3 sentences.

It is found that the NZ wine industry body has disclosed the NZ environment, which create strong image of the country. The NZ Winegrowers (2009) state that investor have described NZ as “an unspoiled paradise” for wine industry. NZ is a country with a small population, and has traditionally had a ‘clean green’ image in the world. In relation to the wine industry, the natural resources, such as soil, climate and water, and their perceived purity and high quality enrich the wine trading in overseas markets by providing a positive image. A further observation reveals that the NZ wine industry has recognised the importance of the ‘clean, green’ country image and takes advantage of this image when promoting wine trading.

Furthermore, the industry body has disclosed its objectives of the social and environmental practices. As NZ Winegrowers states:

> By vintage 2012, our objective is for all New Zealand grapes and wine to be produced under independently audited sustainability schemes. The industry is well on the way to achieving this (NZ Winegrowers, 2009).

It reveals that the NZ wine industry has realise that a strong commitment to sustainable practices enables the NZ wine industry to become a great wine industry in the world. Specifically, the industry body emphasises that all wine producers need to take innovative practices in their vineyard and winery to ensure they operate in a sustainable and environmental manner (NZ Winegrower, 2009), arguable in recognition that the clean green image needs to be protected and upheld.

Besides, SWNZ, a NZ Winegrowers initiative group also discloses three major objectives of their program. The first objective of the SWNZ program is to provide a 'best practice' model of environmental practices for all winery and vineyards (SWNZ, 2009). The second objective is to focus on the consumer concerns in environmental protection and wine producing operations. The third, and final objective, is the aim of guaranteeing high level quality assurance for the wine producers from vineyard through to the bottle (SWNZ, 2009).

Moreover, as shown in Table 12, the NZ wine industry body has heavily emphasis on the development of the member wine producers regarding social and environmental practices. As mentioned earlier in section 3.2.4 industry structure, one of the key roles for the NZ Winegrowers is to guide the member wine producers by providing well - researched information. SWNZ as an initiative programme for environmentally sustainable development has disclosed detailed guidelines for its members. This consists of 7 facets, namely technical manual books, scorecard, monitoring field notebook, audit, membership status, regional member meetings, and workshop (SWNZ, 2010). The technical manual books outline information to improve the vineyard

environment.

> This is detailed information on common principles of grape growing which include, for example pests, diseases and soil health as well as other technical topics… (SWNZ, 2010).

Scorecard is the core operational document regarding social and environmental practices among member wine producers. SWNZ (2010) has disclosed function and benefits of the scorecard：

> The scorecard: applies to the whole vineyard; is flexible and able to apply to vineyards of all sizes in any region; provides a range of management practices within any category; encourages continual improvement, and is a “living document” which is easily updated to include new practices (SWNZ, 2010).

It appears that the regular scorecard reports have been generated to monitor member wine producers performance in order to achieve full environmental sustainable (SWNZ, 2010).

Both monitoring field notebook and audit aim to ensure the quality of scorecard reports by its member wine producers. In other words, SWNZ pursues continue improvement regarding social and environmental practices and issues.

> The aim of the audit is to ensure that the philosophy of the programme is respected…An independent auditor will audit member vineyards once every three years on average via a random selection process (SWNZ, 2010).

Besides this, SWNZ also provides facilitated meetings and workshops for members to disseminate update, technical, high quality information in order to enhance their environmental management systems.

> The programme provides facilitated meetings for members…introduce new information and technology, and focus on Sustainable Winegrowing issues providing a forum for feedback…The workshops are focused on specific topics with a strong emphasis on sustainable land management (SWNZ, 2010).

It is observed that SWNZ develops a framework for viticulture and wine making

practices that protects the environmental integrity for their operations. SWNZ program also functions as a vehicle to disseminate information on new technologies. Besides, an audit structure is constructed to monitor compliance to the market expectations. It can be seen that SWNZ has made significant efforts to help its member wine producers to achieve the industrial objective-full environmental sustainable.

In addition, it is evident from Table 12 that 44 sentences have been disclosed for the environmental stainable development by the NZ wine industry body. The NZ Winegrowers has outlines the new tools and initiatives to support the industry's sustainable development.

> Many new tools and initiatives have been developed to support the industry's sustainability commitment: the International Greenhouse Gas Protocol and Calculator, the water use calculator, and the Grape Futures project to name a few. In addition, we are working closely with organic producers to encourage wider adoption of organics into the industry (NZ Winegrowers, 2009).

SWNZ also disclosed some relevant articles to assist its members, such as what is sustainability, and Sustainable Winegrowing NZ update. It can be seen, NZ Winegrowers and its initiative group has recognised the importance of the environmental sustainable development for the entire NZ wine industry, and therefore encourage its members to become fully environmental sustainable in order to in line with the industry's performances.

Last but not the least, the disclosed web-based SED has also mentioned the environmental management systems and the background of the SWNZ. In respect of environmental management systems, the disclosed SED is focusing on the database management and winery waste management. As SWNZ presents:

> Sustainable Winegrowing New Zealand currently have a project underway to develop a database management tools which will enable them to identify key production issues that enhance the long-term sustainability of the winegrape industry (SWNZ, 2009).

Besides, SWNZ also provides workshops and detailed information for winery waste management in order to enhance the efficiency of their environmental management systems. Therefore, it is observed that SWNZ offers programs to members to produce premium quality wine with true environmental integrity (SWNZ, 2009). Indeed, SWNZ has played a crucial role to guide members in the development of a complete environmental management systems. In relation to the background of SWNZ, sentences have been provided to create a better understanding of the structure of the SWNZ (for detailed information refer to section 3.2.4 industry structure).

In brief, it is found that SWNZ, as an industry initiative group, has provided significant volume of SED via its website. In other words, the level of the disclosures in SED by the NZ wine industry body appears high. A further observation indicates that the nature of the disclosed sentences in web-based SED is narrative and in favour of neutral and good news. Besides, the disclosed SED has addressed NZ environment, objectives of social and environmental practices, environmental sustainable development, membership development, environmental management systems, and the background of SWNZ. Evidently, both of the NZ Winegrowers and SWNZ are strongly promoting social and environmental practices in the NZ wine industry. Further, the NZ Winegrowers establishes the objective of environmental sustainability practices of the industry, whilst SWNZ provides programs to facilitate and assist wine producers to achieve fully sustainability in their operations. Therefore, the wine producers' SED is important for the present study. Accordingly, the following section presents the findings for level and content of SED by the disclosing wine producers.

4.3 SED and the Disclosing Wine Producers

This section presents the findings of disclosed SED that have been provided by the disclosing wine producers, which encompasses two sub-sections. The first sub-section highlights the number of the disclosing wine producers and the volume of the disclosures. The second sub-section provides findings of the content of the disclosed

SED.

4.3.1 Level of Disclosures in SED

This sub-section aims to investigate the level of disclosures in SED from two aspects. Firstly, it focuses on the total number of the wine producers disclosing SED disclosed and number of wine producers not disclosing SED. Secondly, it emphasises the volume of SED by disclosing wine producers. Thereby, the findings for the level of SED will be discussed from these two considerations.

4.3.1.1 Number of Wine Producers Disclosing SED

This section provides findings on the number of the SED disclosed and non-disclosed wine producers. By checking wine producers websites, it appears that 45 out of 644 wine producers have disclosed web-based SED (refer to section 3.3 Data selection & collection). It should be noted, the business structures may create potential issues for the data capture. Thus, the researcher has reviewed and classified business structure for each disclosed wine producer (refer to section 3.3). As a result, all of the representative wine producers are privately owned and/or partially controlled by overseas. Hence, the total number of wine producers disclosed SED is 45, which is summarised in table 5 in section 3.3 (Data selection & collection).

Table 13 Wine producers disclose SED on both text and pictorial format

Category I Large wine producers, annual wine sales exceeding 2,000,000 litres		
none		
Category II Medium wine producers, annual wine sales between 200,000 - 2,000,000 litres		
Mission Estate Winery	Cape Campbell Wines	Ager Sectus Wine Estate Ltd
Wairau River Wine Ltd	Sileni Estate Ltd	Seifried Estate
Category III Small wine producers, annual wine sales not exceeding 200,000 litres		

Ruby Bay Vineyard	Bridge Pa Vineyards Ltd	Martinborough Vineyard Estate Ltd
Naga Waka Vineyard	Mondillo Vineyards	Kaimira Venture
Mundo Vira Winery	Gladstone Vineyard	Askerne Winery

In particular, it is found that among the 45 disclosing wine producers, 4 of them had annual sales that exceed 2,000,000 litres, whilst 18 wine producers had turnover between 200,000 and 2,000,000 litres, and 23 wine producers had annual sales below 200,000 litres. In addition, it is observed that 15 out of 45 wine producers have made SED that combines text and pictorial presentation (Table 13). As found in table 13, base on the annual turnover of these 15 wine producers, 6 are medium and 9 of small size. A further observation indicates that none of the large size wine producers disclose SED in both text and pictorial presentation.

Since the total membership of wine producers of NZ Winegrowers is 644, the amount of non-disclosed wine producers is resulted in 599 (644-45). It is found that only 7% (45/644) of wine producers have made SED through their websites, whereas 93% (599/644) of wine producers have not disclosed. Thus, a majority of the wine producers have not made SED. The level of the SED is not entirely relied on the number of the disclosing wine producers, but also on the volume of disclosures in SED. Consequently, the following section discusses the volume of the SED among the 45 disclosing wine producers.

4.3.1.2 The Volume of Disclosed SED

As mentioned in Chapter 2 (Literature Review) and 3 (Research Method), two forms of SED are included in the present study, namely text format, and pictorial format. Accordingly, the measurement criteria are different. Sentence counting is adopted as the measurement for the text format of SED, whilst the pictorial SED will be measured by counting the number of the environmental symbols disclosed, specifically the environmental certificates. The findings for two formats SED is discussed below.

Text Format SED

In terms of text format SED, the sentence counting for each SED disclosed wine producers is exhibited in Appendix 9. Table 14 has a summary of key findings. 45 wine producers disclosed a total of 732 sentences in the web-based SED. Among these, 18 medium sized wine producers disclosed 361 sentences, which accounts for 49% (362/732) of total volume. The small size wine producers have disclosed 246 sentences with 34% (246/732), whilst the 4 large size wine producers disclosed 124 sentences and contribute 17% (124/732) of the total volume. Thus, the medium size wine producers disclosed more sentences of SED than other two categories of wine producers.

Table 14 Key findings for the volume of disclosed SED

	Volume of disclosed SED (number of sentences)	Number of Wine producers
Total volume of SED	732	45
SED volume of large size wine producers	124	4
SED volume of medium size wine producers	362	18
SED volume of small size wine producers	246	23
Highest volume of SED (Montana)	76	1
Lowest volume of SED (Amisfield Wine Company, Ruby Bay Vineyard, and Mondillo Vineyards)	1	3

Table 15 Average number of sentences disclosed in SED

Category sizes of the disclosing wine producers	Average number of sentences disclosed in SED (number of sentences/wine producer)	
Large size wine producers	31	(124/4)
Medium size wine producers	20	(362/18)
Small size wine producers	11	(246/23)

However, in relation to the average of number sentences disclosed SED, the large size wine producers created the highest figure compared to medium and small size wine producers (Table 15). As found in table 15, each large wine producer discloses 31

sentences in average, whilst average of 20 sentences have been disclosed by medium size wine producers. Further, the small size wine producers disclose 11 sentences on average. Therefore, the large size wine producers have the highest average of sentences disclosed SED.

Further, the highest volume of SED is provided by Montana, who is the NZ largest wine producer. Indeed, Montana disclosed 76 sentences in its web-based SED (Table 14). In contrast, three disclosing wine producers, namely Amisfield Wine Company, Ruby Bay Vineyard, and Mondillo Vineyards only disclosed one sentence on social and environmental issues (Table 14). In addition, 47% (21/45) of wine producers disclose SED less than 10 sentences, whereas only 10% (5/ 45) make more than 30 sentences. Besides, 20% (9/45) of wine producers disclosed SED between 11 to 20 sentences. Similarly, 22% (10/45) make SED between 21 to 30 sentences. From the analysis, it is observed that the majority of wine producers have disclosed few sentences of SED.

Table 16 Classifications of the SED volume by the disclosing wine producers

Volume of disclosed SED (Number of sentences)	Number of wine producers	Percentage of total volume
1-10	21	47%
11-20	9	20%
21-30	11	24%
31-40	1	2%
41-50	1	2%
51-60	1	2%
61+	1	2%
Total	45	100%

Pictorial format SED

As mentioned previously, 15 wine producers have disclosed environmental certificate symbols and/ or images in their web-based SED. Table 17 presents the number of pictorial disclosures that 15 wine producers have disclosed via websites. In fact, 20 environmental certificates have been disclosed by the wine producers, which encompasses SWNZ certificate, ISO 14001 certificate and the CarboNZero certificate.

However, none of these 15 wine producers disclose all three types of certificates at the same time, rather disclose one or two in their website.

Table 17 Comparison of disclosures of environmental certificates with number of sentences disclosed

Wine producers	Pictorial format (Number of disclosed environmental certificates)	Text format (Number of disclosed sentences)
Wairau River Wine Ltd	2	56
Mission Estate Winery	2	24
Cape Campbell Wines	2	25
Martinborough Vineyard Estate Ltd	2	25
Kaimira Venture	2	14
Sileni Estate Ltd	1	27
Ager Sectus Wines Estate Ltd	1	19
Bridge Pa Vineyards Ltd	1	12
Seifried Estate	1	11
Gladstone Vineyard	1	10
Naga Waka Vineyard	1	8
Askerne winery	1	7
Mundo Vira Winery	1	7
Mondillo Vineyards	1	1
Ruby Bay Vineyard	1	1
Total	20	247

Moreover, the wine producers with two environmental certificates disclosed higher volume of text format SED than the single certificate wine producers. For instance, Wairau River Wine Ltd disclosed 56 sentences with 2 environmental certificates (Table 17). Likewise, other three wine producers, such as Mission Estate Winery, Cape Campbell Wines, and Martinborough Vineyard Estate Ltd, have made more than 20 sentences in their web-based SED. On the other hand, both Modillo Vineyards and Ruby Bay Vineyard have presented one environmental certificate with one sentence in SED. Hence, the more environmental certificates that wine producers have achieved, the more sentences they have disclosed in their website.

In summary, only 45 out of 644 wine producers disclose web-based SED. Among these 45 wine producers, it is found majority of wine producers do not disclose any SED

practices. Indeed, most of the disclosing wine producers have disclosed less than 10 sentences on their websites. It is further observed that only 15 out of 45 wine producers have received environmental certificates and reported in the websites. It therefore shows that less number of disclosed certificates have resulted in less sentences in SED. As the content of the disclosure is important for the present study, the following section will discusses the findings of the contents disclosed.

4.3.2 The Content of Disclosures in SED

As mentioned earlier, the content analysis is the dominating research method to investigate what social and environmental is being disclosed by the disclosing wine producers via their websites. Therefore, three dimensions with 26 coding categories are constructed to efficiently code the contents of the disclosed SED. Accordingly, the findings for each dimension are presented below.

4.3.2.1 Evidence Dimension

The analysis of the contents of the categories of SED practices for the selected wine producers are summarised in Table 18 (Detailed information refers to Appendix 11 and 12). As shown in table 14, it indicates that 93% (681/732) of the SED sentences are made in narrative form. Indeed, all selected wine producers have utilised narrative sentences in their web-based SED. Further, only one wine producer is disclosing monetary amount in SED. Besides, 18 wine producers have made SED on quantitative basis, and amounting to 47 out of 732 sentences. For easy explanation, percentage figures are used to describe the environmental improvement. Besides, the extent of hectares planted is also given in quantitative form in the SED. It is found that the monetary quantification of SED is minimal among the disclosing wine producers. It also appears that the dominant nature of SED is narrative. In other words, the selected wine producers prefer to disclose narrative information of SED on their websites rather than presenting in quantitative and monetary items.

	Disclosing Wine Producers	Disclosing Wine Producers as a Percentages of Total Sample	Number of Disclosed Sentences (amount)	Number of Disclosed Sentences a Percentages of All Disclosed Sentences

Table 18 Summary of the content of disclosures in SED by disclosing wine producers

Evidence				
Monetary	1	2%	4	1%
Quantitative	18	40%	47	6%
Narrative	45	100%	681	93%
Total			**732**	**100%**
News Type				
Good	21	47%	37	5%
Bad	0	0	0	0
Neutral	45	100%	695	95%
Total			**732**	**100%**
Themes				
Environment				
Philosophy	4	9%	9	1.2%
Environmental Responsibility	8	18%	16	2.2%
Environmental Impact	7	16%	9	1.2%
Environmental Report	1	2%	2	0.3%
Environmental Policy	8	18%	10	1.4 %
Environmental Award	22	49%	66	9%
Environmental Project	8	18%	36	4.9%
Environmental Audit	9	20%	11	1.5%
Environmental Management System	11	24%	39	5.3%
Sustainability	13	29%	28	3.8%
SWNZ	30	67%	111	15.2%
Vineyard Environment	20	44%	129	17.6%
Environment Aesthetics	13	29%	66	9%
Energy	13	29%	41	5.6%
Human Resources & Management	2	4%	6	0.8%
Product	10	22%	41	5.6%
Waste				
Recycling	9	20%	22	3%
Organic	17	38%	80	10.9%
Community Involvement	1	2%	3	0.4%
Others	7	16%	8	1.1%
Total			**733**	**100%**

4.3.2.2 News Dimensions

As found in Table 18, 95% (695/732) of disclosed sentences in SED are neutral in news dimension, whilst 5% (37/731) of disclosed sentences are consisting with good news. In fact, all the selected wine producers have provided some general information through

their web-based SED.

However, 21 out of 45 wine producers have emphasised on the good news in SED. Within the good news category, most of the wine producers addressed their environmental achievements. For instance, Sacred Hill Wine Ltd disclosed six sentences to report on environmental certificates, such as ISO 9001.

> Scared Hill Wines is committed to environmental wellbeing. This comes via a range of initiatives including Sustainable Winegrowing NZ, safety and health requirements and ISO 9001: 2000 annual audits (Scared Hill Wines, 2009).

Further, the wine producer Sileni provided two sentences on their success of Glass Packaging Forum.

> Sileni Estates are proud to be part of the Glass Packaging Forum. With around 5% more glass packaging recovered from homes year on year…. (Sileni Estates, 2009).

Thus, it is observed that wine producers make good news voluntarily in their web-based SED, most likely to generate a good perception amongst the general public. In addition, none of the disclosing wine producers disclose SED to report negative effects and/or unfavourable incidents (e.g., bad news). Hence, the wine producers are disclosing web-based SED in favour of neutral and good news.

4.3.2.3 Theme Dimensions

The findings of theme dimensions are the core aspect of the second research question. As mentioned in the Method chapter, the theme dimension encompasses seven sub-themes, namely environment, energy, human resources and management, product, resources waste, community involvement and others. Therefore, the findings are presented and discussed under each sub-theme referred.

Environment

Environment sub-theme comprises of philosophy, environmental responsibilities, impact,

report, policy, award, project, audit, management systems, sustainability, SWNZ, vineyard environment, and environment aesthetics. From Table 18, 67% (30/45) of wine producers have mentioned the SWNZ program, and it amounts to 111 sentences out of 733. Further, 49% (22/45) of wine producers disclose environmental awards through their website. Besides, 44% (20/45) have addressed vineyard environment in the web-based SED. In addition, thirteen wine producers have disclosed both sustainability and environment aesthetics. Eleven wine producers make sentences on environmental management system, and nine wine producers disclose on environmental audit. Further, eight wine producers have their environmental responsibility. Likewise, equal number of wine producers have mentioned their environmental policy and projects in SED via websites. The remaining categories, environmental impact comprises 7 wine producers, philosophy involves 4 wine producers, and the environmental report consists with only one wine producers.

It appears that disclosing wine producers are heavily focusing on the SWNZ program. As mentioned earlier in Chapter 3, SWNZ is an initiative program to facilitate the sustainable development of the wine makers and grapegrowers. The objectives of SWNZ program are widely adopted by the disclosing wine producers, and SWNZ accreditations have been emphasised by them. Indeed, some wine producers have directly copied the contents of the handbook of SWNZ program in their SED, for instance:

> New Zealand has long been famed for its stunning unspoilt landscape. New Zealand's small population, isolated location and agricultural economy have earned the country a "clean, green" image. New Zealand grape growers and winemakers aim to keep it that way by protecting the environmental integrity of their wine production. To this end a pioneering set of industry standards have been developed, known as Sustainable Winegrowing New Zealand (SWNZ). SWNZ provides the framework for companies to continually work towards improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. Sustainable Winegrowing New Zealand was established by volunteer grape growers in August 1995 as an industry initiative directed through New Zealand Winegrowers. SWNZ was commercially introduced in 1997 and has been adopted by growers from all the grape growing regions. Sustainable Winegrowing New Zealand was developed to provide a "best practice" model of environmental practices in the vineyard and winery. Guarantee

> better quality assurance from the vineyard through to the bottle. Address consumer concerns in matters pertaining to the environment and winegrape production (Sileni Estate Ltd, Bridge Pa Vineyards Ltd & Martinborough Vineyard Estate Ltd, 2009).

One of the disclosing wine producers, Kahurangi Estate has disclosed that:

> This is assurance to our customers that we are dedicated to the reputation of the New Zealand Wine Industry to produce premium quality wines with true environmental integrity (Kahurangi, 2009).

Thus, SWNZ is viewed as an assurance to the customers to demonstrate their effects to achieve the objective of the NZ wine industry, and produce quality wine with true environmental integrity. In fact, it is found there is an absence of disclosure of actual practices regarding SWNZ program by NZ wine producers. It is observed that more than half disclosing wine producers make SED to report on SWNZ program as an industry assurance to fulfill the society's expectations.

Apart from that, environmental awards and vineyard environments have also been mostly disclosed by the wine producers. In terms of environmental awards, a majority of the disclosing wine producers have emphasised on their achievement of environment certificates, such as ISO 14001, CarboNZero. For example, Wairau River Wine Ltd states that:

> Wairau River Wines Limited has been issued with CarboNZero certification by Landcare Research, making it one of only three New Zealand wineries to be accredited and indeed one of a handful of carbon neutral wineries in the world. From the 2008 vintage the entire range of wines will carry the carboNZero Cert™ logo… (Wairau River Wine Ltd, 2009).

Likewise, Spy Valley Wines has provided SED as:

> We are in the process of taking this a step further by becoming certified to the international environmental standard ISO 14001(Spy Valley Wines, 2009).

Cape Campell Wines also discloses that:

> We have achieved the internationally recognised carboNZero certification for contributing no net greenhouse gas emissions into the atmosphere and are one of the first New Zealand wineries and a handful of global wine brands to have achieved carbon neutral certification for the organisation of our wine products (Cape Campell Wines, 2009).

Furthermore, Hunter's Wines (NZ) Ltd has reported its Marlborough Environmental Awards (2008/2009) in SED.

> The commitment shown by Hunter's Wines to celebrating and preserving endangered habitats and species has been recognised and awarded at the Marlborough Environment Awards (2008/2009) (Hunter's Wine(NZ) Ltd, 2009).

Likewise, Yealands Estate Wines Ltd has disclosed its energy efficiency and renewable energy awards. Thus, the disclosing wine producers are willing to disclose their achievements on environment awards in the web-based SED.

In the relation to vineyard environment, healthy soil conditions and reduction in chemical spraying are common disclosures by wine producers. In fact, several wine producers have identified to minimise the environmental impact in the vineyards is their primary objective. Ager Sectus Wines Estate Ltd discloses that a minimalist spray program is implemented in vineyards to reduce its environmental impact.

> We use a minimalist spray programme that adheres to NZ Winegrowers Export Winegrape Spray Schedule requirements. All our spray operators are "Growsafe" qualified. We aim to have nil residues in our wines, avoid any insecticides by encouraging the establishment and maintenance of natural insect predator populations and ensure all new vines are planted with virus tested, high health material on phylloxera resistant rootstock to eliminate the need for some vine diseases and phylloxera control (Ager Sectus Wines Estate Ltd, 2009).

Montana also emphasises the natural biological method used to control pests and disease in its vineyards.

> Natural biological means are used to combat pests and diseases as far as possible. Ongoing trials on our vineyards have seen improvements in the use of bio-controls to combat botrytis. When spraying is needed, we save energy by using multi-row sprayers (Montana, Refer to 2009).

As shown in the Table 18, 129 out of 733 sentences have been disclosed regarding vineyard environment. It can be seen, the disclosing wine producers have provided SED to highlight their environmental practices in its vineyards.

Further, it is evident from the Table 18 that 13 wine producers have disclosed sustainability and environment aesthetics. However, the volume of the disclosed SED for these two categories are different. In particular, 66 sentences are made on environmental aesthetics, whereas 28 sentences are disclosed on sustainability. In respect of environmental aesthetics, the SED is focusing on the green planting and wildlife conservations. For example, Montana has disclosed its efforts of native green planting:

> Investing in the natural beauty and diversity of the land flows naturally from our activities as winemakers. We have planted more than 15,000 native plants in Marlborough and 6,000 further south in Waipara, with another 5,500 scheduled for planting in the coming year… (Montana, 2009).

Likewise, Orinoco Vineyard has disclosed that eco-sourced trees has been planted over 100 hectares.

> The winery is next to an area of wetland, which 5 years ago was covered in gorse and blackberry. Over the last few years thousands of native plants have been planted, and are now starting to take hold and establish… Extensive plantings of eco-sourced trees can be found over the 100 hectare property (Orinoco Vineyard, 2009)

Moreover, Wairau River Wines Ltd reports its efforts of the protection of the native birds. However, only brief sentences have been made in terms of sustainability. Indeed, the disclosing wine producers only mention the notion of sustainability. For instance:

> Maintaining sustainability requires a process of continuous improvement and adaptation to change, we are wholly committed to that at Gladstone (Gladstone Vineyard, 2009).

> It's a sustainable system that works for the environment but has enriched our lives in so many ways and we feel very proud of this whole new cycle that we have created (Mudbrick Vineyard/ Shepherds Point Vineyard, 2009).

> We constantly seek new ways to improve vineyard and winery practices to ensure an environmentally sustainable business (Scared Hill Wines Ltd, 2009).

> As exports of New Zealand wine continue to grow, the call for sustainability within the

> wine industry has become more important, both from a production and marketing point of view (Seifried Winery, 2009).

In addition, it is found that only 11 wine producers disclosed 38 sentences on environmental management systems. As mentioned earlier, SWNZ is currently promoting the environmental management systems for its member wine producers. Table 18 shows that 30 wine producers have provided SED on SWNZ, whereas only 11 wine producers disclosed the environmental management system. Indeed, among these 11 wine producers, four of them are implemented ISO 14001 environmental management system rather than SWNZ program, such as Mission Estate Winery, Montana, Sileni Estate Ltd and Martinborough Vineyard Estate Ltd.

Moreover, as shown in Table 18, 9 wine producers have disclosed SED on environmental audits, and 8 have reported environmental responsibility, policies and projects. The disclosed sentences on environmental audits mainly focus on SWNZ program, such as Burnton Road Wines Ltd, Jackson Estate Ltd, Kaimira Ventures. For examples:

> Our first vineyard audit was completed last year and we reached “Accredited Vineyard” status in February 2009 (Burnton road Wines Ltd, 2009).

> We will be audited as an individual winery in 2009, and become an accredited Sustainable winery- part of Sustainable Winegrowing New Zealand (Jackson Estate Ltd, 2009).

> We were audited in spring 2008 and are proud that our whole business is now accredited under Sustainable Winegrowing (Kaimira Ventures, 2009).

Besides this, Sacred Hill Wines Ltd has disclosed its environmental audit practices in relation to ISO 19001 by the international firm BVQI.

> In 2006, Scared Hill Wines achieved certification as an ISO 9001 producer after a successful audit was conducted by international firm, BVQI. This audit covered all aspects of company grape production, wine production, warehousing, dispatch, customer feedback, Occupational Safety and Health and management systems (Sacred Hill Wines Ltd, 2009).

In terms of environmental responsibility, the disclosing wine producers have provided general statements to demonstrate their responsibilities to protect the land. As Ascension Wine Estate Ltd discloses that:

> We make our living from the land. Ours is a fragile environment and one that must be cared for and preserved for the generations that follow. We have made a commitment to not only one day leave the land that is Ascension the way we found it, but to leave it better! Our environment looks after us, and we are determined to look after it, we urge you to do the same (Ascension Wine Estate, 2009).

Orinoco Vineyards also provides sentences that：

> We live off the land. If we look after it, it looks after us. In a fine wine, balance is the key, and the same goes with the land (Orinoco Vineyards, 2009).

In respect of environmental project, CarboNZero project has been stressed by the wine producers. Further, only 10 sentences of SED are reported on environmental policy, in particular, the objectives of social and environmental practices.

Last but not the least, it is it is evident from the findings represented in Table 18 that few wine producers have addressed the environmental impacts, reports and philosophy. Indeed, 2.2% (16/733) of the disclosed sentences have mentioned environmental impacts. For instance, Cape Campbell Wines Ltd discloses that the business has taken a major step to minimise negative impacts on the environment.

> We have taken a major step forward in our commitment to protecting the nature environment, by producing quality wines with minimal effect on the environment (Cape Campbell Wines Ltd, 2009).

Similarly, other wine producers, such as Mudbrick Vineyard, Dry River Wines Ltd and Owhanake Bay Estate have mentioned that environment is imperative in decisions for its operational practices, and therefore, they are aim to reduce environmental footprint.

> Reducing our environmental footprint has been a very rewarding challenge and has not been without disappointments and frustrations, but now we have been successfully composting, recycling and re-using our resources for some years now (Mudbrick Vineyard, 2009).

> Dry River is convinced of the extreme problems posed by climate change including its short and long term impact on the wine industry and regards the need to take action as a practical, business and ethical imperative (Dry River Wines Ltd, 2009).

> You can be sure that your stay here will have minimal negative impact on this truly beautiful place (Owhanake Bay Estate, 2009).

In relation to philosophy, the disclosing wine producers have emphasised on the vision of their environmental practices. No more than 2 sentences of SED are made on environmental reports. As this suggests, there is a lack of reporting amongst this industry. In short, most of the disclosing wine producers have made SED to report the SWNZ program and environmental award. Further, a few wine producers have disclosed SED on sustainability and environment aesthetics. However, the SED on environmental management system, philosophy, responsibility, impact, reports, policy, project and audit is absent among the disclosing wine producers.

Energy

In terms of energy use, 29% (13/45) of wine producers disclose 41 sentences to reflect their energy savings (Table 18). The energy sub-theme consists of efficiency of energy use, and energy savings with regard to the product recycling. In particular, most disclosed SED have mentioned the reduction of energy consumption. For instance, the Mission Estate Winery has disclosed their improvement in energy conservation activities:

> Mission Estate's new winery building is a thermo-mass construction, with the concrete panels containing a sandwich of extruding polystyrene. The roof is also insulated allowing the temperature to be controlled and stabilised in an environmentally sustainable way…Mission Estate has installed two separate systems - a large, high powered system to be used during the busy six weeks of harvest, and a smaller, more efficient system to be used during normal operations…This innovative approach creates lower demands on New Zealand's stretched energy resources, which is especially important through the critical winter months (Mission Estate Winery, 2009).

Besides, Orinoco Vineyard is providing SED on the usage of solar power in order to saving energy.

> The building has excellent temperature stability which minimizes the use of refrigeration.

> Just like the vines, our vineyard shed and office is powered by the sun. No powerlines, no grid, just solar power. (Orinoco Vineyard, 2009)

Likewise, both of Sacred Hill Wines Ltd and Yealands Estate Wines Ltd disclose solar-reflective, and recycling of heat energy from refrigeration

> We are currently reviewing future energy requirements for the winery and investigating the feasibility of installing solar heating panels to reduce hot water requirements which offers potential savings in natural gas usage. We are also reviewing existing refrigeration capacity to improve efficiency of heat transfer through new and improved technology by replacing outdated plant equipment (Sacred Hill Wines Ltd, 2009).

> Solar-reflective, high insulation cladding. Recovery and recycling of heat energy from refrigeration (Yealands Estate Wines Ltd, 2009).

Therefore, it is found the disclosing wine producers have disclosed environmental practices in energy uses.

Human Resources & Management

There is a relatively low level of disclosure in SED in relation to human resources and management by the wine producers. From the Table 18, 2 out of 45 wine producers have disclosed 6 sentences in human resources and management. The contents of the disclosed SED involve the employee training and on-going education. For example, Delegat's Wine Estate has disclosed that the on-going education of employees has enhanced the efficiency of the management systems and mechanisation.

> Careful training and pruning of our vines to achieve a balance between growth and regular yield. Feedback from our winemakers to the viticulture team on every individual batch of grapes. On-going education and investment in the latest management systems and mechanisation (Delegat's Wine Estate, 2009).

Indeed, Delegat's Wine Estate has encouraged feedback from winemakers to the viticulture team in order to protect and maintain the vineyard environment.

Apart from that, the disclosing wine producers also address issues relating on to industrial relations, especially, compliance with the industrial policy in relation to employment. For instance, Cape Campbell Wines has disclosed SED on RSE, which is

a government work policy for the viticulture and horticulture industry in NZ.

> RSE is a government work policy for the viticulture and horticulture industry in New Zealand. RSE allows employers to recruit from the Pacific Island nations provided that they adhere to strict guidelines regarding work conditions, accommodation conditions, pay rates etc. (Cape Campbell Wines, 2009)

In fact, Cape Campbell was one of the first companies in New Zealand to use RSE labour. As can be seen, even via the few sentences disclosed on human resources and management, that a diverse range of topics the wine producers operational practices are covered. However, in an overall view of the 45 selected wine producers, there appears to be a lack of disclosure on the practices of human resources and management.

Product

As presented in Table 18, 22% (10/45) of wine producers have disclosed 41 sentences in SED of their environmental practices with regard to product related items. The main emphasis by disclosing wine producers has been on product packaging. Montana has disclosed evidence of reduction in waste in packaging.

> Less packaging material is now used by Montana, while increased recycling means minimum waste is going to landfill…This reduced the use of raw material by about 20%. A further saving comes from the cases themselves being 4% smaller, to press the bottles together and prevent scuffing…We achieved a further saving of 90g of glass per bottle, reducing its weight from 890g to 800g (Montana, 2009).

Other disclosing wine producers, such as Ascension Wine Estate, Jackson Estate Ltd, Yealands Estate Wines Ltd, Sacred Hill Wines Ltd and Sileni Estate Ltd, have reported recyclable packaging.

> We use almost exclusively recyclable packaging (Ascension Wine Estate, 2009).

> The Jackson Estate screwcap and cartons (also known as shippers) are made with 70% recycled material. We are also trialing a new glass manufacturer that uses 50-70% recycled glass. Up to now the only glass we could source was only 30% recycled… (Jackson Estate Ltd, 2009).

> Use of recycled glass and cardboard in packaging (Yealands Estate Wines Ltd, 2009).

Sileni Estate Winery, in particular, has emphasised that they have been part of the Glass Packaging Forum, which uses or sells glass containers in NZ in order to reduce its social and environmental impacts.

> Sileni Estates are proud to be part of the Glass Packaging Forum. With around 5% more glass packaging recovered from homes year on year, New Zealand needs to find additional sustainable alternative recycling uses for its glass. To finance research and development into these alternatives, the Glass Packaging Forum, has established a voluntary levy on all those making, using or selling glass containers in New Zealand (Sileni Estate Winery, 2009).

Similarly, Sacred Hill Wines, who is a member of NZ Packaging Accord, has disclosed that they are using recycled cardboard and products to maintain the bottle integrity

> Scared Hill Wines is also a member of the New Zealand Packaging Accord, a voluntary initiative to cut done on wasteful packaging. We use cartons made from recycled cardboard and purchase glass made with the maximum percentage of recycled glass content possible whilst maintaining bottle integrity (Sacred Hill Wines, 2009).

Moreover, Owhanake Bay Estate has mentioned that all their guest room products are in an environmentally friendly manner, which is in relation to their broader operations. Indeed, it provides evidences that the soaps and hand wash are all sourced from Eco Store.

> Guest room product - We provide environmentally friendly, natural and safe products in our guest rooms. Our soaps, shampoo, conditioner and hand wash are all sourced from Eco Store, who have a philosophy to be the cleanest, greenest company in the cleanest, greenest country in the world. Put simply, they use no nasty chemicals, we like that approach. We use environmentally friendly products, again sourced from Eco Store (Owhanake Bay Estate, 2009).

Therefore, it is found that a minority of wine producers have disclosed environment practices in product related items, particularly in product packaging.

Resource Waste

As mentioned earlier, resource waste is considered from two sub-categories, namely

recycling, and organic waste. From Table 18, 17 wine producers have disclosed 80 sentences in SED of organic waste, whilst 9 wine producers have made 22 sentences to report recycling. In terms of recycling practices, recycling waste such as plastic, glass, cardboard have been mentioned as part of disclosure in web-based SED. Montana disclosed that 100% of the plastic used in its vineyard is recycled.

> Recycling on Montana's vineyards and wineries has made great strides in recent years, with minimal waste going to landfill. 100% of the plastic used on our vineyards is recycled. Plastic is used on vineyards for chemical containers, sheeting; grow guards for young plants; bird netting; irrigation equipment and packaging material (Montana, 2009).

Another disclosing wine producer, Ascension Wine Estate, has disclosed SED to report its efforts to recycle carbon dioxide.

> We even recycle carbon dioxide! The wine industry is a "net user" of CO2 as grapevines consume more CO2 than is given off during fermentation (Ascension Wine Estate, 2009).

Likewise, Gladstone Vineyard has reported its waste management and recycling practices, it has also set up goals to meet all relevant NZ environmental legislation.

> We are also committed to improving waste management and recycling practices, reducing pollution, monitoring and minimizing the use of fossil fuels (and therefore minimizing our carbon footprint) and meeting or exceeding all relevant New Zealand environmental legislation (Gladstone Vineyard, 2009).

Consumption of water is also considered as main concern by the wine producers. For instance, both Yealands Estate Wines Ltd and Orinoco Vineyards have mentioned the utilisation of rainwater in order to reduce their spring water consumption.

> Rainwater harvesting from roof. On-site waste water treatment and reuse. Composting of grape marc[5], leaves and stalks for vine much (Yealands Estate Wines Ltd, 2009).

> All rainwater is collected and used for cleaning and wastewater system purifies then returns all nutrients to the earth (Orinoco Vineyards, 2009).

[5] Grape marc means the solid remains of grapes, olives or other fruit after pressing for juice or oil.

Moreover, disclosing wine producers, such as Palliser Estate Wines of Martinborough and Hunter's Wines (NZ) Ltd have made reference to wastewater on SED, especially of certain actions they have taken to minimise the water consumption.

> Minimise the use of resources in our winery and offices, such as by reusing the winery's wastewater for irrigation and distributing our newsletters and updates by email (Palliser Estate Wines of Martinborough, 2009).

> The grounds at Hunter's winery have undergone a major change in direction over the past seven years, moving away from heavily water-dependent plantings borrowed from the English cottage garden tradition. The winery's wastewater is now irrigating the gardens…. (Hunter's Wines (NZ) Ltd, 2009)

It should be noted, paper waste has also been addressed among the disclosing wine producers. Spy Valley Wines and Palliser Estate Wines of Martinborough have indicated that its newsletters are distributed by e-mail instated of printed papers.

> In the office we distribute our company newsletter by e-mail to 75% of recipients. We intend to make this 100% as soon as everyone catches on to technology. We recycle our waste paper…We are also active members of TerraNova -a non-profit organisation which links one company's waste to another who might have a use for it, e.g., old pallets (Spy Valley Wines, 2009).

In addition, the disclosing wine producers have disclosed sentences in SED of product waste, such as grape marc. For example, Montana has disclosed its concerns of grape marc waste, and how to make this organic waste into compost for its vineyards. Further, Owhanake Bay Estate also discloses that all food waste is used in farm or gardens. For instance:

> All food waste is put in our worm farm or composted for use on gardens (Owhanake Bay Estate, 2009).

It is observed that the disclosing wine producers have demonstrated their responsibilities to protect and maintain the environment by efficiently managing their organic waste and recycling practices.

Community Involvement

The community involvement consists of the well being of the wine producers to the community. Among the 45 wine producers, only one wine producer, Owhanake Bay Estate, has disclosed 3 sentences in SED of community involvement. Owhanake Bay Estate has stated that they are belonging to “Waiheke Weedbusters”, which is a volunteer group for weed removal.

> We also belong to ‘Waiheke Weedbusters’, a volunteer group dedicated to weed removal. We believe in participating in and supporting our community, both local and international. We contribute to several organisations, including The Spirit of Adventure Trust, Amnesty International, Waiheke Weedbusters, and Fossil Bay Kindgarden (Owhanake Bay Estate, 2009).

Further, it also provides SED to report their desire to support community. Lastly, the disclosed SED has highlighted its contributions to other social organisations, such as The Spirit of Adventure Trust, Amnesty International, Waikheke Weedbuster, and Fossil Bay Kindgarden. Thereby, it is observed that there is a lack of evidence among wine producers to disclose community work involvement in SED.

Others

This sub-category involves sentences located in text related to social and environmental issues that do not fall into the above environmental sub-categories. For instance, Spy Valley Wines has provided SED on it environmental facilities, especially, a web communication device to collect green ideas from the users.

> We are still seeking ideas for the sustainable disposal of wooden vineyard intermediated posts and plastic winery hoses… (Spy Valley Wines, 2009).

Likewise, Yealands Estate Wines discloses additional support of sustainability practices, in particular, an e-mail device has been set up to respond via its websites.

> If you’d like to know more about our sustainability practices, please don’t hesitate to ask. Call us on +6435757618 or email us here… (Yealands Estate Wines, 2009)

Further, Jackson Estate Ltd has reported its historical background to sustain the social and environmental practices. Moreover, Hunter’s Wines (NZ) Ltd has revealed its

difficulty to maintain its garden during Marlborough's dry summer.

> Marlborough's dry summers made such a garden difficult to maintain and appear totally out of place as the temperatures rose (Hunter's Wines (NZ) Ltd, 2009).

Thus, it is found that the disclosing wine producers have disclosed their commitment to the social and environmental issues.

In summary, with in the environment theme, the SWNZ program has mostly been disclosed in web-based SED among the selected wine producers. Nearly half of the disclosing wine producers have also disclosed sentences to report vineyard environment, environmental awards, and some general environment concerns of their operational practices. Besides, 12 disclosing wine producers have addressed in web-based SED about environment aesthetics and sustainability. A further observation shows that a relatively less number of wine producers disclose environmental management systems, even though SWNZ program currently promotes it. Moreover, a few wine producers have made SED on philosophy, environmental responsibility, impact, reports, policy, project and audit. Besides, a number of wine producers have disclosed energy use, product development and resources waste. Last but not the least, there is an absence of sentences to report human resources & management and community involvement by the disclosing wine producers.

4.4 Conclusion

In conclusion, the findings were discussed in this chapter is divided into two parts. The first part presents the findings of SED disclosed by the NZ wine industry body. It is found that the level of the disclosures in SED by the wine industry is relatively high, especially, SWNZ have disclosed a significant volume of SED via websites. Further, it is also found that the nature of the disclosed sentences are narrative and in favour of neutral and good news. The content of the disclosed SED reveal that NZ wine industry is strongly promoting social and environmental practices. Especially, the industry body, the NZ Winegrowers has set up the objectives of environmental sustainability practices of the

industry. The industry initiative SWNZ provides programs to facilitate and assist wine producers to achieve fully sustainability with their operational practices.

The second part focused on the findings of the disclosing wine producers. It is observed that a majority of wine producers do not disclose any SED practices in their websites. A further observation indicates that a relatively less number of disclosures of environment certificates have resulted in less sentences in SED. In relation to the content of the disclosures, it is found that the disclosing wine producers prefer to disclose SED in narrative form, and in favour of neutral and good news. Besides, the findings present that a wide range of environmental practices have been disclosed by the selected wine producers. Indeed, a significant volume of SED is made to report on the SWNZ program by the disclosing wine producers. Other aspects, such as environmental awards, aesthetics and sustainability have been mostly emphasised in SED. However, a relatively less number of wine producers have made SED on philosophy, environmental responsibility, impact, reports, policy, audit, policy, and project. Likewise, it also shows a minority wine producers have made sentences in SED to report human resources & management, and community involvement. In addition, energy use, product development and resources waste have been highlighted in the disclosed web-based SED. The next chapter will use legitimacy theory to discuss the findings in order to create some meaningful explanations for this research.

CHAPTER FIVE: DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

Chapter Five aims to investigate the third research question, in particular, using legitimacy theoretical framework to explain the findings. Since the findings are consistent with the level and contents of the disclosures in SED, the discussions will be focused on those two aspects. Firstly, the level of disclosures in SED will be explained. Secondly, the content of the disclosures in SED will be analysed on the basis of the legitimacy strategies. Finally, a conclusion will be drawn based on the discussions.

5.2 Level of Disclosures in SED by NZ Wine Industry and Wine Producers

As mentioned in Chapter 3 & 4, the level of disclosures is considered from two levels, which are the NZ wine industry body and its member wine producers. At the industry level, the discussion is focusing on the volume of SED that disclosed by the wine industry body. At the wine producers level, two sections are included, namely the number of the disclosing wine producers and the volume of disclosures. Accordingly, legitimacy theory will be applied to explain the results from these aspects.

5.2.1 NZ Wine Industry Strongly Promoting on SED

As found in Chapter 4 Findings, SWNZ, as an industrial initiative group to foster social and environmental practices has disclosed 205 sentences in SED via website. The industry body, NZ winegrowers has also provided 24 sentences in its website. It therefore can be seen that the NZ wine industry is currently strong promoting on SED practices. Indeed, NZ wine industry has perceived the importance of ‘clean green’

country image, which enriches the wine trading in overseas markets. Evidently, the country origin label of environmental friendly is increasing the NZ wine sales in the world. Bernabeu et al (2008) has emphasised that the country origin of wines is becoming an important factor for the customers on wine purchase decisions. Skuras and Vakrou (2002) also provide evidence that wine consumers are willing to pay double the price for a bottle of normal table wine that guarantee the country of origin. It is observed that the 'clean green' country image encourages overseas customers to purchase NZ wines. Therefore, the NZ wine industry has taken advantages of promoting wine trading through setting objectives of environmentally sustainability by its members. It should be noted that, 'clean green' image is a legitimacy strategy for the industry to continue success in overseas market. To maintain its legitimacy of 'clean green' country image, the NZ wine industry is strongly promoting on SED practices. SWNZ as an initiative group guides and assists its member wine producers to in line with the industry's performances by providing valuable resources and facilities.

5.2.2 Number of Disclosing Wine Producers

In relation to the number of disclosing wine producers, the discussions are undertaken from two facets. Firstly, the discussion focuses on the non-disclosing wine producers. Especially, the analysis will explore the reasons for the SED non-disclosing wine producers by referring to the previous SED studies on legitimacy theory. Secondly, concepts and framework provided by legitimacy are used to explain findings including the potential legitimacy gap currently existing between the NZ wine industry's expectations and its members SED practices. Indeed, Lindblom's (1994) legitimacy strategies will be used to provide some meaningful explanations.

5.2.2.1 Non-disclosing Wine Producers

As found in Chapter 4 Findings, a majority of wine producers have not disclosed web-based SED in the NZ wine industry. Evidently, it is found that 599 out of 644 wine

producers have not disclosed SED via websites. From an initial observation, it is also noted SED disclosed by the wine producers within hard copy reports is not common practices. This finding can be explained by the previous SED studies that use legitimacy theory as a theoretical framework. In particular, the past studies of relationship between environmentally sensitive industries and the magnitude of SED provides some insights for this study.

As mentioned in Chapter 2 Literature Review, a positive relationship is observed between environmentally sensitive industries and the level of SED. In fact, in the environmental context, environmentally sensitive industries will need to impart a higher level of legitimacy to the relevant public than companies operating in industries that have acceptable level of environmental conditions (Campbell, 2003, 2004; Savage et al., 2002; Wilmshurst & Frost, 2000). In other words, environmentally sensitive industries are more visible and accountable for their operational practices in the social and environmental contexts. Therefore, relatively greater magnitude of SED is provided to demonstrate their social and environmental responsibilities.

NZ wine industry can not be categorised as an environmentally sensitive industry. In comparison to those environmentally sensitive industries, such as oil, mining and chemical industries, relatively less demand for special environmental protections is expected for the NZ wine industry. In this situation, the wine producers may not feel very accountable for their operational practices within the stable environmental context. As a result, the level of disclosures in SED among the wine producers is comparatively low. Hence, the relationship between the environmentally sensitive industries and the level of SED explains that why most of the wine producers have not disclosed web-based SED.

Further, a number of SED studies have revealed main reasons for the non-disclosing business organisations by using legitimacy theory. Indeed, three main reasons have been commonly shown in the past literatures, namely a lack of government pressure, a

lack of perceived benefits, and a perception that organisation does not have any environmental impacts (Perry & Teng, 1998).

As defined in Chapter 2 Literature Review, government pressure is the primary force of environmental movement for the business organisations. In particular, it is the essential determination for the SED practices (Brown & Deegan, 1998; Deegan et al., 2002; Neu et al., 1998; Patten, 2002). However, the current status of the SED practices in NZ is voluntary. In that case, wine producers can either voluntarily disclose SED or ignore their social and environmental impacts. Therefore, a lack of government pressure in SED practices in NZ results in a low level of SED in the NZ wine industry and its member wine producers.

Further, a lack of perceived benefits may also be a reasonable effect to explain the findings of SED non-disclosing wine producers. It is observed that 90% (578/644) of the wine producers within the NZ wine industry are low turnover organisations. Thus, those small turnover wine producers can not afford for costs of such disclosures. In other words, considering the cost effectiveness of the SED practices, these small turnover wine producers do not seem to benefits from the disclosures rather suffer an extra cost. According to O'Donovan (2002), if the business organisations have nothing to gain, they do not need to make any disclosures. Thus, these non-disclosing wine producers haven't foreseen the benefits of the SED practices, and therefore, they decide not to provide disclosures of their social and environmental impacts.

In addition, the organisations' perceptions of environmental impacts directly affect the SED practices. Evidently, previous literature have investigated that the non-disclosing organisations have a perception of unawareness in perceived environmental impacts. Indeed, if wine producers are not aware of their operational practices in social and environmental contexts, they will not perceive any environmental impacts. Therefore, those wine producers have not disclosed SED through their websites.

In short, the past SED literatures on legitimacy theory efficiently explain the level of the SED. Since the NZ wine industry is not categorised as an environmentally sensitive industry, the magnitude of SED is relatively low. Indeed, most of wine producers have not disclosed SED, because they operate in an environmentally stable condition. Further, three main reasons that have been outlined in the previous literatures are relevant to this study. In particular, a lack of government pressure leads to a low level of SED in the NZ wine industry. Besides, a majority of the wine producers who are categorised as small size have not foreseen the benefits of SED, especially in considering cost effectiveness of such disclosures. The perception of the wine producers on non-environmental impacts also adversely affects the level of the SED. The following analysis will use the legitimacy theory to explain the legitimacy gap currently existing.

5.2.2.2 Industry's Expectations Vs Members' Practices

As mentioned earlier, the NZ wine industry is strongly promoting social and environmental practices. Especially, the industry body, the NZ Winegrowers has set up the objectives to achieve full sustainable operational practices for all wine producers by year 2012. The NZ winegrowers has a key role to educate awareness of its members with promotion of environmental sustainability practices. Therefore, wine producers should be aware of the need of sustainability, and produce wine in an environmentally sustainable manner.

In fact, it is found that a majority of wine producers have not disclosed social and environmental practices via their websites. As found in Chapter 4 Findings, only 45 out of 644 wine producers have disclosed web-based SED. However, the NZ Winegrowers has claimed that the NZ wine industry is well on the way to achieve the full sustainability by the year 2012. It appears a legitimacy gap exists currently between the industry expectations and its member wine producers. Indeed, all non-disclosing wine producers are not in line with the industry's philosophy on sustainability. Whilst, the NZ wine

industry has not reported this fact, and they believe they are on the right track to achieve their objectives. This could be explained that either the industry is unknown or unconscious of existence of such gap or industry is not revealing the truth.

In relation to the Lindblom's (1994) final legitimacy strategy, business organisations attempt to seek an adjustment to societal expectations in order to bring the society's expectation in line with business organisation's' goals and achievements. Based on the above discussions, the NZ wine industry has disclosed positive perspective of the environmentally sustainable practices to alter the society's expectations. As a result, the disclosures that are provided by the NZ Winegrowers can be used to bring the society's expectation in line with the NZ wine industry's performance. Thus, even a existence of legitimacy gap between the members' actual performance and industry's expectations, the NZ wine industry can still maintain its legitimacy of 'clean green' country image for wine trading in overseas markets.

In summary, the number of disclosing wine producers is discussed from two angles. Initially, the past SED literatures on legitimacy theory are referred to explain why a majority of wine producers have not disclosed SED. In particular, the relationship between the environmentally sensitive industries and the magnitude of SED provides a meaningful illustration for the findings. Besides, three key reasons for non-disclosing wine producers are outlined on the basis of the past literatures. In addition, it is observed a legitimacy gap currently exists between the industry expectations and its members' performance. Lindblom's final legitimacy strategy to alter the society's expectations enables this study to explain the legitimacy strategy of the NZ wine industry. Since the level of the disclosures in SED is not only considered from the number of the disclosing wine producers, but also the volume of such disclosures. Thereby, the following discussion will be devoted to explain results of the volume of disclosures in SED using the legitimacy theoretical framework.

5.2.3 Volume of disclosures in SED

In respect of the volume of disclosures in SED, it encompasses two forms of presentation, namely the text and pictorial format SED. Since the findings are represented separately in Chapter 4 Findings, the discussions of the volume of disclosures will be made under these two forms. The discussion on text format SED highlights the relationship between the size of the disclosing wine producers and the volume of disclosures, whilst the volume of pictorial format SED will be explained by using Lindblom's legitimacy strategies.

5.2.3.1 Text Format SED

In terms of the text format SED, this research provides evidence to support the previous studies on the positive relationship between disclosing company size and SED (Cowen et al., 1987; Deegan & Gordon, 1996; Elibert & Parket, 1973; Gray et al., 1995a; Pang; 1982; Spicer, 1989; Trotman & Bradley, 1981; Watts & Zimmerman, 1978). It has been found that, Montana, who is the largest wine producer in NZ, has made the highest volume of SED via their website. Similarly, the other three wine producers with over 30 sentences all fall into the medium size category on the basis of annual turnover. Further, 3 out of 45 small turnover wine producers have only disclosed one sentence in SED. Therefore, it could confirm that a positive relationship exists between the size of disclosing wine producers and the volume of SED.

In addition, the relationship between the size of wine producers and the average of number of sentences disclosed in SED also appears to be positive. Indeed, the large size wine producers disclosed 31 (124/4) sentences in average, whilst average 20 (362/18) sentences have been provided by the medium size wine producers. The small size wine producers disclose 11 (246/23) sentences on average. Thus, it should be noted that the size of the disclosing wine producers have a positive association to the

volume of disclosure in SED. In other words, the turnover of the disclosing wine producers is directly associated with the level of SED.

This situation was explained by Spicer (1989), who found that the large size companies tend to have more environmental impacts compared to small size companies. Thus, the large size companies may need to perceive greater level of legitimacy in order to continue survival. Accordingly, large size companies have disclosed more SED to effectively manage its organisational legitimacy. Further, Bolivar (2009) has indicated that the large size companies attract higher attention from stakeholders regarding social and environmental issues. In other words, the high turnover leads the business organisations to become a highly visible target in terms of environmental issues. In that case, the wine producers with higher turnover need to be seen as environmental responsible, and therefore they are willing to disclose greater amount of SED in order to achieve higher status of legitimacy. Further, the large size companies may have greater capacity to spend money on the SED practices, whereas the small size companies cannot afford.

5.2.3.2 Pictorial Format SED

As mentioned in Chapters 3 and 4, the pictorial format in SED focused on the environmental certificates symbols and/or images that wine producers have disclosed via their websites. It is found that 33% (15/45) of disclosing wine producers have presented environmental certificates through their websites. A further observation reveals that a few environmental certificates that wine producers have achieved, the less sentences they have disclosed in web-based SED.

In this situation, if the disclosing wine producers have not received any environmental certificates, they will have nothing to report in terms of environmental certification. By contrast, those wine producers who disclosed certificates have given a greater emphasis on SED to the relevant public. Indeed, they attempt to use environmental

symbols to draw favourable attention in order to gain and/or maintain their organisational legitimacy. In respect of Lindblom's (1994) third strategy, the corporate social disclosures may be used to manipulate perception by deflecting attention from the issues of concern to other related issues through associating with symbols have high legitimacy status.

It should be noted that the disclosed environmental certificates include three types, namely SWNZ certificate, ISO 14001 certificate and the CarboNZero certificate. As mentioned in section 3.2.4 Industry Structure, SWNZ is an industry initiative program that assists the wine producers to achieve fully environmental sustainability. Accordingly, wine producers that are accredited by SWNZ are in line with the industry objectives that produce and deliver wine in an environmentally sustainable manner.

Moreover, both of ISO 14001 and CarboNZero certificates are the globally recognised environmental symbols, which enrich the level of perceived legitimacy. In other words, these globally recognised environmental symbols provide means for the disclosing wine producers to fulfill the society's expectations in a global context. Besides, these environmental certificates may also enable the wine producers to continuously succeed in overseas markets. Since most of the NZ wines are exported to the developed countries, such as USA, Australia, UK, who are more environmental conscious in making purchase decisions (Berens, 2004), the achieved international environmental certificates maybe adding value to the disclosing wine producers in export markets. Thus, having the international environmental certificates lead the disclosing wine producers to perceive a greater level of legitimacy. As a result, the wine producers disclosing environmental certificates are willing to report sentences in SED about their achievements in order to gain and/or maintain its organisational legitimacy.

To sum up, the volume of SED disclosed by the NZ wine industry appears higher, whereas the volume of SED is low among the member wine producers. In fact, the NZ wine industry operates within a stable environmental condition, and therefore, most of

wine producers have not disclosed SED via their websites. The lack of government pressures, unforeseen benefits of SED practices and unawareness of perceptions of environmental impacts lead the wine producers to decide not to make disclosures for their social and environmental impacts. Therefore, it results in a legitimacy gap currently between the wine industry's expectations and its members' practices. However, the NZ wine industry attempts to alter the society's expectation in order to mitigate such gap, which is confirmed by Lindblom's final strategy.

Further, a positive relationship is observed between the size of the disclosing wine producers and the level of SED. In particular, the large size wine producers have perceived their accountability for their operational practices, which leads to a greater amount of SED. In consideration of pictorial format in SED, the disclosing wine producers have reported environmental certificates to deflect the issues of concerns in order to fulfill the society's expectations. Especially, the disclosing wine producers seek global recognition by portraying the globally accepted certificates. The following section discusses the results of content of disclosure in SED.

5.3 Content of disclosures in SED by the NZ Wine Industry and Wine Producers

Results on the content of disclosures in SED are presented under three sub-sections. Firstly, the nature of the disclosures in SED will be explained by referring to the past SED literatures. Secondly, Lindblom's legitimacy strategies will be implemented to provide some meaningful explanations for the SED practices that have been disclosed by the wine producers. Finally, the discussion will explore why relatively significant volumes of disclosures are provided on SWNZ.

5.3.1 Nature of disclosures in SED

Chapter 4 Findings has presented that the nature of disclosed SED are narrative, and in favour of neutral and good news. As mentioned in Chapter 3 Research Method, one of the limitations of the use of the content analysis is subjectivity (Gray et al., 1995b; Milne & Adler, 1990; Unerman, 2000). In other words, it is capturing various narratives as a representation of SED. Therefore, the nature of disclosed sentences in SED is due to the subjectivity of the content analysis. Besides, the past SED studies on legitimacy theory also provide some explanations for the nature of disclosures.

In relation to legitimacy theory, it appears to be some concerns among the industry body and disclosing wine producers to portray an environmental responsible image. Belal (2001) has conducted a research study to explore that this matter can be discerned from the fact that environmental disclosures are heavily limited to purely descriptive statements giving either neutral information or good news without any monetary quantification. In fact, it is observed that only 1% (4/732) of disclosed sentences in SED by the disclosing producers falls into the monetary type, whilst, none of the disclosed sentences in SED by the industry body is categorised into monetary term. Therefore, the present research has provided evidence to support previous studies. In other words, the disclosures in SED are vary general in nature, which appears the NZ wine industry body and disclosing wine producers are not primarily concerned with accountability to society. Thus, the creditability of disclosures in web-based SED among the NZ wine industry body and the disclosing wine producers are questionable.

As outlined in Chapter 2 Literature Review, business organisations are engaged in a social contract, and therefore, they need to conduct their operational practices in a manner acceptable to society. Based on the notion of social contract, the disclosing wine producers have social and environmental responsibilities for their operational practices. Once the social and environmental innovative practices are taken place, it will bear some costs for the wine producers. However, among these 45 disclosing wine

producers, only one, Yealands Estate Wines Ltd has reported in monetary terms, in particular of environmental costs. Hence, the disclosures in SED seem to be a public relations tool used to enhance the image and reputation of the NZ wine industry and the disclosing wine producers.

5.3.2 Varieties of Social and Environmental Practices Involved in SED

Based on the findings in Chapter 4, the content of disclosures in SED by the disclosing wine producers involves a variety of social and environmental practices. Evidently, SWNZ program, environmental awards, aesthetics, vineyard environment and sustainability have been mostly emphasised in web-based SED. A comparatively less number of disclosing wine producers have made SED on environmental management systems, responsibility, impact, reports, audit, policy, projects. A further observation indicates that energy use, product development and resources waste, human resources and management, and community involvement have also been highlighted in web-based SED.

Based on the above findings, it should be noted that the disclosing wine producers have perceived legitimacy from different perspective of the social and environmental practices, such as environment, human resource and management, community involvement, resources waste and energy use. According to Yongvanich and Guthrie (2007), the disclosures of some elements of environmental and social practices that are widely reported are deemed to reveal the strategy of educating and informing society that the organisation has changed the way they operate to conform to the societal expectations about those issues that were widely disclosed.

This is ascertained by Lindblom's (1994) first legitimacy strategy that focuses on the internal adjustment of the business organisations in conformity to the relevant public's

expectations. Especially, SED can be made to “educate and inform the relevant public about the changed performance” (Lindblom.1994, p.13). In that case, wine producers may be demonstrating their actual changing performance through disclosing wide elements of social and environmental practices to communicate appropriateness to the society. However, to confirm whether actual change practices are occurring further research would be required, which is outside the scope of this study.

For instance, Montana has disclosed that all of the plastic used in its vineyard is recycled. Mission Estate Winery has disclosed its thermo-mass construction, which effectively reduces the demand of energy resources, especially during winter. Likewise, both of Yealands Estate Wine Ltd and Orinoco Vineyards have mentioned the utilisation of rainwater in order to reduce the spring water consumption. Moreover, Ager Sectus Wines Estate Ltd has reported that a minimalist spray program is implemented in vineyards to reduce its environmental impacts. Further, Wairau River Wines Ltd discloses its efforts of protection of the native birds. Besides, Delegat’s Wine Estate reports the on-going education of employees that enhances the efficiency of the management systems and mechanisation. Hence, all these disclosed changing performances are educating and informing the relevant public in order to achieve congruency.

Apart from that, the varieties of social and environmental practices also represent the responsiveness of the disclosing wine producers to stakeholders’ pressures. Indeed, previous empirical studies have indicated that customer pressures compose an important determinant of firm’s environmental conduct in the domestic settings (Arora & Cason, 1995; Christmann & Taylor, 2001; Henriques & Sadorsky, 1996). Thus, consumer pressures become a crucial factor to force the business organisations to disclose social value to the society.

Wine is considered to be a luxury product for people’s day to day living, they can alternatively choose some necessity rather than purchase of wine. Besides, there is an increasing criticism in the media about harmfulness of alcohol for human health and

family. Thus, all these negative criticisms may affect the sale of wine, and it may also adversely influence their organisational legitimacy due to the negative perceptions of the consumers.

To response to the stakeholders, wine producers can use SED to demonstrate their accountability to the society in order to alter the perceptions of the community, which is confirmed by Lindblom's second legitimacy strategy. Indeed, Yongvanich and Guthrie (2007) indicate that this strategy may have been utilised to emphasis the organisations' successful efforts in improving and preventing problems relating to those issues and altering society's perception. Accordingly, the disclosing wine producers seek to change the stakeholders' perceptions by disclosing varieties of elements of social and environmental practices.

Further, Meijer and Schuyt (2005) have stated that good corporate social performance motivates consumers to buy products. Thus, the disclosing wine producers intend to establish a good corporate citizen relationship with the community through social and environmental practices in order to facilitate wine sales. Hence, it appears that the disclosing wine producers are likely to use SED as a public relation tools to enhance reputation and profitability.

5.3.3 Significant Volume of Disclosures on SWNZ

The significant volume of disclosures on SWNZ by wine producers is one of the key findings. The disclosing wine producers have heavily emphasised the SWNZ program, which amounts to 111 sentences out of 733. Since SWNZ is an industry initiated program to facilitate the environmental sustainability, the disclosing wine producers have likely benefited from this program, and thereby reported SWNZ accreditations. Furthermore, one of the disclosing wine producers have made statements to indicate that SWNZ is an assurance to their customers to demonstrate that they have fulfilled

industry objectives. In other words, wine producers that are accredited to SWNZ may be recognised as environmentally friendly operating.

According to Lindblom's third legitimacy strategy, SED can be made to deflect attention from issue of concern through an appeal to emotive symbols (Yongvanich & Guthrie, 2007). Thus, wine producers can manipulate the society's perceptions by aligning with environmentally recognised symbols, such as the SWNZ accreditations. Indeed, it provides an alternative method for business organisations to gain and/or maintain legitimacy rather than disclosing actual environmental practices.

A further observation shows that a minority of the disclosing wine producers have made references on the environmental management systems, whilst SWNZ program itself is currently promoting the same. Evidently, the content of the disclosed sentences of SWNZ are mainly focused on the handbook of SWNZ program. In fact, some of the disclosing wine producers have directly copied certain extracts of SWNZ's handbook. According to Yongvanich and Guthrie (2007), this may also result from management's intention to drive public attention away from information that is rarely reported. Therefore, the environmental management systems that have rarely reported may simply reflect the fact that these are the issues that the majority of the disclosing wine producers do not want to bring into attention, and avoid creating a negative image of the organisations.

It could be noted that as members of SWNZ, the disclosing wine producers have not truly reflected their actual performances in relation to social and environmental issues, rather using SWNZ accreditations as a legitimate assurance for continuously operations. Hence, Lindblom's third strategy therefore provides an explanation as to why most of the wine producers have disclosed SED on SWNZ accreditations. Indeed, it also provides insights that disclosing wine producers seem to disclose SED as method to enrich their reputation for business success rather than truly express social value to the community.

In brief, the content of disclosures in SED has been explained by utilising the legitimacy theory and its relevant literature. The nature of the disclosures demonstrates the management intentions for social and environmental practices. In particular, the SED appears to be a public relation tool rather than demonstration of their accountability to the society. Besides, Lindblom's legitimacy strategies have been adopted to provide some insights for the widely disclosed social and environmental information. Indeed, disclosing wine producers seek to educate and inform the relevant public through stated actual changing performance in order to achieve congruency. Further, varieties of elements of social and environmental practices are also disclosed with a view to change the stakeholders' perceptions in order to increase wine sales. Moreover, the disclosures on SWNZ represent management intentions to manipulate society's perception by deflecting attention from issues of concerns.

5.4 Conclusion

In conclusion, both of the level and content of disclosures can be explained by the legitimacy theory and its relevant concepts, in particular of social contract and legitimacy strategies. The industry body has provided a significant volume of SED via websites, whereas the level of disclosures appears relatively low among the member wine producers. This is due to the lack of government pressures, unforeseen benefits of SED practices and unawareness of perceptions of environment impacts. In fact, NZ wine industry operates in an environmentally stable condition, and therefore, a majority of wine producers have not disclosed web-based SED. In relation to the NZ wine industry, it has undertaken a strategy to bring the society's expectation in line with its performance in order to continue success (Lindblom's final strategy). Further, the text format in SED is explained in relation to the size of the disclosing wine producers, whilst, the pictorial format in SED demonstrate the wine producers have attempted to achieve a greater legitimacy status with its disclosed environmental certificates (Lindblom's third strategy).

In terms of content of disclosures, Lindblom's legitimacy strategies have been successfully used to provide meaningful explanations. The nature of the disclosures demonstrates that SED appears to be a public relation tool to enhance the reputation and image of the NZ wine industry body and the disclosing wine producers. Lindblom's first and second legitimacy strategies explain why varieties of social and environmental practices have been disclosed. Moreover, Lindblom's third strategy illustrates disclosures on SWNZ with a view to manipulate society's perception by deflecting attention from issues of concerns. It could be seen, legitimacy theory is efficiently utilised in this study by creating some in-depth discussion of the SED practices in the NZ wine industry and its member wine producers. The next chapter will draw conclusions for this research.

CHAPTER SIX: SUMMARY & CONCLUSIONS

The aim of this study was to investigate the web-based SED practices of the NZ wine industry and its member wine producers. Three research questions were constructed in order to achieve this aim. Firstly, this study examined to what extent the NZ wine industry and its members disclose SED via their websites. Secondly, the content of the web-based SED disclosed by the NZ wine industry and wine producers was identified. Lastly, the study drew on legitimacy theory to explain the level and the content of the disclosures in the web-based SED of the NZ wine industry and its member wine producers.

This chapter concludes this research and consists of three sections. The first section revisits the research questions and provides a summary of the findings in relation to each question. The second section discusses limitations of the present study along with some suggestions for future research. The last section concludes the research with some final points.

6.1 Conclusions of the Research

As stated above, there were three research questions addressed in this study. Each research question and its findings are now concluded.

6.1.1 Conclusions on the Level of Disclosures in Web-based SED

In relation to the level of the disclosures in web-based SED by the NZ wine industry and its member wine producers, two conclusions can be drawn from the findings. One is that high level of the disclosures in web-based SED is reported by the NZ wine industry body, whereas the web-based SED appears low among its member wine producers. Indeed it

can be noted that a majority of wine producers have not disclosed their social and environmental practices or other related information through their websites. A further conclusion, and in line with the literature in the field, is that a positive relationship is observed between the volume of disclosures and the size (annual turnover) of the disclosing wine producers. Similarly, a positive association is also found between the number of disclosed environmental certificates and the volume of disclosures in web-based SED.

6.1.2 Conclusions on the Content of Disclosures in Web-based SED

The dominating nature of the web-based SED is narrative, and in favour of neutral and good news. Since the content of the web-based are consisting of NZ wine industry body and member wine producers, the conclusion is provided separately.

In relation to the NZ wine industry body, the web-based SED has included six facets, namely the NZ environment, the objectives of social and environmental practices, member wine producers' development, environmental sustainable development, environment management systems, and the background of the SWNZ. Among these disclosures, NZ wine industry body has heavily emphasised on the member wine producers development regarding to social and environmental practices and issues. In particular, NZ Winegrowers has formulated an objective to encourage all member wine producers to implement innovative social and environmental practices to produce and deliver wine in an environmentally friendly manner in order to in line with the industry's performances. This was done in view of the recognition by the NZ wine industry body, the importance of the 'clean green' country image for its wine trading. Thus, a conclusion can be drawn that the NZ wine industry has given consideration to the social and environmental impacts regarding member wine producers' operations, not only nationally, but also in global context.

In respect of the disclosing wine producers, a variety of social and environmental information and issues have been reported via their websites. In particular, the disclosed SED are mainly considering from five angles, namely environment, energy, human resources and management, product, waste, and community involvement. Different perceptions of the disclosing wine producers are also seen to result in different emphasis regarding to social and environmental practices. For instance, some of the disclosing wine producers have reported their social and environmental innovative practices in the vineyards, whereas others have provided disclosures on the environmental aesthetics, such as planting trees. Thus, all these different disclosures reveal the disclosing wine producers have different perceptions regarding social and environmental issues. As a result, the volume of disclosures on each social and environmental practice is different. In addition, one of the significant observations made in this study is that most of the disclosing wine producers have provided disclosures on SWNZ. However, the content of the disclosures of SWNZ do not appear to address the environmental management systems by the disclosing wine producers, rather only an extract from SWNZ's handbook. In other words, the disclosing wine producers reported SED on SWNZ seem to have an industry assurance in order to fulfil the society's expectation. Thus, it can be concluded that the quality of the content of the disclosures in web-based SED among the disclosing wine producers is debatable.

6.1.3 The NZ Wine Industry and SED: Insights from Legitimacy Theory

Legitimacy theory and its relevant concepts have been successfully used in the present study to provide some meaningful explanations for the findings on the level and content of disclosures in web-based SED in the NZ wine industry. Previous SED studies that have used legitimacy theory have been referred to in order to draw some relevant explanations. Furthermore, Lindblom's legitimacy strategies have also been drawn on to present findings on the level and content of disclosure. In respect of the level of the

disclosures, Lindblom's final strategy explains the NZ wine industry's legitimacy strategy that positive perspective of its environmentally sustainable practices to bring the society's expectation in line with the NZ wine industry's level of performance. Thus, even a legitimacy gap exists between the industry's expectations and its members performance, the NZ wine industry can still maintain its legitimacy of 'clean green' image on wine trading in overseas market.

In consideration of the content of disclosures, Lindblom' first and second legitimacy strategies provide explanations for the legitimacy strategies of the disclosing wine producers. A wide coverage of disclosures of social and environmental practices reveal that the disclosing wine producers are educating and informing the society that they have changed the way they operate in order to achieve congruency with society. Further, the disclosing wine producers also attempt to emphasis their successful efforts in terms of social and environmental practices in order to establish a good corporate citizen relationship with community. Moreover, Lindblom's third strategy explains the fact that a significant volume of disclosures in SED has been reported on SWNZ. In other words, the disclosing wine producers adopt a legitimacy strategy to manipulate the society's perception by disclosing environmental certificates in order to avoid creating a negative image.

Based on the above explanations of the disclosing wine producers' legitimacy strategies, a conclusion is derived that the web-based SED disclosed by the wine producers are likely to disclose web-based SED as a public relation tool to enhance their reputations in order to continue success in wine trading. Good corporate social performance motivates consumers to buy the products. Therefore, the intention of the disclosing wine producers to establish a good corporate citizenship with the public through SED seems to enhance the wine sales. Further, the disclosing wine producers, who have provided sentences on SWNZ, seem to use SWNZ accreditations as an industrial legitimacy assurance for continuous operations. Hence, the web-based SED that have disclosed by the wine producers appear to be a method to enrich their reputation for business

success.

6.2 Limitations and Suggestions for Future Research

As is often the case with research studies, the present study has limitations. Thus, certain limitations are identified and some suggestions for future research are outlined.

Firstly, the present study focuses on the web-based disclosures. However, as outlined in Chapter 2 Literature Review, the selection of websites as the communication media of SED in this research has been chosen as it is considered to be the most relevant and useful for this study. A number of research studies have indicated that websites offer various advantages over traditional hard copy reports, which leads to an increasing amount of SED being disclosed via websites (Bolivar, 2009; Graafland et al., 2004; Jose & Lee, 2007; Paine, 2008; Williams & Pei, 1999). Further, the researcher has found that minimal social and environmental hard copy reports are disclosed among the members of the NZ Winegrowers. Therefore, the website was the best medium to analyse in this research. Future research into disclosure practices and reporting by the NZ wine industry is however needed and it is suggested that such research could look more broadly into other media, such as media releases, advertising. Interviews with report producers and/or readers would also be beneficial to further investigate SED and the NZ wine industry.

Secondly, the timing of the data collection is another limitation for the present study. The membership of the NZ Winegrowers is constantly changing, in particular growing along with the industry growth, and therefore, the researcher only captured the wine producers at a particular point in time. Further, the website is updated weekly and the web-based SED are collected in a certain date of the current year. Thus, some of the updated information is not included which affects the data analysis of the present study. Consequently, future research may suggest selecting to carry out monitoring web-based SED on a regular periodical basis.

Lastly, the research method used in this study, content analysis, has enabled a description of the level and content of SED. As Guthrie and Abeysekera (2006) state, content analysis is a process of capture quantity of disclosures rather than quality of characteristics. In other words, the use of content analysis leads the present study to draw on level and content of disclosures. As such, it provides insight into 'what' and 'how much' is being disclosed, and to a certain extent 'why' it may be being disclosed but does not lead to an analysis of how it is being disclosed or its effect. Thus, future research may use some other research techniques and methods, such as interviews and discourse analysis, to provide further analysis of SED practices among the NZ wine industry and its member wine producers.

6.3 Conclusions

Conclusions relating to this study's three research questions have been discussed. This study indicates that the NZ wine industry body has provided high level of the disclosures in web-based SED, but appears relative low among its member wine producers. It is therefore found that the member wine producers are not in line with the NZ wine industry's objectives regarding to the social and environmental practices. Moreover, the present study has provided evidence to support past SED literature, in particular that which has found a positive relationship between disclosing company size and SED. In addition, findings in relation to the content of the disclosures have revealed possible legitimacy strategies of the NZ wine industry and its member wine producers. Especially, it has been asserted that the 'clean green' country image is likely to be a public relation tool to enable the NZ wine industry and its members continually gaining competitive advantages and legitimacy at home and in international markets. At a time where NZ wine industry is growing and expand its overseas market, at the same time, there is a greater censoriousness of 'clean green' image, the finding of the report will be useful for the NZ wine industry and its members. In summary, this research has highlighted the importance of the SED to the NZ wine industry and its member wine producers, and makes contribution for the SED literatures in the NZ wine industry.

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Appendix

Appendix 1 Membership Wine Producers of NZ Winegrowers in 2009

<u>Category I</u> Large wineries, annual wine sales exceeding 2 ,000,000 litres							
Constellation New Zealand Ltd (Kim Crawford Winery)	Pernod Ricard NZ (Montana)	Delegat's Wine Estate Ltd	Villa Maria Estate Ltd(Vidal Estate Ltd)	Matua Valley Wines Ltd	Gisborne Winery		
<u>Category II</u> Medium wineries, annual wine sale between 200,000 – 2,000,000 litres							
Astrolabe Wines Ltd	Cloudy Bay Vineyards Ltd	C J Pask Winery Ltd	Cable Bay Vineyards Ltd	Cape Campbell Wines	Craggy Range Vineyards Ltd	Hunter's Wines (NZ) Ltd	Isabel Estate Vinyard
Chard Farm	Babich Wines Ltd	Forrest	Dog Point Vineyard	Highfield Estate	Lismore	Matakana Estate	Nautilus Estate
Endeavour Vineyards Pty Ltd	Goldschmidt Vineyards	Te Kairanga Wine Ltd	Mills Reef Winery Ltd	Mission Estate Winery	Morton Estate Ltd	Lawson's Dry Hills Wines Ltd	Omaka Springs Estates Ltd
Jackson Estate Ltd	Kahurangi Estate	Seresin Estate Ltd	Seifried Estate	Sileni Estates Ltd	Toi Toi Wines	Spy Valley Wines	Tohu Wines Ltd
Lake Chalice Wines Ltd	The Mud House Wine Group	Mount Riley Wines Ltd	Mt Difficulty Wines	Pegasus Bay Winery	Ngatarawa Wines Ltd	Saint Clair Family Estate	Sacred Hill Wines Ltd
Waihopai River Vineyard Ltd	Palliser Estate Wines of Martinborough	The New Zealand Wine Company Ltd	St Helena Wine Estate	Wither Hill Vineyards Marlborough Ltd	Waimea Estate (Nelson) Ltd	Tinpot Hut Wines Ltd	Wairau River Wines Ltd
Spencer Hill Estate	Maven Wines Ltd	Trinity Hill Ltd	Morton Estate Ltd	Sherwood Estate Wines Ltd	Whitehaven Wine Company Ltd	Te Mata Estate Winery Ltd	Yealands Estate Wines Ltd

New Zealand Wine Cellars

Category III Small wine producers, annual wine sales not exceeding 200,000 litres

3 Brothers Winery	3 Terraces Wines	8 Ranges Wines	Akarangi Wines	Akarua	Alexia	Alana Estate Ltd	Aravin Ltd
Abbey Cellars	Ake Ake Vineyard	Askerne Winery	Antipodean Farm	Auburn Wines Ltd	Aurum Wines Ltd	Aorangi Road	
Alexander Vineyard Martinborough	Ascension Wine Estate Ltd	Alan McCorkindale Ltd	Amor-Bendall Wines	Anthem Wine Company Ltd	Antmoore Wineworks Ltd	Alexandra Wine Company	Arahura Vineyard Ltd
Amisfield Wine Company	Anchorage Wines New Zealand Ltd	Archangel (Avalon Estate Ltd)	Auntsfield Estate Ltd	Auckland Wine Trust	Arrow River Wine Company	Ash Ridge Wines Ltd	Balthazar Estate Ltd
Arden	Alpha Domus Ltd	Artisan Wines Ltd	Ata Rangi Ltd	Ashwell Vineyards	Borough Ltd	Bellbird Spring	Bentwood Wines
Barrel Fence Cellars	Bald Hills Vineyard	Barkers Marque Vineyards Ltd		BCG Vineyard Ltd	Birchwood Lane Vineyard	Black Barn Vineyards	Black Ridge Winery
Bilancia	Big Sky	Berakah Estate Ltd	Awaroa Vineyard	Boundary Rider Wines	Bouldevines Wines Ltd	Blind River Wines Ltd	Beach House Wines
Bell Hill Vineyard Ltd	Bennett & Deller Wine Ltd	Benfield & Delamare	Bell Bird Bay NZ Ltd	Bishops Head Wines Ltd	Brightwater Vineyards Ltd	Chamberlain Vineyard	Butterfish Bay Wines
Black Estate Ltd	Black Quail Estate	Bladen Wines	Braemar Estate	Brennan Wines	Brinkburn Ltd	Brick Bay Wines	Brightfield Estate
Blake Family Vineyard Ltd	Bridge Pa Vineyards Ltd	Charles Wiffen Wines Ltd	Bushmere Vineyards	Cambridge Road Vineyard	Carrick Wines	Canadoro Wines	Burn Cottage Vineyard
Churton	Bushmere Estate	Brodie Estate	Buljan Wines	Campagna Wines	Borthwick Vineyard	Cat Creek Ltd	Croft Wines
Blackenbrook Wines Ltd	Cellier Le Brun Ltd	Central Otago Wine Co Ltd	Central Hawkes Bay Wines Ltd	Charcoal Gully Estate Ltd	Brunton Road Wines Ltd	Claylaur Estate Wines	D R Wines Ltd (Dry River Wines Ltd)
Brookfields Vineyards (1977)	Chateau Waimarama	Blue Sun (NZ) Ltd	Claddagh Vineyard	Clevedon Hills Estate	Clos St William Wines	Collard Brothers Ltd	Clayridge Vineyards Ltd

Ltd	Company Ltd	Vineyard					
Cheviot Vineyard	Clark Estate	Clos Henri Ltd	Clos Marguerite	Dancing Water	Dartmoor Road	Cypress Wines	Eradus Wines Ltd
Claymore Vintners	Coal Pit Vineyard	Coney Wines Ltd	Corozo Estate Ltd	Crighton Estate	Cottle Hill Winery	Cottier Estate	Crab Farm Winery
Destiny Bay Wines	Dolce Vista Ltd	Eliot Brothers	Evoke Wines	Fromm Winery	Gardo Morris	Fat Pig Vineyard	Federal Geo Ltd
Corazon Wines Ltd	Daniel Schuster Wines Ltd	Contour Estate Vineyards Ltd	David Papa Estate Wines	Desert Heart Wine Co Ltd	Desert Heart Estate Ltd	Dolbel Estate Wines Ltd	Domain Road Vineyard
Creatively Canterbury	Domaine Jaquiery	Domaine Georges Michel Ltd	Dry Gully Vineyard	Drumsara Wines Ltd	Courtenay River Wines	Edbrooke Vineyard Ltd	Easthope Winegrowers Ltd
Eastern Institute of Technology Winery	Crighton Estate Ltd	Drystone Wine Company Ltd	Elephant Hill Estate & Winery	Emeny Road Partnership	Emeny Road Partnership	Escarpment Vineyard	Eskdale Winegrowers Ltd
Clearview Estate Winery	Evans Partnership	Fancrest Estate Limited	Fairbourne Estate Ltd	Felton Road	Gibbston Valley Wines Ltd	Fairhall Downs Estate Wines	Gipsie Jack Wine Company
Fenton Estate	Fiasco Wines	Fiasco Wines	Fossil Ridge	Fino Valley Wines	Gort Vintners	Goldenvines Estate	Foxes Island Wines
Fiddler's Green Wines Ltd	Firstland Vineyards	Folding Hill Wine Company Ltd	Framingham Wines Ltd	Golden Hills Estates Ltd	Grasshopper Rock	Greenhough Vineyard	Greystone Vineyards Ltd
Fairmont Estate Winery	French Farm Winery	Gillman Vineyard Ltd	Gladstone Vineyard	Glengarry Hancocks Ltd	Golden Bay Wines Ltd	Gatehouse Wines Ltd	
Gecko Wines Ltd	Hihi Wines	Glasscase Ltd	Gibson Bridge	Glenmark Wines	Glover's Vineyard	Golden Slope Ltd	Gravitas
Gibbston Highgate Estate, Gibbston, Central Otago	Zebra NZ Vineyards Ltd	Hatton Estate Gimblett Road Ltd	Inverness Estate Ltd	Harrier Rise Vineyard	Healy Family Negociant	High Plains Wine Co Ltd	Hettinga Estates Ltd
Greylands Ridge	Greystone Wines	Hawks Nest	Harleston House	Hawkdun Rise	Himmelsfeld	Grandview Wines	Judge Rock
Haythornthwaite Wines	Heron's Flight Vineyard	Huasheng Wines Ltd	Huia Vineyards Ltd	I D Wines Ltd t/a Kevern Walker	Hitchen Road Vineyard	John Mellars of Great Barrier Island	Joseph Ryan Ltd

Hawkshead Vineyard Partnership	Joyce Whyte Estate	Home International Ltd (Glenora Estate)	Hawkesburn Terraces Vineyard Ltd	Hurunui River Wines	Jules Taylor Wines Ltd	Iron Hills Vineyards Ltd	Jurassic Ridge
Hyperion Wines	Hudson Vineyard	invivo	Invino NZ	K V Wines Ltd	Kenley Vineyard	Koru Wines	Kaikoura Winery
Invivo Wines NZ Ltd	John Kemble Wines Ltd	Johanneshof Cellars Ltd	Johner Estate Vineyards	International Wine Negociants Pty Ltd	Hawkshead Vineyard Partnership	Kerr Farm Vineyards	Kumeu River Wines Ltd
Kaimira Ventures	Kaituna Valley	Karikari Estate	Karamea Wines	Kaufman Vineyard	Julicher Estate	Kawarau Estate	Kina Cliffs Vineyard
Kennedy Point Vineyard	Kikowhero Partnership	Kingsmill Wines Ltd	Kina Holdings Ltd	Kokolo Farm NZ Ltd	Kusuda Wines Ltd	Konrad Wines Ltd	La Fong Wines Ltd
Kirkpatrick Estate Winery	Kuratau River Wines	Koura Bay Wines Ltd	Kurow Estate	Kaipara Estate Vineyards Ltd	Leaning Rock Vineyard	Lime Rock Wines Ltd	Lindis River Wines
Landmark Estate Wines Ltd	Kathy Lynskey Wines Ltd	La Pineta Vineyards Ltd	Karaka Point Vineyard	Locharburn Estates Ltd	Lake Taupo Vineyard Ltd	Lonely Bay Vineyard Ltd	Lauregan Properties Ltd
Loopline Vineyard	Long Boat	Longbush	Lodestone	Lochiel Estate	Lake Road Wines	Larcomb Vineyard	Lamont Wines Ltd
Lincoln Vineyards Ltd	Lismore Wines NZ Ltd	Lone Goat Vineyard	Lightband Wines Ltd	Love Family Vineyard	Man O'War Vineyards	Margaret John Vineyard	Mahurangi River Winery Ltd
Longview Estate	Lowburn Ferry	Manaia Wines Ltd	Mahi Wines	Maimai Creek	Marsden Estate Ltd	Martinus Estate	Maude Wines
Maori Point Vineyard Ltd	McArthur Ridge Wines Ltd	Margrain Vineyard	Ma Maison Wines Ltd	McBride-Sillig Vineyard	McNaught & Walker Ltd	Mercury Bay Estate Ltd	Massive Wines Ltd
Matariki Wines Ltd	Mark II Limited	Matahiwi Estate	Melton Estate	Merryfields	Minaret Peaks	Millton Vineyard Ltd	Millars Vineyard
Martinborough Vineyard Estates Ltd	Misha's Vineyard Wines Ltd	Mobius Wines & Consulting Ltd	Marlborough Grape Producers Ltd	Mudbrick Vineyard/Shepherds Point Vineyard	Mazuran's Vineyard Ltd	Mount Michael Wines & Estates Ltd	Muddy Water Wines

Mondillo Vineyards	Mitre Rocks Vineyard Ltd	Moncellier Wine	Mount Brown (Vineyard Ltd)	Moana Park Winery	Mebus Estate	Nevis Bluff Wines Ltd	Mt Aspiring Wines Ltd
Monowai Estate Ltd	Mount Maude	Muddy Creek	Muirlea Rise	Murdoch Wines Ltd	Mercator Wines	Mt Rosa Wines Ltd	Mundo Vira Winery
Mt Tamahunga Vineyard	Mystery Creek Wines 2007 Ltd	Mountford Vin Waipara Ltd	Mount Edward Winery	Murdoch James Estate Ltd	New Zealand Premier Wines Ltd	Newton Forrest Estate	Northburn Wine Co Ltd
Northfield	Ohsawa Wines	Odyssey Wines	Ohau Gravels	Obsidian Vineyard	Neal , Greg	No 1 Family Estate	NZ Winexports Ltd
Omori Estate Ltd	Okahu Estate	Ohui Vineyard	Old Road Wines	Oak House Limited	Neudorf Vineyards	Nga Waka Vineyard	Park Estate Winery
Omaha Bay Vineyard	Orinoco Vineyards	Opihi Vineyard	Olssen's Garden Vineyard	Ohinemuri Estate Wines	Paua Bay Wine Ltd	Pinot Envy Wines Ltd	Perseverance Estate Ltd
Owhanake Bay Estate	Ostler Vineyards Ltd	Paritua Vineyards Ltd	Peninsula Estate Wines Ltd	Pisa Moorings Vineyard Ltd	Parr & Simpson Limestone Bay	Pleasant Valley Wines Ltd	Putiki Bay Vineyard Ltd
Puriri Hills	Poderi Crisci	Postmans Road	Pear Tree Wines	Packspur Vineyard	Porter's Pinot	Pierre Estate	Pisa Range Estate
Providence Vineyards Ltd	Pond Paddock Vineyard Ltd	Passage Rock Wines	Rippon Vineyard Ltd	Rimu Grove Winery Ltd	Riverby Estate Ltd	Riversleigh Estate Ltd	Richmond Brook Vineyard
Poverty Bay Wine Estate Ltd	Provincial Vineyards	Point Bush Estate Ltd	Pukeora Estate Ltd	Peregrine Wines Central Otago Ltd	Pyramid Valley Vineyards	Quarry Road Estate Ltd	Quartz Reef
Pohangina Valley Estate	Prophets Rock Vineyard Ltd	Rochfort Rees Wine Company	Rockburn Wines Ltd	Rannach Vineyard Ltd	Redoubt Hill Vineyard	Richardson Wines Ltd	Rossendale Wines Ltd
Ransom Wines	Redmetal Vineyards	Repongaere Estate	Remarkable Wines Ltd	Riverside Wines New Zealand Ltd	Rock 'n' Pillar	River Farm Wines Ltd	Runner Duck Estate Ltd
Savvy Wines Ltd	Salvare Estate Ltd	Sarastro Wines	Redbank Estate Ltd	Ra Nui Wines Ltd	Pukawa Vineyard	Plover Trading Ltd	Ra Nui Wines Ltd
Rock Ferry Wines Ltd	Spring Creek Estate	Ruby Bay Vineyard	Saint Lukes Estate Wines Limited	Sandihurst Winery	Sapich Brothers Ltd	Sailfish Cove Wines Ltd	Saltings Estate Vineyard
Rowi Wines Ltd	Sea Level Wines	Saratoga Estate	Sleeping Dogs Ltd	Sentinel Vineyard	Seibel Wines	Soljans Wines Ltd	Sugar Loaf Wines
Settler Vineyard &	Schubert Wines	Shoestring Wines	Sowman Estate Ltd	Shakespeare Cliff	Summerhouse	Successors Wine	Sunset Valley

Winery	Ltd	Ltd		Vineyard Ltd	Wine Co. Ltd	Group	Vineyard Ltd
Soho Wine Co Ltd	Soma	Rowi Wines	St Jerome Wines	Squawking Magpie	St Nesbit	Stonecrop Ltd	Sublime Wine
Springvale Road Wine Company Ltd	Spence Family Vineyard Ltd	St Francis Wine Company Ltd	Starborough Farming Co Ltd	Staete Landt Wine Company Ltd	Stafford Lane Estate	Stockbridge Vineyards Ltd	Steve Bird Winery & Vineyards
Stonecutter Vineyard	Stonyridge Vineyard Ltd	Tenuta Campo di Sasso Ltd	Takatu Vineyard Ltd	Takamatua Valley Vineyards	Surveyor Thomson Wines Ltd	Te Whau Vineyard Ltd	Terrace Edge Vineyard
Stone Bridge Wines	Sunrise Estate Ltd	Stonecroft Wines	Tarras Vineyards	Taramea Wines	Terrata Estate Ltd	Tarras Vineyards	Te Mara Estate Ltd
Te Mania Wines (& Richmond Plains)	Terrace Heights Estate	TerraVin Wines Ltd	The Cabbage Tree Vineyard	Tongariro River Estate	Te Whare Ra Wines Ltd	Teece Family Vineyards	The Aurora Vineyard
Tinui Vineyards	Tirohana Estate	The Crossings	The Grail	The Old Church	Te Awa Winery Ltd	Te Hera Estate	Tom Eddy Winery
The Escarpment Vineyard	The Hay Paddock Ltd	The Orpington Partnership	The Delta Wine Company Ltd	The Studio Wine Company	The Paper Road Vineyard	Thyme Hill Vineyard	Three Fires Vineyard & Winery
The Sunday Paddock Ltd	Three Pirates Wine Co Ltd	The Ashwood Fine Wine & Food Company	Torrent Bay Wines NZ Ltd	Three Miners Vineyards Ltd	The Old Glenmark Vicarage Ltd	Twin Totara Wines Ltd	Tree House Estate Ltd
Torlesse Wines Ltd	Tiwaiwaka Wines	Tironui Estate	Tiritiri Estate	Tupari Wines Ltd	Tuki Vineyard	Twilight Vineyards	Waitaki Braids Ltd
Totara Vineyards SYC Ltd	Tram Road Vineyard	Two Gates Vineyard Ltd	Two Sisters Vineyard	Two Paddocks Ltd	Tussock Hill Vineyard	Two Rivers of Marlborough Wines	
Tukipo River Estate	Turanga Creek	Urlar	Vilagrad Wines	Valli Vineyards	View East	Villa Noortheim	Vynfields
Vicarage Lane Wines Ltd	Vernon Family Estate Ltd	Vinoptima Estate Ltd	Voss Estate Vineyards	Vino Enterprises Ltd	WineWorks Ltd - Marlborough	Wooing Tree Vineyard Ltd	Wrights Vineyard Ltd
Vinozone Ltd	Vin Alto Ltd	Viscosity Ltd	Waipara Hills	Winelord Ltd	Waipara Downs Ltd	Zelus Sun	Waiwera Estate
Waimarie Wines	Waitaria Wines	Waitapu Estate	Waipara West	Unison Vineyard	Zephyr Wines	Wild Earth Wines	Waimata Vineyard
Weka River Wines Ltd	Whitestone Vineyard	Walnut Block Wines Ltd	Waipipi Vineyard Ltd	Waiheke Vineyards Ltd	Winegrowers of Ara Ltd	Wine + New Zealand Ltd	Waiuku River Wines Ltd

Waitiri Creek Wines Ltd - Central Otago	WineWorks Ltd - Hawkes Bay	Woollaston Estates Ltd	Wyebrook Estate	West Brook Winery	Wine Export Partners NZ Ltd	Winslow Wines Ltd	Wishart Estate Winery Ltd
Wattlebank	Weston Winery	Wycroft	Winesouth NZ Ltd	Waipara Springs Wines Ltd	Zepelin Wines (Martin Vineyards Ltd)	Herzog Wine Collection Ltd trading as Herzog Winery & Luxury Restaurant	

Appendix 2 Accessing Date of the Disclosed SED by the NZ Wine Industry Body and Wine Producers

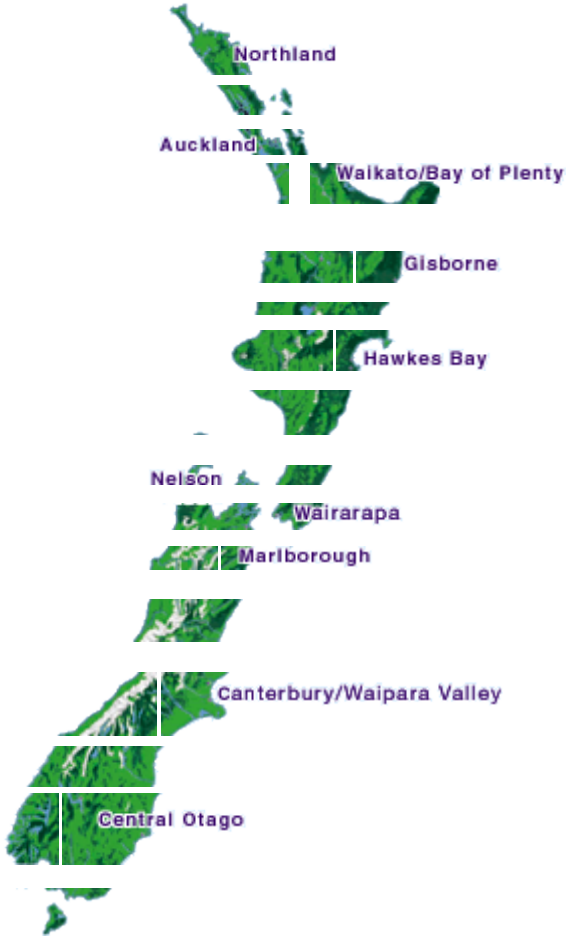
NZ Wine Industry Body & Wine Producers	Web sites	Date Assessed
NZ Winegrowers	http://www.nzwine.com/intro/ http://www.nzwine.com/report/	10/08/09
SWNZ	http://www.nzwine.com/swnz/	10/08/09 4/1/2010
Pernod Ricard NZ Ltd (Montana)	www.montana.co.nz	28/07/09
Delegat's Wine Estate Ltd	www.delegats.co.nz	07/08/09
Kim Crawford Winery	www.kimcrawfordwines.co.nz	10/08/09
Vidal Estate Ltd	www.vidal.co.nz	07/08/09
Ager Sectus Wine Estate Ltd	www.agersectus.co.nz	10/08/09
C J Pask Winery Ltd	www.cjpaskwinery.co.nz	31/07/09
Cape Campbell Wines	www.capecampbell.co.nz	31/07/09
Craggy Range Vineyards Ltd	www.craggyrange.com	10/08/09
Hunter's Wines (NZ) Ltd	www.hunters.co.nz	03/08/09
Jackson Estate Ltd	www.jacksonestate.co.nz	31/07/09
Kahurangi Estate	www.kahurangiwine.com	03/08/09
Palliser Estate Wines of Matinborough	www.palliser.co.nz	07/08/09
Sacred Hill Wines Ltd	www.sacredhill.com	31/07/09
Seifried Estate	www.seifried.co.nz	10/08/09
Sileni Estate Ltd	www.sileni.co.nz	03/08/09
Spy Valley Wines	www.spyvalleywine.co.nz	31/07/09
Te Mata Estate Winery Ltd	www.temata.co.nz	03/08/09
The NZ Wine Company Ltd	www.nzwineco.co.nz	07/08/09

Waimea Estate (Nelson) Ltd	www.waimeaestates.co.nz	07/08/09
Yealands Estate Wines Ltd	www.yealands.com	31/07/09
Mission Estate Winery	www.missionestate.co.nz	03/08/09
Wairau River Wines Ltd	www.wairauriverwines.com	03/08/09
Amisfield Wine Company	www.amisfield.co.nz	10/08/09
Askerne Winery	www.askerne.co.nz	31/07/09
Ascension Wine Estate Ltd	www.ascensionwine.co.nz	31/07/09
Bridge Pa Vineyards Ltd	www.bridgepa.co.nz	10/08/09
Brunton Road Wines Ltd	www.bruntonroad.co.nz	03/08/09
Dry River Wines Ltd	www.dryriver.co.nz	03/08/09
Gibbston Highgate Estate	www.gibbstonhighgate.co.nz	10/08/09
Gladstone Vineyard	www.gladstone.co.nz	03/08/09
High Plains Wine Co Ltd	www.highplains.co.nz	03/08/09
Kaimira Ventures	www.kaimirawine.com	10/08/09
Martinborough Vineyard Estates Ltd	www.martinborough-vineyard.co.nz	03/08/09
Mt Rosa Wines Ltd	www.mtrosa.co.nz	10/08/09
Mondillo Vineyards	www.mondillo.com	10/08/09
Mudbrick Vineyard/Sepherds Point Vineyard	www.mudbrick.co.nz	10/08/09
Mundo Vira Winery	www.mudovira.com	10/08/09
Nga Waka Vineyard	www.ngawaka.co.nz	10/08/09
Orinoco Vineyards	www.orinocowines.co.nz	10/08/09
Owhanake Bay Estate	www.owhanake.co.nz	10/08/09
Ra Nui Wines Ltd	www.ranuiwines.co.nz	10/08/09
Ruby Bay Vineyard	www.rubybaylodge.co.nz	10/08/09
The Hay Paddock Ltd	www.thehaypaddock.co.nz	07/08/09

Te Whau Vineyard Ltd	www.tewhau.co.nz	07/08/09
Woollaston Estate Ltd	www.woollaston.co.nz	10/08/09

Appendix 3 Map of New Zealand's Wine Growing Regions

North Island	
Northland	14
Auckland	103
Waikato/Bay of Plenty	19
Gisborne	22
Hawkes Bay	71
Wairapa/Wellington	58
South Island	
Nelson	32
Marlborough	109
Central Otago	54
Canterbury/Waipara Valley	95
Others Areas	8
Total N. L	287
Total S. L	298
TOTAL	585



Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 5

Appendix 4 New Zealand Wine Industry, Summary Statistics, 1999 - 2009

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Wineries by category											
Category I - Annual sales not exceeding 200,000 litres	313	331	360	369	388	425	466	494	510	554	578
Category II - Annual sales between 200,000 and 2,000,000 litres	17	23	26	26	30	34	44	44	51	51	60
Category III - Annual sales exceeding 2 million litres	4	4	3	3	3	4	6	6	9	9	6
Total number of wineries	**334**	**358**	**398**	**398**	**421**	**463**	**516**	**544**	**570**	**614**	**644**
Producing area (hectares)	9,000	10,197	11,648	13,787	15,800	18,112	21,002	22,616	25,355	29,310	n/a
Average yield (tonnes per hectare)	8.9	7.8	6.2	8.6	4.8	9.1	6.9	8.2	8.1	9.7	n/a
Average grape price (NZ$ per tonne)	1,054	1,153	1,441	1,634	1,929	1,876	1,792	2,022	1,981	2,161	n/a
Tonnes Crushed (thousands)	79.9	80.1	71.0	118.7	76.4	165.5	142.0	185.0	205.0	285.0	n/a
Total Production (millions of litres)	60.2	60.2	53.3	89	55	119.2	102	133.2	147.6	205.2	n/a
Domestic sales of NZ wine (litres NZ wine)	38.4	41.3	36.2	32.6	35.3	35.5	45	50	51	46.5	n/a
Consumption per capital NZ wine (litres NZ wine)	10.1	10.8	9.3	8.2	8.8	8.8	11.2	12.1	12.2	11.1	n/a
Export volume (millions of litres)	16.6	19.2	19.2	23	27.1	31.1	51.4	57.8	76.0	88.6	n/a
Export value (millions of NZ$ FOB)	125.3	168.6	198.1	246.4	281.9	302.6	434.9	512.4	698.3	797.8	n/a

Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 4

Appendix 5 New Zealand Wineries by Regions, 1999 - 2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Northland	7	7	7	8	7	8	10	10	11	14
Auckland	80	79	81	82	89	88	90	91	97	103
Waikato/Bay of Plenty	13	12	12	13	13	13	17	18	17	19
Gisborne	12	13	15	17	16	17	19	22	19	22
Hawkes Bay	41	44	50	53	56	58	62	66	67	71
Wellington	33	37	41	45	44	49	54	56	57	58
Nelson	22	25	28	27	26	24	29	29	28	32
Marlborough	60	62	63	68	74	84	101	106	104	109
Canterbury	39	39	37	38	42	46	50	48	52	54
Otago	26	39	45	46	52	75	82	82	89	95
Other areas	1	1	1	1	2	1	2	2	7	8
Total	**334**	**358**	**380**	**398**	**421**	**463**	**516**	**530**	**543**	**585**

Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 5

Appendix 6 New Zealand Vintages, Top 10 Grape Varieties, 1999 - 2008

(Ranked in descending order of hectares produced in 2008)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sauvignon Blanc	2,008	2,485	2,483	3,685	4,516	5,897	7,043	8,860	10,491	13,988
Pinot Noir	826	1,126	1,491	2,029	2,624	3,329	3,575,	4,063	4,441	4,650
Chardonnay	2,449	2,858	3,303	3,427	3,515,	3,617	3,804	3,779	3,918	3,881
Pinot Gris	90	130	157	232	316	381	489	762	1,146	1,383
Merlot	535	674	912	1,077	1,249	1,487	1,492	1,420	1,447	1,363
Riesling	432	503	493	529	653	666	811	853	868	917
Cabernet Sauvignon	653	671	744	745	741	687	614	531	524	516
Gewurztraminer	103	145	156	178	197	210	257	284	293	316
Syrah	51	62	87	117	134	183	238	214	257	278
Semillon	215	235	227	233	257	306	240	229	230	199
Total of top 10 grape varieties	**6,962**	**8,889**	**10,053**	**12,252**	**14,202**	**16,763**	**18,563**	**20,995**	**23,615**	**27,491**
All other Varieties	2,038	1,308	1,595	1,535	1,598	1,046	2,439	1,622	1,740	1,819
Industry total	**9,000**	**10,197**	**11,648**	**13,787**	**15,800**	**17,809**	**21,002**	**22,617**	**25,355**	**29,310**

Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 5

Appendix 7 New Zealand Wine Exports, 1999-2008 (millions)

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
UK	L	9.041	10.464	9.918	11.858	12.258	13.864	21.124	21.907	27.573	29.646
	$	68.135	84.673	92.728	117.981	113.729	119.786	162.120	166.937	227.418	240.730
Australia	L	2.291	2.402	2.373	3.569	4.661	5.654	9.762	13.18	18.632	24.633
	$	16.186	23.857	26.059	38.132	51.621	56.285	88.033	122.441	179.933	246.696
USA	L	1.494	2.51	3.132	3.776	5.578	7.266	12.975	14.411	18.712	19.492
	$	14.357	26.53	40.815	48.225	67.39	90.026	113.237	138.411	175.515	159.787
Canada	L	0.386	0.648	0.612	0.713	0.988	0.700	1.477	2.061	3.182	5.219
	$	3.014	5.641	6.312	7.687	10.351	6.934	13.907	21.888	33.870	47.060
Netherlands	L	0.331	0.683	0.903	0.801	0.525	0.487	1.716	1.217	1.559	1.363
	$	2.622	5.281	7.565	7.119	5.058	4.404	12.688	10.017	13.318	12.808
Ireland	L	0.212	0.3	0.278	0.318	0.423	0.461	0.573	0.844	0.853	1.496
	$	1.595	2.173	2.151	2.893	4.141	4.307	5.200	8.158	8.920	15.012
Denmark	L		0.295	0.266	0.316	0.460	0.443	0.527	0.508	0.654	0.654
	$		2.377	2.497	3.253	4.524	4.019	4.608	4.656	6.029	5.836
Japan	L	0.767	0.365	0.391	0.268	0.326	0.426	0.491	0.406	0.484	0.545
	$	4.761	3.98	5.038	4.486	4.423	5.967	5.903	5.855	6,665	7.299
Germany	L	0.283	0.226	0.377	0.155	0.22	0.175	0.307	0.301	0.382	0.462
	$	2.45	2.423	3.324	1.965	2.9	2.446	3.289	2.914	3.699	5.342
Others	L	1.813	1.277	1.261	1.513	1.49	2.067	2.948	3.464	3.993	5.125
	$	12.221	11.699	14.021	17.925	17.699	22.443	30.479	35.742	42.935	57.227
Total	L	16.618	18.875	19.245	22.971	27.114	31.101	51.373	57.791	76.024	88.636
	$	125.341	166.257	198.104	246.413	281.838	302.599	434.856	512.362	698.303	797.797

Source: New Zealand Winegrowers Statistical Annual Report, year end June 2008, p. 6.

Appendix 8 Checklist of categories used in content analysis of SED

The following list aims to provide exhaustive information for each of the established categories in order to provide details.

Evidence

(1) Monetary: disclosing information on the basis of monetary, such as the dollar value spent by the organisation to protect the environment
(2) Quantitative: making information in terms of quantitative, such the use of energy, consumption of water, and etc, in absolute terms or in percentages
(3) Narrative: explanatory notes to describe the SED practices

News Type

(1) **Good**: disclosing positive aspect of the organisation's social and environmental practices, such as accreditations and current achievements
(2) **Bad**: disclosing negative social and environmental impacts of the organisation's operational practices. For example, social and environmental incidents, and excessive use of resources.
(3) **Neutral**: a balanced disclosure without any positive or negative aspect of SED practices.

Categories for NZ wine industry body

NZ Environment: statements disclosing the physical environment of the NZ wine industry

Objectives of social and environmental practices: Statements disclosing the industry's objectives regarding social and environmental practices

Member wine producers development: Statements disclosing efforts of the NZ wine industry regarding member wine producers development of social and environmental practices, such as disseminating updated information, providing guidelines and new technologies.

Environmental sustainable development*: Statements indicates the NZ wine* industry's contribution towards environmental sustainable development

Environment management system: statements disclosing current project of environmental management systems, which is promoted by the NZ wine industry

Background of SWNZ: Statements disclosing the history and development of SWNZ

Categories for the disclosing wine producers

Environment

(1) **Philosophy** :summary of business organisation's philosophy regarding with social and environmental practices
(2) **Environmental responsibilities**: summary of organisation's responsibilities in social and environmental contexts
(3) **Environmental impacts**: statement indicates the impacts of organisation's operational practices in environmental context
(4) **Environmental reports**: statement outlines the environmental reports produced by the business organisation
(5) **Environmental policy**: statement of organisation's policies regarding environmental conservation
(6) **Environmental awards**: receipt of an award relating to organisation's environmental programs or policies, such as ISO 14001 and CarboNZero accreditations.
(7) **Environmental project**: undertaking environmental impact studies to monitor the organisation's operational impact on the environment
(8) **Environmental audit**: statements indicating organisation's environmental audit practices
(9) **Environmental management systems**: statements disclosing organisation's environmental management systems, which include the organisational structure, planning and resources for developing, implementing and maintaining for environmental protection.
(10) **Sustainability**: statements indicating organisation's contribution towards sustainable development
(11) **SWNZ**: disclosing information on SWNZ, such as SWNZ membership accreditation
(12) **Vineyard environment**: statement indicating that the organisation conducts practices to protect its vineyard environment, such as control of pest sand diseases
(13) **Environmental Aesthetics**: designing facilities harmonious with the environment, such as green garden, planting trees.
(14) **Wildlife conservation**: statements indicating organisation is taking responsibilities to protect and support the wildlife.

Energy

(1) Energy conservations in the conduct of business operations
(2) Efficiency of energy use during the manufacturing process
(3) Disclosing energy savings with regard to product recycling
(4) Statements indicating organisation's efforts to reduce the energy consumption
(5) Disclosing increased energy efficiency of products
(6) Research on energy conservations
(7) Receiving rewards for energy saving practices

Human resources and management

(1) Employee health and safety, for example statements indicating compliance with health and safety standards and regulations
(2) Disclosing employee training

Product

(1) Statements indicating developments related to product packaging, e.g. using glass containers
(2) Information on research projects undertaken by the organisations to improve its product

Waste

(1) **Recycling**: statements indicating the utilisation of recycled materials
(2) **Organic waste**: statement indicating use of bio-degradable materials, such water, and paper

Community involvement

(1) Sponsoring public health, sporting and recreational projects
(2) Donations to community groups and charitable bodies

Others

Sentences located in text related to social and environmental issues that do not fall into the above environmental sub-categories.

Appendix 9 Volume of the SED disclosed by the wine producers

Wine producers	Volume of the SED (Number of sentences)
Category I Large wine producers, annual wine sales exceeding 2,000,000 litres	
Pernod Ricard NZ Ltd (Montana)	76
Delegat's Wine Estate Ltd	20
Kim Crawford Winery	25
Vidal Estate Ltd	3
Category I Total	124
Category II Medium wine producers, annual wine sales between 200,000 – 2,000,000 litres	
Ager Sectus Wine Estate Ltd	19
C J Pask Winery Ltd	16
Cape Campbell Wines	25
Craggy Range Vineyards Ltd	2
Hunter's Wines (NZ) Ltd	29
Jackson Estate Ltd	32
Kahurangi Estate	2
Palliser Estate Wines of Martinborough	11
Sacred Hill Wines Ltd	25
Seifried Estate	11
Sileni Estate Ltd	27
Spy Valley Wines	23
Te Mata Estate Winery Ltd	2
The NZ Wine Company Ltd	4
Waimea Estate (Nelson) Ltd	7
Yealands Estate Wines Ltd	47
Mission Estate Winery	24
Wairau River Wines Ltd	56
Category II Total	362
Category III Small wine producers, annual wine sales not exceeding 200,000 litres	
Amisfield Wine Company	1
Askerne Winery	7
Ascension Wine Estate Ltd	30
Bridge Pa Vineyards Ltd	12
Brunton Road Wines Ltd	7
Dry River Wine Ltd	6
Gibbston Highgate Estate	9
Gladston Vineyard	10
High Plains Wine Co Ltd	6

Kaimira Ventures	14
Martinborough Vineyard Estates Ltd	25
Mt Rosa Wines Ltd	7
Mondillo Vineyards	1
Mudbrick Vineyards/Shepherds Point Vineyard	31
Mundo Vira Winery	7
Nga Waka Vineyard	8
Orinoco Vineyards	15
Owhanake Bay Estate	29
Ra Nui Wines Ltd	2
Ruby Bay Vineyard	1
The Hay Paddock Ltd	3
Te Whau Vineyard Ltd	3
Woollaston Estate Ltd	12
Category III Total	246
Total volume of 45 wine producers	**732**

Appendix 10 Findings of Evidence and News Dimensions

NZ Wine Industry Body	Evidence			News Type		
	Monetary	Quantitative	Narrative	Good	Bad	Neutral
NZ Winegrowers		3	21	10	0	14
SWNZ		13	192	3	0	202
Total Sentences		**16**	**213**	**13**	**0**	**216**

Wine Producers	Evidence			News Type		
	Monetary	Quantitative	Narrative	Good	Bad	Neutral
Pernod Ricard NZ Ltd (Montana)		11	65	1		75
Delegat's Wine Estate Ltd			20			20
Kim Crawford Winery			25			25
Vidal Estate Ltd			3			3
Ager Sectus Wine Estate Ltd			19	1		18
C J Pask Winery Ltd		1	15			16
Cape Campbell Wines		4	21	4		21
Craggy Range Vineyards Ltd			2			2
Hunter's Wines (NZ) Ltd			29	1		28
Jackson Estate Ltd		5	27			32
Kahurangi Estate			2	2		
Palliser Estate Wines of Martinborough			11			11
Sacred Hill Wines Ltd		1	24	6		19
Seifried Estate		1	10	1		10
Sileni Estate Ltd		2	25	2		25
Spy Valley Wines		3	20			23
Te Mata Estate Winery Ltd			2			2
The NZ Wine Company Ltd			4			4
Waimea Estate (Nelson) Ltd			7			7
Yealands Estate Wines Ltd	4	3	40	6		41
Mission Estate Winery		1	23			24
Wairau River Wines Ltd		5	51	1		55
Amisfield Wine Company			1			1
Askerne Winery			7	1		6
Ascension Wine Estate Ltd		1	29			30
Bridge Pa Vineyards Ltd			12	1		11
Brunton Road Wines Ltd			7	1		6
Dry River Wine Ltd			6			6

Gibbston Highgate Estate			9			9
Gladston Vineyard			10	1		9
High Plains Wine Co Ltd		1	5			6
Kaimira Ventures			14	2		12
Martinborough Vineyard Estates Ltd		1	24			25
Mt Rosa Wines Ltd		2	5			7
Mondillo Vineyards			1	1		
Mudbrick Vineyards/Shepherds Point Vineyard			31	1		30
Mundo Vira Winery			7	1		6
Nga Waka Vineyard			8	1		7
Orinoco Vineyards		2	13			15
Owhanake Bay Estate		1	28			29
Ra Nui Wines Ltd			2			2
Ruby Bay Vineyard			1			1
The Hay Paddock Ltd			3	1		2
Te Whau Vineyard Ltd			3			3
Woollaston Estate Ltd		2	10	1		11
Total Sentences	**4**	**47**	**681**	**37**	**0**	**695**
Number of Discloses Wine producers	**1**	**18**	**45**	**21**	**0**	**45**

Appendix 11 Findings of Theme Dimension

NZ Wine industry body

NZ Wine Industry Body	Themes					
	NZ environment	Objectives of social and environmental practices	Member wine producers development	Environmental sustainable development	Environment management systems	SWNZ
NZ Winegrowers	6	7	6	5		
SWNZ	2	9	146	39	6	3
Total	**8**	**16**	**152**	**44**	**6**	**6**

Disclosing wine producers

Wine Producers	**Themes**																		
	Environment													**Energy**	**Human Resources & Management**	**Product Development**	**Waste**		**Community Involvement**	**Others**
	Philosophy	Envir Responsibilities	Envir Impacts	Envir Reports	Envir Policy	Envir Awards	Envir Project	Envir Audit	Enivr Management System	Sustainability	SWNZ	Vineyard Envir	Envir Aesthetics				Recycling	Organic		
Amisfield Wine Company												1								
Owhanake Bay Estate		1	1		1		2			1			6	2		4	2	5	3	1

Modillo Vineyards											1									
Nga Waka Vineyard											8									
Ra Nui Wines Ltd										1	1									
Mundo Vira Winery									2		3			1				1		
Brunton Road Wines Ltd								2			3	2								
Dry River Wines Ltd			1				3	1						1						
Gladstone Vineayrd						1				1	3	3	1				1			
Askerne Winery						1				1	5									
Te Mata Estate Winery											2									
Kahurangi Estate						1					1									
Gibbston Highgate Estate					1						2	6								

Bridge Pa Vineyards Ltd						1					11									
Kaimira Ventures		1				3	5	1			4									
Vidal Estate Ltd						1					2									
Palliser Estate Wines of Martinborough				2	2	1					1	1	1			1	1	1		
High Plains Wine Co Ltd										3							2	1		
Orinoco Vineyards		3									1	2	5	3				1		
The Hay Paddock Ltd									1	1			1							
Woollaston Estate Ltd	1					2					2	2		3				2		
Ruby Bay Vineyard											1									
Waimea Estate						1					6									

(Nelson) Ltd																				
C J Pask Winery Ltd						3			7		3	3								
Craggy Range Vineyards Ltd									2											
Spy Valley Wines		4				3						1				3		10		2
Te Whau Vineyard Ltd											2	1								
Seifried Estate								1		1	8									1
Ascension Wine Estate Ltd		4										3	2			1	6	14		
Jackson Estate Winery					1	2		1			4	5	1	2		11	1	3		1
Cape Campbell wines			1		1	2	5				5		5	3	3					

The New Zealand Wine Company	1								2	1										
Mt Rosa Wines Ltd		1										3				1		1		1
Mudbrick Vineyard/ Shepherds Point Vineyard			1				1			1			20					8		
Kim Crawford Wines					2						1	22								
Martinborough Vineyard Estates Ltd						4	1		4		11	3						2		
Scared Hill Wines Ltd						3	3	2		1	2	7		4		2	1			
Hunter's Wines (NZ) Ltd					1	6		1			6		12					2		1
Yealands Estate Wines Ltd			2			16				2	1	8	7	6		1		3		1

Wairau River Wines Ltd		1	1			5	16	1		6			3	1			4	18		
Mission Estate Winery					1	3			9					11				1		
Sieni Estate Ltd						3			2		9	5		3		5				
Delegat's Wine Estate Ltd	4							1	4	8					3					
Ager Sectus Wine Estate Ltd			2			1			1			15								
Montana	3	1				3			5		2	16	22	1		12	4	7		
Total	**9**	**16**	**9**	**2**	**10**	**66**	**36**	**11**	**39**	**28**	**111**	**109**	**86**	**41**	**6**	**41**	**22**	**80**	**3**	**8**

Appendix 12 Coding sentences in SED into established categories

NZ wine industry body		
Categories	**NZ wine industry body**	**Sentences**
NZ Environment	NZ Winegrowers	New Zealand is a land like no other. New Zealand wine is an experience like no other. Our special combination of soil, climate and water, out innovative pioneering spirit and our commitment to quality all come together to deliver pure, intense and diverse experiences. In every glass of New Zealand wine is a world of pure discovery. New Zealand's small population, distant location and agricultural economy have earned the country a 'clean, green' image. Visitors often describe it as 'an unspoiled paradise'.
	SWNZ	New Zealand has long been famed for its stunning unspoilt landscape. New Zealand's small population, isolated location and agricultural economy have earned the country a "clean, green" image.
Objectives	NZ Winegrowers	New Zealand's winemakers and grape growers are determined to keep it this way. Innovative practices in vineyard and winery which deliver quality in a sustainable and environmental manner, ensure that New Zealand meets a growing world demand for wines that have been produced in a 'clean and green' fashion. By vinetage 2012, our objective is for all New Zealand grapes and wine to be produced under independently audited sustainability schemes. The industry is well on the way to achieving this. A host of environmental issues, from emissions trading to water allocation to biodiversity, are currently under consideration. We expect to see more activity from the Government and industry around these subjects in coming years. Being a great wine industry means understanding what we have, looking after it rather than exploiting it.

	SWNZ	New Zealand grape growers and winemakers aim to keep it that way by protecting the environmental integrity of their wine production. To this end a pioneering set of industry standards have been developed, known as Sustainable Winegrowing New Zealand (SWNZ). Sustainable Winegrowing New Zealand provides the framework for companies to continually work towards improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. Expansion of the programme to cover all New Zealand vineyards and wineries is the ultimate aim, thus enhancing the reputation of New Zealand wine industry as producers of premium quality wines produced with true environmental integrity.
Member wine Producers Development	NZ Winegrowers	Sign up by growers and wineries has been above expectations. Vineyard membership number shave increased 50% in the past year. More than 18, 000 hectares of vineyard are now covered by membership, with a queue waiting to come onboard. The programme's 78 winery members represents in excess of 70% of New Zealand's total wine production capacity. Not only is membership increasing, but the programme continues to evolve as well. As a result of the 2006 review of SWNZ, a major re-development of the scorecard has been undertaken to fully incorporate triple bottom-line consideration in a way that works growers and wineries.
	SWNZ	Sustainable Winegrowing New Zealand is an integral part of the future of New Zealand wine production. As such, the programme aims to deliver the following benefits to its members.A framework for viticultural and winemaking practices that protect the environment while efficiently and economically producing premium winegrapes and wine. A format of continual improvement to ensure companies operate with a goal of improving their operational practices. A vehicle for technology transfer so that companies are kept informed of new technology and its application.

		An audit structure that has integrity and rigour to comply with market expectations. Opportunity to be a part of the positive future for New Zealand grape growers and winemakers. Full details of all the membership categories are detailed in the attached information pack. The member ship year is from 1July to 30 June. Application forms can be found at the bottom of the page The key elements of the membership programme include: MANUAL & BOOKS A new member will receive the manual and books listed below: 1. Technical Manual This is detailed information on common principles of grape growing which include, for example, pests, diseases and soil health as well as other technical topics. Information from ongoing research will be incorporated into these chapters and will be continuously updated. 2. Field Guide to diseases, pests and disorders of grapes – To aid in the identification and the diagnosis of symptoms in the vineyard. 3. Bird Identification Handbook– For birds found in and around New Zealand vineyards. SCORECARD The scorecard is the core operational document, it acts as a reference document for growers through the season and provides a format for recording the practices used in the vineyard. This effectively acts as a self-audit tool which is later verified with an external audit. The scorecard is made up of 5 categories; Soils and fertilisers, Ground cover and irrigation management, Diseases, Pests and Membership Criteria. The scorecard: - Applies to the whole vineyard. - Is flexible and able to apply to vineyards of all sizes in any region. - Provides a range of management practices within any category. - Encourages continual improvement, and is a “living document” which is easily updated to include new

		practices. On completion of the scorecard reports are generated for individual member vineyards, allowing them to benchmark and monitor their performance over time as well as against the region and the wider industry. These reports will then provide an increasingly valuable historical database that will assist the grower in future vineyard management decisions. MONITORING FIELD NOTEBOOK A monitoring field notebook has been developed and a copy is provided to members each year. The notebook aims to: - Provide growers with monitoring protocols and a tool that will help them in field monitoring and pest and disease control decisions. - Standardise monitoring methods to facilitate data collection and interpretation. - Obtain field data on pest and disease incidence with harvest outcomes. - Provide recording methods for various vineyard activities (from leaf plucking to fertiliser application), which can be used for future vineyard management decisions. AUDIT The aim of the audit is to ensure that the philosophy of the programme is respected and that the scorecard is completed correctly and associated documents have been completed. An independent auditor will audit member vineyards once every three years on average via a random selection process. Membership Status Membership status is assessed annually and is kept current by meeting minimum standards and requirements. Members meeting all requirements (including an external audit) can reach 'Accredited Vineyard' status, thus giving them authorisation to use Sustainable Winegrowing New Zealand vineyard signage. Members who meet most of the requirements may gain 'Provisional Vineyard' status. REGIONAL MEMBER MEETINGS The programme provides facilitated meetings for members in each wine region to introduce new

		information and technology, and focus on Sustainable Winegrowing issues providing a forum for feedback. WORKSHOP An annual technical workshop is held in each wine region. Speakers who are specialists in their field present on specific topics with the aim to provide new, technical, high quality information to members. The workshops are focused on specific topics with a strong emphasis on sustainable land management. Winery Membership The introduction of a winery programme has enabled Sustainable Winegrowing New Zealand (SWNZ) to broaden the scope of the programme beyond the vineyard gate. Sustainable Winegrowing New Zealand now provides the framework for companies to continually work towards improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. The environmental issues that arise in wineries and are covered in the audit include; Resource Management, Waste Management and Process Management. The programme uses a combination of monitoring, measuring, and recording, incorporated with staff training. Waste management has been extended to include packaging, its disposal and recycling. There are other environmental issues to be included in the future, all part of the continuous improvement process. A similar approach to that taken in the vineyard has been adopted for wineries. A technical manual comprised of fact sheets on each management area and best practice recommendations have been developed. Wineries are able to rate their performance, and ultimately benchmark themselves against like-minded companies. External auditing of the winery will verify that sustainable practices are carried out in the winery. Wineries passing an external audit and meeting all of the wine accreditation requirements will be able to use Sustainable Winegrowing New Zealand endorsements on their literature, websites and SWNZ signs to

		verify their commitment to environmentally responsible production. Further information is presented in the article So, what does "Sustainable Winegrowing New Zealand for Wineries" entail in Articles of Interest. Below is a Sustainable Winegrowing New Zealand vineyard and winery membership information pack Do you want to register your vineyard? Below is the vineyard application form and the invoice 2009/2010. Please complete and return to the Sustainable Winegrowing New Zealand office. Do you want to register your winery? Below is the winery application form and the invoice 2009/2010. Please complete and return to the Sustainable Winegrowing New Zealand office. Have we got our facts right? When can I use the SWNZ logo? Accredited Vineyard and Winery members ONLY may use the logo or name. Specific regulations apply to wine label use. The logo is available as; • Signage • Marketing information including, website & literature • Wine label To use the Sustainable Winegrowing New Zealand logo on wine bottles, ALL the following requirements must be met: • The wine company must be a SWNZ Tier 3 member • Wine must be made from 100% ‘accredited vineyard’ grapes. • Wine must be wholly produced in accredited winery facilities. Full Logo rules of use are in the Vineyard & Winery manual and available on the members section of the website under New Information & Updates. SWNZ members logo use application form SWNZ Accredited members vineyard accreditation sign application form

		SWNZ Accredited members winery accreditation sign application form 1st July 2009 Sustainable Winegrowing NZ Events Calendar 7th April 2009 Sustainable Winegrowing NZ Member Workshops- NEW SCORECARDS Registrations will be online via the new SWNZ online events website. SWNZ Scorecard Workshops MAY & JUNE 2009 If you have yet to register for a workshop you can do so online by clicking on the link below which will take you to our main online events calendar, you can then select the meeting you wish to attend, click register & fill in your details & that will automatically register you & also send a reminder nearer the meeting. March 2009 Sustainable Winegrowing NZ Member Workshops- NEW SCORECARDS The meetings will take place in May and focus on the content of the new scorecards for vineyards and wineries along with how to use the tools for 2009 reporting. We recommend at least one person from each member vineyard and winery attends the meeting. The meetings will be a demonstration of the new scorecard tool, followed by discussion, so please come and share your ideas. More than one meeting will be arranged in some regions to accommodate the number of members. Details of venues, meeting times and registration details will be sent out to members in mid April and posted on the website. November 2008 Sustainable Winegrowing NZ on behalf of New Zealand Winegrowers Winery Workshops on Improving Energy use in the Winery 25th November - 5th December 2008 These workshops present the outcomes and demonstrate tools developed from the NZ Winegrowers funded project Improving Energy use in the Winery. T he project has the objective of improving energy use in New Zealand Wineries through establishing bench

		marks and energy improvement use guides. The project has adapted the Californian “BEST” winery software for use in New Zealand Wineries and tested that in case study wineries. The model has been further refined after case study testing. A summary document of the most likely areas of energy savings has been produced as a result of the case studies and a literature search of international best practice in this area. If you would like to attend please download and complete the attached registration form and return to Karen Bryant karen@swnz.org.nz or Rowan Pettigrew, rowan@swnz.org.nz 03 984 4311 Further information about the workshops can be found here September 2008 Further information on Biodiversity in the Vineyard and Greening Waipara can be found on the following websites. September 2008 Sustainable Winegrowing NZ Regional Member Meetings will be held across the country between 1st and 15th September 2008. If you would like to attend please contact Rowan Pettigrew to register. rowan@swnz.org.nz 03 577 2378 24th October 2008 1,000th vineyard and 100th winery sign up to sustainable winegrowing programm September 2008 Further information on Biodiversity in the Vineyard and Greening Waipara can be found on the following websites. Energy Use in Wineries – a summary report on energy use in NZ wineries based on the initial energy benchmark survey of SWNZ and NZW wineries. February 2008 International Wine Industry Greenhouse Gas Calculator Protocol Version 1.2. August 2008 File size is 4MB International Wine Industry Greenhouse Gas Calculator users guide (only 15 pages)

		February 2008 International Wine Industry Greenhouse Gas Calculator version 1.2 August 2008 Excel File size is 4MB You will need to "enable macros" when you open the file. Press release on New Zealand Winegrowers Sustainability Policy June 2007 Full details policy are available in the members section March 2009 Spraylog Update v6.04 and help sheet on how to save a copy of your current Spraylog diaries and download the latest version. If you have any issues or problems please contact the Spraylog Support team direct by emailing support@hortplus.com or support@spraylog.co.nz Winery Information October 2005 Contaminant discharge rules for wineries for the Tasman District Council 2003/2004 Scorecard and spray diary report This report provides an analysis of scorecard, spray diary information and audit results from the member vineyards for the 2003-04 season. This is an abbreviated report. A full report is available to members in the members only section. The purpose of this report is to analyse scorecard and spray diary trends between seasons and regions HSNO Fact Sheet Number 1 The Hazardous Substances and New Organisms (HSNO) Act: What it is and what it means for you The first in a series of fact sheets, produced by Agribusiness Training, that aim to provide information for you (winegrowers & wineries) to comply with and understand the Hazardous Substance and New Organisms (HSNO) act. HSNO Fact Sheet Number 2 HSNO: Hazard classes and controls

Environmental Sustainable Development	NZ Winegrowers	Becoming fully sustainability Many new tools and initiatives have been developed to support the industry's sustainability commitment: the International Greenhouse Gas Protocol and Calculator, the water use calculator, and the Grape Futures project to name a few. In addition, we are working closely with organic producers to encourage wider adoption of organics into the industry. Introducing new SWNZ branding and a new sustainable wine trophy and medals at the Air New Zealand Wine Awards are big steps forward for the marketing profile of this aspect of our production. Respect for our environment by deepening our commitment to sustainability.
	SWNZ	24th October 2008 1,000th vineyard and 100th winery sign up to sustainable winegrowing programme What is Sustainability? August 2008 NEW ZEALAND WINE – 100% SUSTAINABLE BY 2012 What does it mean for you? August 2008 Sustainable Winegrowing NZ Updates August 2008 Corbans Viticulture Nursery takes initiative with Sustainable Winegrowing NZ programme February 2008 Alpha Domus press release about going green January 2008 2007/2008 SprayLog 2007 This article details how to access SprayLog - the free electronic spray diary - for 2007/2008 season and the new features. SprayLog Manual 2007 Property Spray Plan

		This article details how to access Property Spray Plan - a free online tool Information on grass grub A fact sheet on Minimising damage to grapevines caused by the native grass grub. Dion Mundy, HortResearch, Marlborough Wine Research Centre. November 2006 Sustainable Winegrowing New Zealand®: Technical developments and achievements This article was presented at the 6th International Conference on Integrated Fruit Production, Baselga di Pine, Trento, Italy, 26-30 September 2004. New Zealand to lead wine world with new sustainable initiative This article was taken from the New Zealand Winegrower, Winter 2003 edition So, what does "Sustainable Winegrowing New Zealand for Wineries" entail This article was taken from the New Zealand Winegrower, Winter 2003 edition Sustainable Winegrowing New Zealand's place in the world - This paper was presented at the Romeo Bragato conference in 2002 and includes: *- Components of sustainability* *- Who's needs are the programme meeting* *- Where does the NZ scheme fit* *- Living with legislation* *- Beyond the vineyard* Sustainable Winegrowing New Zealand - Technical developments -This paper was presented at the Romeo Bragato conference in 2002 and includes: *- Sustainable Winegrowing New Zealand : A brief history* *- Recent developments* *- Information management and reporting* *- Measuring sustainability* Sustainable Winegrowing New Zealand - benefits both home and abroad - An edited version of a paper which was presented at the Romeo Bragato conference in 2000.
Environment	SWNZ	Sustainable Winegrowing New Zealand currently have a project underway to develop a database and

Management Systems		database management tools which will enable them to identify key production issues that will enhance the long-term sustainability of the winegrape industry. These tools will then be used to generate reports for individual growers, regions and the wider industry to drive the timely implementation of managed solutions to sustainability issues. Sustainable Winegrowing New Zealand will take a greater role in guiding members in the development of a complete environmental management system.
Background of SWNZ	SWNZ	Sustainable Winegrowing New Zealand was established by volunteer grapegrowers in August 1995 as an industry initiative directed through New Zealand Winegrowers. Sustainable Winegrowing New Zealand was commercially introduced in 1997 and has been adopted by growers from all the grape growing regions. The introduction of a winery program in 2002 has been a significant development.
Disclosing wine producers		
Categories	**Wine producers**	**Sentences**
Philosophy	Delegat's Wine Estate Ltd	Our philosophy is one of balance. A balance between the vine and the natural harmony of New Zealand's uniquely influenced maritime climate and ancient glacial riverbed soils. The expression of the vineyard is in the quality of the fruit and the flavour profiles that result. To achieve this we embrace the science and technology of sustainable viticulture at each stage of the growing season and care for each vineyard and vineyard block individually."
	Montana	Where grapes are sourced from independent growers, we are working with them to help them achieve accreditation. The aim is to get all growers on board by vintage 2012. Accreditation is not the ultimate goal, however.
	The New Zealand Wine Company	The New Zealand Wine Company's vision is to: "Build successful premium New Zealand wine brands globally through environmentally sustainable business practices".
	Woollaston Estate Ltd	The Woollaston Estates philosophy is to respect the environment while growing grapes and making wine;

		to tread lightly and leave as small a footprint as possible
Environmental Responsibility	Ascension Wine Estate Ltd	We make our living from the land. Ours is a fragile environment and one that must be cared for and preserved for the generations that follow. We have made a commitment to not only one day leave the land that is Ascension the way we found it, but to leave it better! Our environment looks after us, and we are determined to look after it, we urge you to do the same.
	Kaimira Ventures	We have always sought to operate our vineyards and winery in an environmentally friendly manner and are proud of the results we have achieved to date.
	Orinoco Vineyards	We live off the land. If we look after it, it looks after us. In a fine wine, balance is the key, and the same goes with the land.
	Owhanake Bay Estate	We believe that caring for our environment is an important responsibility.
	Montana	With a product created largely by nature, it stands to reason that Montana has valued its relationship with the environment from the start.
	Mt Rosa Wines Ltd	We are not actually tree hugging moon barkers but we live on the place and have a vested interest in maintaining the quality of the land and the vineyard.
	Spy Valley Wines	Our environment is the most important thing we have. Without it there is no Spy Valley Wines. As a result we are continually looking at what we can do better in reducing waste, implementing sustainable practices and protecting our irreplaceable environment. We have a number of initiatives underway and many more ideas in the pipline.
	Wairau River Wines Ltd	Respect for the environment is imperative in decisions we make concerning our winery and vineyards.
Environmental Impact	Ager Sectus Wine Estate Ltd	At Ager Sectus we are passionate about producing the highest quality New Zealand wine while protecting our environment. By carefully balancing all elements we create healthy vines, flourishing fruit and ultimately fine wine.
	Cape Campbell Wines	We have taken a major step forward in our commitment to protecting the nature environment, by producing

		quality wines with minimal effect on the environment.
	Dry River Wines Ltd	Dry River is convinced of the extreme problems posed by climate change including its short and long term impact on the wine industry and regards the need to take action as a practical, business and ethical imperative.
	Mudbrick Vineyard/ Shepherds Point Vineyard	Reducing our environmental footprint has been a very rewarding challenge and has not been without disappointments and frustrations, but now we have been successfully composting, recycling and re-using our resources for some years now.
	Owhanake Bay Estate	You can be sure that your stay here will have minimal negative impact on this truly beautiful place
	Wairau River Wines Ltd	Small things such as constructing the winery in a neutral colour so that it blends in with its surroundings to larger things like putting in the first Lyve winery wastewater treatment system in Marlborough are all important to our family company to lessen our impact on the surroundings and ensure that we are here for the future generations to continue to create world class wines.
	Yealands Estate Wines Ltd	From how we care for the land, plant and nurture our grapes, our entire winemaking process, even how we package and distribute our wines. Led by Peter Yealands, every member of tram is passionate about creating superlative wines with minimal impact on the environment we all share.
Environmental Reports	Palliser Estate Wines of Martinborough	Each financial year, we also produce a triple bottom-line report, which covers our financial, social and environmental performance. Click on the links for our full environmental policy or triple bottom line report.
Environmental Policy	Cape Campbell Wines	Cape Campbell's team is dedicated to protecting the natural environment, by producing quality wine with minimal effect on the environmental.
	Gibbston Highgate Estate	In essence we practice a philosophy of balance and harmony, we apply an ecological, sustainable viticulture approach to managing all of the elements in the vineyard including the soil, water, and the canopy, to ensure that they work together to optimize the fruit quality, minimize pests and diseases and enhance the beauty of the site.
	Hunter's Wines (NZ) Ltd	Our aim is to continually work towards improving all aspects of our performance in terms of environmental,

		social and economic sustainability in our vineyards to produce premium quality fruit with true environmental integrity.
	Jackson Estate Ltd	Jackson Estate aims to keep New Zealand clean, green and unspoilt by protecting the integrity of our wine production.
	Kim Crawford Winery	Our aim is to have all vineyards operating under Sustainable Winegrowing NZ (SWNZ) by 2010 where growers and vineyard managers responsible for supplying fruit to Kim Crawford Wines, undergo professional training to ensure they are complying with the aims and principles of SWNZ. The underlying aim is for ecologically balanced vineyards that deliver the desired fruit quality.
	Mission Estate Winery	Every aspect of Mission Estate's production is managed to create wines that minimise the impact on the environment.
	Palliser Estate Wines of Martinborough	Everything we do is designed to protect and enhance the environment in which our grapes grow We also work to a comprehensive environmental policy
	Owhanake Bay Estate	We aim to minimize our negative impact on the environment
Environmental Project	Cape Campbell Wines	Working in partnership with Landcare Research, we used international standards to measure our greenhouse gas emissions; then committed to continually seeking reductions in these and offset the remaining unavoidable emissions by purchasing verified carbon credits from wine farm projects. Achieving carboNZero certification places us at the leading edge of global sustainability and gives consumers an opportunity to choose a bootle of Caoe Campbell with confidence that we have minimized our impacts on climate change, as well as providing a fabulous drop. The carboNZero certification involves three important steps including measuring and managing greenhouse gas emissions and finally offsetting (mitigating) the remaining unavoidable emissions. The entire process is then independently verified to ensure its credibility and integrity. We will carry the carbNZero certification logo on all our wines sole throughout New Zealand, UK, Europe, North America, Australia and Asia.
	Dry River Wines Ltd	CarboNZero is an internationally recognized programme which has been developed in New Zealand for

		use by both individuals and organsiations to measure, manage and mitigate their greenhouse gas emissions. The principal emissions at Dry River involve fuel for both machinery and frost control in the vineyard, electricity and gap use in the winery. Travel and distribution, both domestrically as well as to our international agents are also included.
	Kaimira Ventures	The carboNZero programme encourages and supports individuals and organisations to minimise their impacts on climate change by providing them with tools to measure, manage and mitigate their greenhouse gas (GHG) emissions. GHG emissions are a major contributor to climate change. carboNZero certification is available for organisations, products and services that can demonstrate through a third-party audit that they are actively working to reduce such emissions. For further information on the programme refer to http://www.carbonzero.co.nz/about.asp We purchased PRE wind power carbon credits as an offset to mitigate our emissions level and have implemented a work programme to further improve our GHG emission efficiency. Steps already taken to this end are using solar water heating in our new winery, exclusive use of energy efficient light bulbs and the introduction of a 2-row vineyard sprayer which virtually halves the tractor time to spray our vineyards.
	Matinborough Vineyard Estate Ltd	Our work over recent years in in the Living Wine program has enabled the 7 members of Living Wine to become the first certified by Sustainable Wine Growing New Zealand program with accredition for our winery operations.
	Mudbrick Vineyard/ Shepherds Point Vineyard	Mudbrick recently hosted the Waste Resource Trust composting seminar and was used as a model of how a commercial enterprise can successfully trim and re-use their waste successfully.
	Owhanake Bay Estate	We choose to offset out carbon emissions from personal air travel by purchasing carbon credits from wine farms an native forest regeneration projects, via www.carbonzero.co.nz. This New Zealand web site includes an emissions calculator for air travel
	Scared Hill Wines Ltd	At present Scared Hill's winemaking team is reviewing literature regarding the Carbon Zero Certification

		Programme (CarboNZero) which encourages and supports organisations to minimize their impacts on climate change. Fortunately there is no added carbon source in winemaking therefore no net gain in atmospheric CO2 throughout the process. In the Winery we reduce CO2 emissions by recycling fermentation produced CO2 to purge empty tanks and we aim to reduce the use of bottled CO2 over our peak period considerably.
	Wairau River Wines Ltd	Wairau River Wines is in the unique position of controlling all parts of the winemaking process from vine to bottle, it has five estate vineyards in Marlborough totalling 500 acres, and a state-of-the-art winery and bottling facility along with a restaurant and cellar door. From the 2008 vintage all bottles of Wairau River Wines will carry the carboNZero logo. Angela Wilson Wairau River Wines Sales Manager also comments “Consumers and suppliers are increasingly demanding environmental accountability and by becoming certified carbon neutral we have responded to their concerns. We export a large proportion of our wine and we can demonstrate that the distance and food miles argument is a fallacy. To become carboNZero certified is a very rigorous process but one which ensures that our certification has the highest level of credibility and integrity” “carboNZero certification is a strategic business tool to assist companies in the promotion of their carbon credentials in a manner that is robust, credible and will withstand the most intense scrutiny that both our domestic and international markets demand. Wairau River wines as an industry leader has recognised the importance of meeting these challenges and we congratulate them on their achievement.” Says Ann Smith, Programme Leader and Technical Manager for the carboNZero Programme at Landcare Research. The carboNZero programme encourages and supports individuals and organisations to minimise their impacts on climate change by providing them with tools to measure, manage and mitigate their greenhouse gas (GHG) emissions.

		GHG emissions are a major contributor to climate change. carboNZero certification is available for organisations, products, services and events that can demonstrate through a third-party audit that they are actively working to reduce such emissions. Our measurement for the organisation meets and exceeds the requirements of the international standards: GHG Protocol for corporate accounting and reporting and ISO 14064-1. Our measurement for products, services and events include additional GHG life cycle emissions relevant to the type of carboNZero certification being sought. We actively participate in the development of the leading international standards in GHG measurement and reduction. We also regularly seek advice and information from the relevant New Zealand government departments and monitor international best practice to ensure that the emissions factors and calculation methodologies that we use are kept up-to-date. For further information on the programme refer to www.carbonzero.co.nz/about.asp
Environmental Awards	Ager Sectus Wine Estate Ltd	We are proud to be an accredited member of Sustainable Winegrowing New Zealand and all our vineyards are operated in accordance with this scheme's guidelines.
	Askerne Winery	Askerne Estate Winery became SWNZ accredited from the 2004/2005 season.
	Bridge Pa Vineyards Ltd	Bridge Pa Vineyards is a Sustainable Winegrowing New Zealand (SWNZ) accredited vineyard.
	C J Pask Winery Ltd	C.J. Pask Winery was one of four wineries to achieve a world first ISO:14001 group accreditation that was acknowledged by the Prime Minister at Parliament House in 1998. “Living Wine”, as the group is collectively known, has both their vineyard and winery practices internationally certified, and are committed to the continual improvement of their environmental management systems. The winery has been a member of SWGNZ since its inception.
	Cape Campbell Wines	We have achieved the internationally recognized carboNZero certification for contributing no net greenhouse gas emissions into the atmosphere and are one of the first New Zealand wineries and a handful of global wine brands to have achieved carbon neutral certification for the organsiation of our wine products. Other New Zealand wineries include Dry River, Huia Vineyards, Kaimira Ventures, Wairau River and The

		New Zealand Wine Company. We're extremely proud to have achieved such a significant environmental milestone.
	Gladstone Vineyard	Gladstone is an accredited vineyard and winery (SWNZ).
	Hunter's Wines (NZ) Ltd	The commitment shown by Hunter's Wines to celebrating and preserving endangered habitats and species has been recognized and awarded at the Marlborough Environment Awards (2008/2009). The Marlborough Environment Awards are held every two years, recognising and rewarding enterprises embracing environmental sustainability. Award categories are farming, forestry, winegrowing/horticulture, habitat enhancement, efficiency, landscape and innovation. An overall winner is selected from these for the Supreme award. The Marlborough Environment Awards judges commented that, "The gardens now dominate the landscape and are woven around the cafe, cellar door, winery and resident artist quarters. The Marlborough Environment Awards judges commended Hunters on the great use of vegetation as vertical structures and also of shade trees and pergolas to create overhead closure, rooms, shade, intimacy and coolness.
	Jackson Estate Ltd	Our Homestead Vineyard was one of the first accredited in the region, back in 1995 (SWNZ). Our Homestead Vineyard was one of the first accredited in the region, back in 1995 (SWNZ).
	Kahurangi Estate	Kahurangi Estate is proud to be a credited Sustainable Vineyard and Winery
	Kaimira Ventures	We have been part of the Sustainable Winegrowing programme since 1998 and have recently achieved CarboNZero certification. All Kaimira Venture vineyards are accredited to the programme (SWNZ). Kaimira Ventures Limited achieved carboNZero in April 2008 following a review of all aspects of its operations from grape growing to wine making and distribution and an independent audit of the findings.
	Palliser Estate Wines of Martinborough	We are also certified to the international environmental standard ISO 14001
	Martinborough Vineyard	In February 1998, Martinborough Vineyard along with three other New Zealand wineries, achieved ISO

	Estate Ltd	14001 accreditation. This recognizes the environmental awareness and operating systems that Martinborough Vineyard has put in place. As part of being ISO 14:001 accredited, we are committed to identifying and minimizing the impact our operations have on our vineyards and on the environment. We are also a founding member of the Sustainable Winegrowing New Zealand (SWNZ) program with all our vineyards and winery being accredited.
	Mission Estate Winery	Mission Estate Winery achieved ISO14001 certification in 1998 and is part of the Living Wine group. ISO14001 accreditation is an endorsement of our commitment to sustainable viticulture and wine-making practices. Mission Estate has more recently achieved a Sustainable Winegrowing New Zealand (SWINZ) accreditation.
	Montana	All our vineyards and wineries are accredited under the scheme (SWNZ). Montana's Andy Frost, who won the award as White Winemaker of the Year at the 1997 London International Wine Challenge, has since dedicated himself to research. He has been a member of the steering committee for the Falcons for Grapes project right from the start.
	Scared Hill Wines Ltd	Scared Hill Wines is committed to environmental wellbeing. This comes via a range of initiatives including Sustainable Winegrowing NZ, safety and health requirements and ISO 9001:2000 annual audits. For more than 21 years Scared Hills Wines has been committed to an environmentally aware philosophy.
	Sileni Estate Ltd	Sileni Estates has implemented and maintains both the ISO14001 and Sustainable Winegrowing certification. Sileni Estates achieved ISO14001 certification in May 2002. By being ISO14001 accredited we have endorsed our commitment to sustainable viticulture and winemaking practices.
	Spy Valley Wines	Our winery, all of our company vineyards and our grower vineyards are accredited under the Sustainable Winegrowing scheme which promotes economically and environmentally sustainable vineyard

		management. We are in the process of taking this a step further by becoming certified to the international environmental standard ISO 14001. This is an environmental management system that identifies and controls the environmental impact of activities, products and services, improves environmental performance and sets environmental objectives and targets.
	Vidal Estate Ltd	The winery is also Biogro certified and ISO 14001
	Waimea Estate (Nelson) Ltd	Waimea Estate is committed to sustainable practices in both the vineyard and winery and have been accredited to Sustainable Winegrowing New Zealand (SWNZ) for some years now.
	Wairau River Wines Ltd	Wairau River Wines Limited has been issued with carboNZero certification by Landcare Research, making it one of only three New Zealand wineries to be accredited and indeed one of a handful of carbon neutral wineries in the world. Wairau River Wines Limited was issued with carboNZero Cert™ certification by Landcare Research in June 2008, making it one of only three New Zealand wineries to be accredited and indeed one of a handful of carbon neutral wineries in the world. From the 2008 vintage the entire range of wines will carry the carboNZero Cert™ logo. It is appropriate that this announcement comes on Thursday June 5th which is World Environment day and New Zealand is hosting this annual event for the first time. The theme for World Environment Day 2008 is climate change with a focus on moving towards a low carbon economy and lifestyle.
	Woollaston Estate Ltd	In 2004 the vineyards were accredited as Sustainable, under Sustainable Winegrowing New Zealand accreditation scheme that audits the vineyards and encourages the adoption of best practice options that minimize environmental impact. The winery was designed with sustainability in mind, and has also received accreditation under Sustainable Winegrowing New Zealand in 2006.
	Yealands Estate Wines	Yealands Estate has been awarded a carboNZero certification by the world's first interntionally accredited

	Ltd	GHG certification scheme. The carboNZero programme and CEMARS TM (Certified Emissions Measurement And Reduction Scheme) are internationally recognized greenhouse gas certification schemes- commonly referred to as carbon footprinting. Both the carboNZero programme and CEMARS certification programmes recognize the actions of business and organisations that measure their greenhouse gas emissions, understand their carbon liabilities and instigate management plans to reduce emissions in their organisation and more widely through their supply chain. The carboNZero programme then takes organsiations, products, services and events a step further by offering them credible and verified carbon credits to offset their remaining unavoidable emissions. Summary of Yealands Estate CarboNZero certification data : vintage pre 2008. Quantity of carbon credits: 727 tonnes CO2 equivalments. Type of credit: Verified Emissions Reductions (VERs) from proects to reduce emissions (PRE) Tararual II windpower project. Yealands is awarded carboNZero Certification. Further supporting our desire to create a fully sustainable winery. Yealands Estate has been awarded a carboNZero Certification. The carboNZero programme and Certified Emissions Measurement and Reduction Scheme (CEMARS) are internationally recognized greenhouse gas certification schemes aimed at reducing organsiation's carbon footprints. Read more on our carboNZero certification here. Yealands Estate awarded carboNZeroCert TM status. Another first from a winery pioneering climate change Yealands Estate Wine Ltd continues to break new ground in sustainable wine production with the announcement it has received carboNZero certification from Landcare Research. A toast o sustainable winemaking. Yealands Estate Wines EECA SME Business Environment Award.

		Yealands Estate is celebrating its wine at the Energy fficiency and Renewable Energy awards, held by the Energy Efficiency and Conservation Authority (EECA) in Auckland last week.
Environmental Audit	Brunton Road Wines Ltd	As an accredited member of SWNZ, we are required to self-assess using a sustainable scorecard and are audited each year for compliance. Our first vineyard audit was completed last year and we reached “Accredited Vineyard” status in February 2009.
	Delegat’s Wine Estate Ltd	We also conduct regular seasonal audits.
	Dry River Wines Ltd	To receive certification, we are audited annually and our unavoidable emissions are written off against the purchase of carbon credits
	Hunter’s Wines (NZ) Ltd	Vineyards get audited every two to three years to ensure standards and regulations are being met and that the methods being used are the safest possible to the environment and human health.
	Jackson Estate Ltd	We will be audited as an individual winery in 2009, and become an accredited Sustainable winery- part of Sustainable Winegrowing New Zealand.
	Kaimira Ventures	We were audited in spring 2008 and are proud that our whole business is now accredited under Sustainabile Winegrowing.
	Seifried Estate	This accreditation was granted after a rigorous audit process, where all area of the winery’s business were reviewed.
	Scared Hill Wines Ltd	In 2006, Scared Hill Wines achieved certification as an ISO 9001 producer after a successful audit was conducted by international firm, BVQI. This audit covered all aspects of company grape production, wine production, warehousing, dispatch, customer feedback, Occupational Safety and Health and management systems.
	Wairau River Wines Ltd	Wairau River Wines Limited was issued with carboNZero Cert™ certification by Landcare Research in June 2008, making it one of only three New Zealand wineries to be accredited and indeed one of a handful of carbon neutral wineries in the world. From the 2008 vintage the entire range of wines will carry the carboNZero Cert™ logo.

Environmental Management System	Ager Sectus Wine Estate Ltd	We actively promote the sustainable management of our natural and physical resources and are committed to preserving the life-supporting capacity of the air, water, soil and ecosystems within our vineyards.
	C J Pask Winery Ltd	CJ Pask Winery is committed to environmental management and has actively been developing systems since the mid 1990's. The sustainable management of the company's vineyards and winery is a fundamental core philosophy of CJ Pask. Monitoring and measuring environmental impacts is fundamental to our environmental management system. Key elements being water, power, fuel, vineyard spray applications and recycling. Standard operating procedures have been established ensuring usage of these key elements is at a minimum. Environmental management for CJ Pask is a dynamic process based on continual improvement. We have gained much experience during the last 12 years and the implementation of this knowledge is exciting.
	Craggy Range Vineyards Ltd	The vines are managed in balance with their environment in a system of sustainable ecological viticulture that maximizes natural input and controls anything synthetic Every stage of the vine's growth is measured and compared to ensure the vine is kept in balance and harmony with its age and environment.
	Delegat's Wines Estate Ltd	An annual management plan for each vineyard block. This involves the blocks being rated and 'scored' against a benchmark. Every three months each block is formally assessed and re-forecasted. Constant reviews of the clonal performance, irrigation, trellising systems, vine health and canopy management of each block.
	Martinborough Vineyard Estates Ltd	Directors and staff have undertaken to manage this deed with the introduction and operation of our ISO 14:001 environmental management system. We recognize that the relationship between soil, vine and wine is intrinsically linked.

		We need healthy soils to grow healthy vines from which to make great wine. It is this founding principle that guides us in our pursuit of excellence and helps us grow better wine.
	Mission Estate Winery	Mission Estate operates an environmental management program, and has been a part of the ISO 14001 environmental management standard accreditation since 1998. Inputs and outputs are constantly measured, as well as the effects these have on the environment. Our environmental program is managed to guarantee sustainability from the vineyard and winery, through to the bottle. Carbon footprint strategies are in place to reduce and offset the winery operation. To achieve this we have set up an environmental management program, and this has been recognised by the accreditation of ISO 14001 since 1998 (the environmental management standard). ISO 14001 is an international environmental management accreditation. It recognises integrity, traceability, philosophy and commitment to continuous improvement. ISO14001 is a system that requires the producer to consider the inputs and outputs of production and the effects these factors have on the environment. In understanding and measuring these, Mission Estate can continuously improve its performance.
	Montana	We want to reduce our reliance on non-organic management. Pilot programmes are run in our vineyards to see how close we can get to 100% organic management. By June 2008, all Montana's sites had met the ISO 14001 international environmental standard, following the bottling facility in Auckland achieving this standard in March 2007. We work to ensure that all aspects and impacts of our winery and storage systems minimise environmental impact. We have specific targets to reduce waste, reduce water and energy usage, protect against environmental spills and keep tight control of chemicals on all our sites. One of the innovative systems we use to minimise energy usage is to employ the latent heat from compressors as the first stage to heat water, so that it does not have to be heated from zero in the boilers.
	Mundo Vira Winery	At mundo Vira our environmental practices include: minimizing the use of sprays, in particular through improved vine canopy management.

		Proper pasture management, including the use of sheep to control grass growth.
	Sileni Estate Ltd	Sileni Estates achieved ISO14001 certification in May 2002. By being ISO14001 accredited we have endorsed our commitment to sustainable viticulture and winemaking practices.
	The Hay Paddock Ltd	A minimalist approach is taken to fungicide usage with preference given to organic elemental sprays and the encouragement of mycorrhizal fungi.
	The New Zealand Wine Company	The winery waste management system incorporates the use of a natural wetland area beside the winery, which serves as a nutrient sink. The environmental integrity of this winery waste system is measured by the return of frogs and bird life to the wetland sanctuary.
Sustainability	Askerne Winery	It recognizes that sustainability has several components, of which one is a financially viable return.
	Delegat’s Wine Estate Ltd	At Delegat’s Wine Estate we are committed to sustainable viticulture. We have strategies in place to ensure that our practices reflect this commitment. What's good for the vineyard and the growing of premium quality grapes, must also be good for the environment. We work in harmony with nature. Continuous improvement of our viticultural practices and management, through an on-going commitment to certified industry training courses and investment in our own research and development programme. Modern record keeping and management systems for each of our vineyards. Each vineyard has its own active management plan. Finding, training and helping to develop a world-class team of viticultural professionals. Our innovative 'Pathways to the Future' Graduate Development Programme is fundamental to this vision.
	Gladstone Vineyard	Maintaining sustainability requires a process of continuous improvement and adaptation to change, we are wholly committed to that at Gladstone.
	High Plains Wine Co Ltd	The Winehouse & Kitchen believes in working and acting sustainably for the greater good of the environment as well as providing fresher and tastier ingredients for our diners. By reducing our environmental footprint we are able to deliver consistently high quality food and wine for

		the longer term and giving visitors a sustainable wine tourism experience. We see a long term future in acting sustainably and proudly put this into practice at The Winehouse & Kitchen
	Mudbrick Vineyard/ Shepherds Point Vineyard	It' a sustainable system that works for the environment but has enriched our lives in so many ways and we feel very proud of this whole new cycle that we have created.
	Owhanake Bay Estate	Christy is currently completing her master degree in environmental education and runs her own business' Pateke – educational solutions for a sustainable future
	Ra Nui Wines Ltd	We like to tread softly in the vineyard in the belief that it is a sustainable resource that the generations to come will enjoy, just as we have.
	The Hay Paddock Ltd	The Hay Paddock has achieved Accredited Vineyard status under the Sustainable Winegrowing New Zealand programme and adopts a soil improvement regime with a strong bio-dynamic influence that includes companion planting, green manure and composting of all winery waste.
	The NZ Wine Company	Build the Company's position through environmentally sustainable practices (refer http://www.grovemill.co.nz/philosophy/SustainablePractices.aspx for more information)
	Scared Hill Wines Ltd	We constantly seek new ways to improve vineyard and winery practices to ensure an environmentally sustainable business.
	Seifried Winery	As exports of New Zealand wine continue to grow, the call for sustainability within the wine industry has become more important, both from a production and marketing point of view.
	Wairau River Wines Ltd	Pioneers in Marlborough, Phil & Chris Rose the owners of Wairau River Wines have just completed their 30th vintage, with five children involved in the business and with five grand children they have good reason to be looking towards a sustainable future. Phil Rose states that "Working on the land all my life I have always been aware of the environment and am conscious of our impact on it, respect for the environment is paramount in all decisions concerning the winery and vineyards. It is important to our family company to have the least impact possible on our surroundings, ensuring that

		the wonderful environment we live in is here for future generations to enjoy, allowing us to continue creating world class wines." Lindsay Parkinson – the company General Manager, who managed the process, is adamant that this is a significant step towards future sustainability and was an easy decision to make. "Managing and reducing our emissions makes us more accountable for our actions and we can only benefit from a financial perspective as well" he said. When the Wairau River winery was built in 2002 one of the goals was to be a sustainable winery.
	Yealands Estate Wines Ltd	Sustainability is at the core of everything we do at Yealands Estate. Just some- but by no means all-of our sustainability initiatives include vineyards and winery.
SWNZ	Askerne Winery	Sustainable Winegrowing New Zealand (SWNZ) is a management system with an environmental philosophy for the economic production of high quality winegrapes by using natural resources and regulating mechanisms to replace unsustainable inputs and thus to secure sustainable winegrowing. It is a programme based on continuous improvement. SWNZ is an holistic approach to grape growing. It goes well beyond Integrated Pest Management which ensures that pesticide use does not prevent natural enemies from providing at least some measure of pest control. SWNZ encompasses many features dear to the "organic" movement (for example, by recognising the importance of soil health and incorporating strategies to maintain it) but stops short of prohibiting main-made inputs such as pesticides.
	Bridge Pa Vineyards Ltd	"New Zealand has long been famed for its stunning unspoilt landscape. New Zealand's small population, isolated location and agricultural economy have earned the country a "clean, green" image. New Zealand grape growers and winemakers aim to keep it that way by protecting the environmental integrity of their wine production. To this end a pioneering set of industry standards have been developed, known as Sustainable Winegrowing New Zealand (SWNZ). SWNZ provides the framework for companies to continually work towards improving all aspects of their

		performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. Sustainable Winegrowing New Zealand was established by volunteer grape growers in August 1995 as an industry initiative directed through New Zealand Winegrowers. SWNZ was commercially introduced in 1997 and has been adopted by growers from all the grape growing regions. The introduction of a winery program in 2002 has been a significant development, which further substantiates the industry claim " New Zealand Wine, the riches of a clean green land". Sustainable Winegrowing New Zealand was developed to provide a "best practice" model of environmental practices in the vineyard and winery. Guarantee better quality assurance from the vineyard through to the bottle. Address consumer concerns in matters pertaining to the environment and winegrape production.
	Brunton Road Wines Ltd	Brunton Road's two Patutahi blocks have been managed under the New Zealand Winegrowers Sustainable Winegrowing scheme. This scheme encourages member growers to embrace the appropriate environmental and economically sustainable wine grape production methods for New Zealand conditions. “SWNZ” is a holistic approach to grape growing…SWNZ incorporates many features dear to the ‘organic’ movement (for example by recognizing the importance of soil health and incorporating strategies to maintain it) but stops short of prohibiting man-made inputs…” SWNZ Handbook.
	C J Pask Winery Ltd	Kate spent five years as Chair of the SWNZ advisory/working group, which at that time saw the introduction of the winery programme under the scheme. The winery is focused entirely on this innovative New Zealand programme and has opted not to continue with the ISO:14001 accreditation. Click here to learn more about Sustainable Winegrowing New Zealand.
	Cape Campbell Wines	SWNZ is the initiative started by volunteer grapegrowers who wanted to see environmental sustainability in their business. This has now become a commercial certification and has some strict guidelines in place.

		Each vineyard has a scorecard which is the core operational document, it acts as a reference document for growers through season and provides a format for recoding the practices used in the vineyard. The scorecard is made up of 5 categories; soils and fertilizers, ground cover and irrigation management, diseases, pests and membership criteria. It encourages continual improvement, and is a “living document”, which is easily updated to include new practices. SWNZ aim is for all New Zealand Wineries and Vineyards to be operating in accordance with an independently audited sustainability programme by vintage 2012.
	Gibbston Highgate Estate	We have drawn our inspiration from sustainable winegrowing practices and we are accredited under the Sustainable Winegrowing New Zealand programme. For more information regarding Sustainable Winegrowing New Zealand refer to www.nzwine.com/swnz
	Gladstone Vineyard	Since its inception, Gladstone vineyard has been a member of the New Zealand Sustainable Winegrowing programme, focusing on pest practice environmental practices in winegrape productions. The programme sets industry standards which provide the framework for winemakers to continually work towards improving all aspect of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. This includes greater reliance on natural methods of control of pests and plant diseases in the vineyard, resulting in a significant reduction of the types and volumes of chemical pesticides and fungicides, as well as cultivation practices to preserve the sustainability of the land and improve wine grape quality.
	Hunter’s Wines (NZ) Ltd	Sustainable winegrowing New Zealand was developed with the aim to be the best environmental programme for producing wine grapes in the world. All Hunter’s vineyards are run under sustainable certification, meeting all requirements set out by Sustainable Wine Growing New Zealand with the focus to: Protect the vineyard environment. The people that work and live within and around the vineyard. The people who consume wine made from grapes produced in the vineyard Sustainable management techniques are applied on all Hunter’s blocks, using carefully monitored and

		controlled irrigation, weeds, pests and disease management.
	Jackson Estate Winery	Sustainable Winegrowing New Zealand is an organisation that provides the framework for New Zealand winemakers to continually work towards improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery. All Jackson Estate Vineyards are registered as part of Sustainable Winegrowing New Zealand. Both vineyard and winery are registered members of Sustainable Winegrowing New Zealand. All Jackson Estate Vineyards are registered as part of Sustainable Winegrowing New Zealand.
	Kahurangi Estate	This is assurance to our customers that we are dedicated to the reputation of the New Zealand Wine Industry to produce premium quality wines with true environmental integrity.
	Kaimira Ventures	This programme was developed and implemented by New Zealand Winegrowers, the organisation that represents the collective interests of grape growers and wine makers. The initial focus was on the vineyard and the programme provides an audited "best practice" guide to efficiently and economically growing premium winegrapes in an environmentally sustainable manner. The scope of the programme was recently extended to include winery operations. For further information on these programmes refer to http://www.nzwine.com/swnz.
	Kim Crawford Wines	As part of SWNZ, growers are tasked with maintaining and/or improving the structure, depth, fertility, fauna and micro-flora of the soil.
	Martinborough Vineyard Estates Ltd	New Zealand has long been famed for its stunning unspoilt landscape. New Zealands small population, isolated location and agricultural economy have earned the country a clean, green image. New Zealand grape growers and winemakers aim to keep it that way by protecting the environmental integrity of their wine production. To this end a pioneering set of industry standards have been developed, known as Sustainable Winegrowing New Zealand (SWNZ). SWNZ provides the framework for companies to continually work towards improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery.

		Sustainable Winegrowing New Zealand was established by volunteer grapegrowers in August 1995 as an industry initiative directed through New Zealand Winegrowers. SWNZ was commercially introduced in 1997 and has been adopted by growers from all the grape growing regions. The introduction of a winery scorecard in 2002 has been a significant development, which further substantiates the industry claim New Zealand Wine, the riches of a clean green land. Burnt Spur Martinborough is proud to be a member. Our work over recent years in in the Living Wine program has enabled the 7 members of Living Wine to become the first certified by Sustainable Wine Growing New Zealand program with accredition for our winery operations. For further information go to www.nzwine.com/swnz
	Mondillo Vineyards	We are proud to be an accredited member of SWNZ – Sustainable Winegrowing of NZ – A proactive environmental management system that enables the production of high quality wine by employing environmentally responsible process in the vineyard and winery, “New Zealand Wine, the riches of a clean green land”.
	Montana	Montana was a founder member of New Zealand’s original sustainable winegrowing initiative in 1995. This programme has since transformed into Sustainable Winegrowing New Zealand (SWNZ).
	Mundo Vira Winery	Mundo Vira is an accredited member of Sustainable Winegrowering New Zealand, an environmentally conscious group dedicated to ensuring an industry standard for sustainable wine growing. Membership is assessed annually to encourage continual improvement in the areas of environmental, social and economic sustainability. To find out more about Sustainable Winegrowing New Zealand click here.
	Nga Waka Vineyard	Nga Waka is an accredited member of Sustainable Winegrowing New Zealand. Sustainable Winegrowing New Zealand is a vineyard management programme that guides vineyard operators towards sustainable management practices. The programme uses a combination of education, encouragement, measurement and assessment against a background philosophy of continuous improvement.

		An independent body regularly audits members to ensure the integrity and standing of the programme. Nga Waka supports the goals of Sustainable Winegrowing New Zealand: • To provide a "best practice" model of environmental practice for winegrowers. • To guarantee quality assurance from the vineyard to the winery. • To address consumer concerns pertaining to the environment and winegrape production.
	Orinoco Vineyard	In the vineyard we follow the sustainable wine growing policy.
	Palliser Estate Wines of Martinborough	A member of the Sustainable Winegrowing scheme, which promotes (and audits us for) economically and environmentally sustainable vineyard management.
	Ra Nui Wines Ltd	We are a member of Sustainable Winegrowing New Zealand, an organisation which promotes environmentally focused vineyard practices, and which also aims to provide a quality assurance guarantee from the vineyard to the winery.
	Ruby Bay Vineyard	Using sustainable management practices, Ruby Bay vineyard has been designated an approved vineyard by Sustainable Winegrowers New Zealand
	Scared Hill Wines Ltd	Scared Hill Wines has been involved in Sustainable Winegrowing NZ initiatives for many years, and was one of the country's first wineries to be successfully audited and accredited. Our vineyards have been accredited and successfully running under this programme since 2000.
	Seifried Estate	Seifrieds is proud to be Nelsons first winery to achieve Sustainable Winegrowing accreditation.\ Sustainable Winegrowing New Zealand (SWNZ) gives a framework for viticultural and winemaking practices that protect the environment while efficiently and economically producing premium wine. Defined by a set of industry "best practice" standards, Sustainable Winegrowing has been developed in an effort to provide a framework for companies looking at protecting the environmental integrity throughout their wine production. "SWNZ (Sustainable Winegrowing New Zealand) is a holistic approach to grape growing, which sets a framework for companies to continually work towards, improving all aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and the winery." (SWNZ) . Working towards SWNZ accreditation has meant a heightened focus on the way our business is run. Because it covers all areas of winemaking, from the vineyard, to staffing issues and machinery operation,

		as well as water and energy use and winemaking procedures in the cellar, there is a greater awareness of how the different choices made can have a flow-on effect. To gain this accreditation confirms that Seifrieds are working in a sustainable manner, and adds an extra string to our bow, particularly for our overseas customers who are very aware of New Zealand's reputation as a 'clean, green land'. For more information about Sustainable Winegrowing in New Zealand and a list of other accredited wineries, see http://www.nzwine.com/swnz/
	Sileni Estate Ltd	New Zealand has long been famed for its stunning unspoilt landscape. New Zealand's small population, isolated location and agricultural economy have earned the country a pure New Zealand image. New Zealand grape growers and winemakers aim to keep it that way by protecting the environmental integrity of their wine production. To this end a pioneering set of industry standards have been developed, known as Sustainable Winegrowing New Zealand (SWNZ). SWNZ provides the framework for companies to continually work towards improving aspects of their performance in terms of environmental, social and economic sustainability in both the vineyard and winery. SWNZ was commercially introduced in 1997 for the vineyard and adopted by growers from all the grape growing regions. The introduction of a winery scorecard in 2002 further substantiates the industry claim "New Zealand Wine, the riches of a clean green land". Wines that are produced from 100% accredited vineyards and made in accredited wineries can carry the sustainable winegrowing logo. For more information please visit the Sustainable Winegrowing website and look out for the logo.
	Te Mata Estate Winery Ltd	Te Mata Estate is committed to improving its performance in terms of environmental, social and economic sustainability through the Sustainable Winegrowing New Zealand (SWNZ) programme. Every Te Mata Estate wine displays the SWNZ symbol as your assurance that all of our wine production, from vine to bottle, is fully accredited and audited.

	Te Whau Vineyard Ltd	The vineyard was the first in New Zealand to be established from the outset according to the Sustainable viticulture approach now being adopted widely by the industry. This methodology is dedicated to environmentally sustainable vineyard management practices that seek protect the vineyard and surrounding ecosystem through minima-impact viticultural techniques.
	Vidal Estate Ltd	Sourcing grapes from New Zealand's premium grape growing regions, including Hawkes Bay's Gimblett Gravels, Vidal is dedicated to environmentally friendly winemaking, having committed to sustainable winegrowing practices. This mindset allows Vidal to contribute to New Zealand's "clean, green" image and increase quality insurance from vineyard through to the finished wine.
	Woollaston Estate Ltd	In the vineyard these include minimising herbicide and using natural control of pests and diseases where possible, reducing water usage and protecting the natural soil structure. For example, flowering plants are grown between some rows of vines each spring to provide nectar and pollen for beneficial insects – predators that provide natural control against pests such as the Light Brown Apple Moth or leaf roller caterpillar.
	Waimea Estate (Nelson) Ltd	This programme is based on three core principles:environmental soundness social responsibiltu and economic viability. The progamme was developed to: Provide a best practice model of environmental practices in the vineyard for winegrowers, with a scorecard acting as a reference document for growers through the season and from season to season. Provide quality assurance through an auditable production record from vineyard to winery. Address consumer concerns about the environment and winegrape production. Affirm New Zealand's reputation for being a "clean green country".
	Yealands Estate Wines Ltd	Vineyard - Sustainable Winegrowing Certification (SWNZ)
Vineyards Environment	Ager Sectus Wines Estate Ltd	We are committed to helping safeguard the future of New Zealand's clean green land. We do this in many ways, starting with encouraging healthy soil by stimulating natural beneficial biological activity.

		We maintain an active organic ground cover in the inter-row to reduce possible erosion and to increase soil organic matter. By monitoring and regulating soil water in the vine's rhizosphere we effectively utilise the natural water resource, while managing vine vigour to optimise grape quality. We also regularly monitor soil and vine nutrition levels to optimise the use of any nutrients that may be required. Overall, we aim to have a good biodiversity of the vineyards and the surrounding environment to stimulate the natural ecosystem and to provide sites for natural predators. This in turn eliminates our reliance on artificial controls. In addition, where possible, we aim to use multi-function vineyard machinery to minimise the number of vehicle passes required. This reduces fuel usage and soil compaction. Our pest disease and disorder management approach also helps safeguard our environment. We use a minimalist spray programme that adheres to NZ Winegrowers Export Winegrape Spray Schedule requirements. All our spray operators are "Growsafe" qualified. We aim to have nil residues in our wines, avoid any insecticides by encouraging the establishment and maintenance of natural insect predator populations and ensure all new vines are planted with virus tested, high health material on phylloxera resistant rootstock to eliminate the need for some vine diseases and phylloxera control. Ultimately our goal is to manage the vines in such a way as to reduce the need for artificial inputs and controls. A well balanced, vine with a good level of fruit exposure is naturally more resistant to pest and diseases.
	Amisield Wine Company	The vines are closed planted on a range of alluvial and glacial schist soils imparting balance in the vines growth and productivity
	Ascension Wine Estate Ltd	Finally, in the vineyard we do our best to use only organically approved compounds of copper and sulphur where we can. There are inevitably times when we need to use alternatives, but these we try to keep to an absolute minimum.

		We reduce disease, and therefore the need to spray, by such things as burning our winter prunings and leaf plucking by hand around the bunches of grapes in summer.
	Brunton Road Wines Ltd	Brunton Road also operates a biodynamic programme consistent with our philosophy of scientifically based minimal input viticulture. This includes no herbicide use in our vineyards.
	C J Pask Winery Ltd	All winery waste is returned to the vineyard and incorporated into our composting operation. This, in turn, is returned to the vineyard floor. Composting and mulching are fundamental practices, along with stringent monitoring of vineyard conditions such as temperature, humidity, rain etc.
	Gibbston Highgate Estate	We encourage indigenous flora and insects, and only replace in the soil what the vines have extracted through using natural methods to the greatest extent possible. Our viticulture methods are labour and capital intensive. Any interventions that are necessary are completed on the basis of knowledgeable use, using the right amount of the right product, at the right time. Wherever possible we use no animal products in processing our wine. Our wines are subject to limited filtration. Repeated decanting by gravity or low pressure pumping and cold stabilisation is used to achieve the required clarity and stability of the wine.
	Gladstone Vineyard	At Gladstone vineyard, our current practice is based on the philosophy that a healthy vine will produce healthy, quality grapes. To this end, considerable efforts are focused on achieving soil and plant health. Please click here to see our interrow planting regime.
	Jackson Estate Ltd	Each vineyard site is managed in accordance to its own micro environment. We farm all our land seasonally and in harmony with any natural advantages available (ie: low humidity, cool nights, natural predators) – not to a calendar. This philosophy is both rational and environmentally sensitive. As we continuously work towards a total synergy between winery and vineyard, grape marc will be

		composted during the winter and spread back on the vineyards in the spring, increasing bio diversity and humus content in our soils. Currently all our grape marc is taken, dried and palletised for stock food for the diary industry
	Kim Crawford Wines	There are a few key areas of viticulture that Kim Crawford Wines focus on to ensure excellence. We believe the moment the grape is picked, it captures everything that has happened before that moment. Our job is to act as the guardians of the flavour and the vineyard. Our philosophy is to tinker as little as possible in the winery, to allow the flavours to flow through and express their moment in time. We let the region and climate determine where the best fruit comes from, we recognise that sub-regional differences impact on the final blends which is why we have a number of vineyards across each region to ensure we have the ability to select fruit from various locations. Our viticulturists work closely with growers and vineyard managers to manage canopies to ensure they are in condition to deliver the desired fruit quality. The canopies are the engines of the vines and are in charge of ripening the fruit making it important they are functional through till harvest. There is a fine line in managing stem levels of the vine to ensure optimum output. Our wines are made from vines that incur only light stress to ensure the fruit is delivered to the winery fresh and vibrant. The levels of leaf plucking are monitored each season and by site. Experience has shown over exposing fruit changes the wine quality and flavours. Our aim is to ensure the optimum balance with the leaves on vine – enough leaves are removed to allow air and speckled light to pass through the canopies and to reduce disease risk, whilst ensuring there is enough shading to manage the phenolic levels in the juice. Vine health is as much about vine balance as it is in the type and amount of inputs back into the vineyards. We have a history of cropping levels in most areas and have developed an understanding of what the potential should be at each site each year. Manipulation is encouraged to ensure crop load is maintained at an agreeable level that enables each site

		the potential to express the qualities we are looking for. Plant and soil analysis are carried out on a regular basis to determine nutrient & fertilizer requirements, timing and method of application to minimize leaching. A combination of winemakers and viticulturists monitor the vineyards throughout the season, checking vine development to get an understanding of the potential at harvest. Closer to harvest, picking decisions are made not just from berry sample analysis but from tasting the fruit in the field. The aim is to harvest the vineyard at its optimum flavour potential, not basing it just on sugar ripeness. This means regularly checking sites, up to three to four times a week, just to get it right, a logistical challenge, but a challenge that we feel is imperative to ensuring excellent fruit quality. Where possible individual parcels of fruit with potential are kept separate once harvested to allow the winemakers to follow their development through the wine making process. We believe the wine was made in the vineyard, by keeping parcels separate we allow the site to express the individual qualities that are there rather than trying to create something through the winemaking process.
	Martinborough Vineyard Estate Ltd	In recent years our vineyards have begun a conversion to biological management that is aimed at increasing soil health. Already we are seeing less fungicide and herbicide use as well as healthier vines that are more resistant to disease and pests. Sheep now roam our vineyards helping reduce mowing and herbicide use as well as cutting our fuel consumption. These steps are a small part of the overall philosophy of Martinborough Vineyard - to produce the best "New World" wine with a commitment to sustainable viticulture.
	Montana	A significant reduction of chemical spraying in our vineyards has already been achieved. This includes the complete elimination of some chemicals and a greater use of biological deterrents to pests and diseases as well as improved soil structure, more efficient water use and targeted fertilizer applications.

		Among the more recent initiatives at Montana's vineyards is to use natural fertiliser where possible, mainly by spreading composted grape marc (pressed skins, pips and stems) and prunings back into the vineyards on a wider scale. In the past, viticulturists tended to apply resources such as water and chemical sprays on a predetermined schedule. Now these are only applied when there are clear indicators that it is needed. Natural biological means are used to combat pests and diseases as far as possible. Ongoing trials on our vineyards have seen improvements in the use of bio-controls to combat botrytis. When spraying is needed, we save energy by using multi-row sprayers. Vineyards are part of a larger ecosystem which has to work together in a way that is sustainable for the vineyard operation as well as for local species. Biodiversity helps keep our vineyards sustainable. Many parts of our vineyard land are now in an environmentally healthier state than before the vineyards were developed. Selected complementary crops between vineyard rows also promote sustainability. These crops moderate the fertility of the soil where necessary and provide a habitat for beneficial insect species. On Kaituna vineyard in Marlborough, we cleaned the natural watercourse and replanted the area in appropriate natives. Now the series of four interlinked ponds are a haven for waterfowl. With our help, the native species are now winning the battle against exotic plants in one of very few remaining wetlands in Marlborough.
	Mt Rosa Wines Ltd	Our vineyard is all grassed with the exception of the alyssum rows. We use a CDA sprayer that allows us to use approx 15% of spray that would be used in a conventional vineyard. 5We plant alyssum every 9th row , this helps to provide cover and breeding ground for a parasitic wasp that preys on leafroller larvae, thereby eliminating insecticide use.

		6We are committed to using liquid fertilizer , being a blend of seaweed, whale urine and ground up mermaids + other beneficial elements.
	Orinoco Vineyards	A key part of the new winery design was to minimize the impact on the environment. By following biodynamic principles we use a minimum of sprays, no insecticides, and no GE products.
	Palliser Estate Wines of Martinborough	Minimize spraying and use 'friendly' sprays wherever possible
	Scared Hill Wines Ltd	We value the soil in which our vines flourish and strive to preserve the environment in and around our vineyards, minimizing environmental impacts wherever possible. Soil health and nutrition continues to be a major focus for Sacred Hill Wines, to ensure our vineyards are productive and sustainable for future generations. In early spring we apply organic mulch to the driest areas of our Gimblett Gravels vineyard, to conserve water and minimise irrigation requirements. Our vineyard team is working on benchmarking various vineyard practices, with the view to reducing the number of passes a tractor makes in a vineyard each year, thereby reducing fuel usage and related costs, and minimising soil compaction. Over winter we grow cover crops that are cultivated into the soil in spring to replace nitrogen and other nutrients the vines extract from the soil, reducing the need to add inorganic fertilisers. Inorganic fungicide usage is limited and only used as necessary for crop protection. It is used in conjunction with organic and environmentally friendly methods of pest and disease control as a means of sustainable production.
	Sileni Estate Ltd	Marc (skins and stalks) Disposal – A compost site was constructed in time for vintage 2006, to enable the transformation of this waste product into a useful compound that can be used to improve soil health in the vineyard. Encouraging Beneficial Insects – The vineyards are trialing the planting of flowering species to increase the number of beneficial insects in the vineyard. It is hoped that this will reduce the need for chemical control of insect pests. Native plants have been introduced into the vineyard to increase biodiversity.

		Chemical and biological testing methods will be used to determine the best method for applying compost in the vineyard.
	Spy Valley Wines	In the vineyard we minimize spraying and use environmentally 'friendly' sprays wherever possible.
	Te Whau Vineyard Ltd	The vineyard is now in the process of converting to fully organic and bio-dynamic viticulture.
	Woollaston Estate Ltd	Having chosen the vineyard sites for their potential, good environmental practices to control pests and diseases have been in place from the beginning. The vineyard team are now working towards organic certification for 75% of the vineyards within three years.
	Yealands Estate Wines Ltd	Use of sheep to graze between rows of vines to reduce the need for spraying and tractor-mowing Wetland ponds capture rainfall for gradual release into soil. Badydoll Sheep introduced to Reduced Emmissions . In his quest to develop the world's leading sustainable vineyard, Peter Yealands has come up with a novel way to keep the grass down at this 1,000 hectare vineyard in the most sustainable way. "Mewing the lawns at a 1,000 hectare vineyard uses a fair bit of fuel so we're looking to these miniature sheep to help out", says Peter Yealands, owner and founder of Yealands Estate. Since Yealand's Estate launched in August 2008, Peter has experimented with a range of alternatives to traditional tractor mowing. Peter's second idea was to use guinea pigs although this proved unviable on a commercial scal…
Environmental Aesthetics	Ascension Wine Estate Ltd	In fact the plants have become quite dense and birdlife is returning to a place where before there was none. At night time we can hear the croak of frogs, creatures that are exceptionally sensitive to water quality.
	Cape Campbell Wines	Beside our wine, our most impressive feature in our vineyard is a 9 acre lake which attracts all manner of fauna and flora. An extensive planning programme with Murray and Dapne's tender loving care has made this lake into a fully functional part of the vineyard, supplying all the water required to service 80 hectares of vineyard. Our irrigation lake was built in a natural water course which not only allowed us to landscape the area in a natural manner but it was done with the minimal disturbance to the surrounding land.

		Since developing the lake there have been numerous species of water bird (both native and exotic) establish colonies here. We are continually planting different species of plants and trees throughout the property for animal habitat, erosion control and shelter.
	Gladstone Vineyard	We are currently developing a wetlands area to support bird life in the area and are a member of Ducks Unlimited, a nonprofit wetlands, waterfowl, and wildlife conservation organisation.
	Hunter's Wines (NZ) Ltd	The transformation at Hunter's has been extraordinary as native plants representative of flora found on the dry floor of the Wairau valley have become established. "The garden design creates separate quiet and sheltered rooms within the site. Many birds, both native and exotic species, now benefit from the habitat. Enticing walking tracks lead one through the native vegetation, providing an intimate close-up encounter." The landscaping at Hunter's has been undertaken with a great deal of careful planning. Plants have been eco-sourced and as such, are representative of the local gene pool. There is also a purpose-built rare and threatened South Marlborough endemic species garden which gives visitors a unique opportunity to get up close to plants that are now seldom seen in the everyday landscape. The total garden area covers approximately two hectares and is thriving due to adherence to the "right plant – right place" principle. The placement of species carefully matches the property's various micro-climates to ensure the plants remain healthy. The healthy, low maintenance plantings are maturing and the native cover is suppressing weed growth perfectly." "Our intention was to create a sense of place that encouraged visitors relax while learning about the area's natural heritage," says Jane. Visitors can learn more about this beautiful native environment by studying the interpretation panels, signage and fact sheets that describe the garden's history, layout and the species planted.
	Jackson Estate Ltd	This pheasant lives in the Bluehills vineyard.
	Montana	Investing in the natural beauty and diversity of the land flows naturally from our activities as winemakers.

		We have planted more than 15,000 native plants in Marlborough and 6,000 further south in Waipara, with another 5,500 scheduled for planting in the coming year. The planting project is part of Montana's comprehensive sustainability programme. The aim is not only to beautify our vineyards, but also to re-establish native plants where past agricultural activity has displaced them. The programme includes gardens around buildings, the re-vegetation of non-productive areas around vineyards as well as the restoration of wetlands. We purposely select the best plant matches for different parts of Marlborough, preferably those that were prevalent before human intervention. This includes local species such as meulenbeckia, silver tussock, native broom, cabbage trees, toi toi and carex varieties. Similar areas are being reclaimed at Brancott Estate and the Awatere Valley. In Hawke's Bay, wetlands have also been reclaimed at our Tuki-Tuki and Korokipo vineyards, while native plantings at Twin Rivers helped to resettle native birds. Native falcons have been let loose on Montana's vineyards, partly to deter the birds that feed on ripening grapes, but mainly to help with the conservation of these predators. Our Kaituna vineyard was one of the first sites where these falcons were released, after they had disappeared from their natural habitat decades earlier. The Montana Heritage Trail in the Waitakere Ranges west of Auckland gives people the opportunity to view the largest stand of mature kauri trees in the region – 100 kauris ranging up to 600 years in age. Before Montana's intervention, visitors had to slog through a long and muddy trail to get close to these kauris. By walking around the roots, they were actually harming the trees. Montana stepped in to help in 2000, spurred on by the desire to give local people and visitors the opportunity to enjoy one of New Zealand's inimitable nature experiences. Our early history is linked to the rugged West Auckland landscape, where our founder developed his first vineyard. We signed an agreement with the Auckland Regional Council to upgrade an 8km walking track so that

		visitors could get close to the kauris without damaging the roots. Much of the track consists of specially designed walkways set just off ground level, so that pressure from passing feet is not transferred to the sensitive root systems. Construction on the Montana Heritage Trail started in November 2000 and the trail was officially opened to the public in March 2002. Our contribution covered the major construction carried out over the first two years and maintenance for the following 18 years. At the end of this period, we have the option to renew the sponsorship.
	Mudbirck Vineyard/ Shepherds Point Vineyard	Greenhouses are stocked full of sprouting micro-greens. It began from the difficulty of sourcing truly fresh ingredients. Travelling time and ferry travel can lessen the quality from suppliers across the water. We had the land, and we started to think: why not make these gardens productive as well as beautiful? Why not walk out each morning and puck your ingredients fresh for the day? That way we could grow the unusual items that we want but that are not available, because there was no demand for them. Commercially they may not be viable, but we can grow these things for ourselves, we will be able to grow enough for our own needs, and experiment, trial new strains, plant heirloom varieties that are just not available. The concept was exciting, infectious and a sense of urgency engulfed our hearts. Diggers arrived. Planting beds were formed. Compost was purchased. Purchase? Yes, purchased. We were not composting then. That was where the next initiative arose from. Compost, and more compost- was trucked in.

		Compost breaks down, and then you need to buy more compost for the next season. It started as a little experiment. It took a while to instigate change. It took a while to organize system- it took some organisation- but now, it is an entrenched way of life at Mubrick.
	Orinoco Vineyards	The winery is next to an area of wetland, which 5 years ago was covered in gorse and blackberry. Over the last few years thousands of native plants have been planted, and are now starting to take hold and establish. The majority of this work has been done by Tim Le Gros at Titoki Nurseries. To the north of the winery some 20 hectares of regenerating native bush has been fenced off and is returning to native bush. Extensive plantings of eco-sourced trees can be found over the 100 hectare property.
	Owhanake Bay Estate	We are developing our gardens with the eventual aim of being self-sufficient in organic fruit and vegetables. We currently have organic herb, vegetable and berry gardens, and a citrus and stone fruit orchard. We use this fruit for guest rooms where possible, otherwise we by organic fruit for our own use as well as stocking the guest rooms. Half of our property is planted in native bush, which is now about 15 years old. We actively protect and enhance this bush by removing pest plants and animals. This is an ongoing job!
	Palliser Estate Wines of Martinborough	For example, we encourage a diversity of plant life.
	The Hay Paddock Ltd	Diversity of insect and plant life is being achieved through the establishment of riparian plantings along boundaries and waterways and through the planting of a heritage orchard and vegetable gardens.
	Wairau River Wines Ltd	We purchased some bare land alongside the Opawa River and have since turned that into a vineyard. The riverbanks were in need of some TLC so along with the Marlborough District Council we have undergone an extensive replanting programme of Karumu, Ribbonwood, Kohuhu, toe toe, cabbage tree,

		mingi mingi, flax, and Manuka over the next 2-3 years. We want to encourage the return of native bird life and fauna as well as preserve the river bank.
	Yealands Estate Wines Ltd	$50,000 for the best green idea. Demonstrating our commitment to fostering sustainability, Yealands Estate launched a promotion called “my green idea”, offering a grand prize of $50,000 for the best ‘green’ idea,. The promotion was supported by large-scale print advertisements as well as online advertising and a series of targeted emails plus a dedicated mini-website at www.mygreenidea.co.nz To take part, purchasers make a purchase of Yealands wine in a bar or restaurant, or from a bottle shop or supermarker. Then using either text, email or a specially provided form, they simply send in a green idea aimed at reducing the impact we have upon our environment. Peter Yealands himself judges the ideas as they come in, awarding a number of weekly prizewinners who each receive $500. Then at the end of the promotion, the best overall idea will win its submitter $50,000 cash!.
Energy	Cape Campbell Wines	Over recent years we have strived to improve our environmental performance by implementing water and energy conservation measures. This has included the development of a nine-acre lake, which is a fully functional part of the vineyard, supplying water to service 80 hectares of vineyard. The lake is also home to wide range of local flora and fauna.
	Dry River Wines Ltd	In addition we are expected to demonstrate a continuing commitment to improve our energy efficiency
	Jackson Estate Ltd	Reducing power usage Increasing the amount of recoverable Heat/Energy in winery through streaming refrigeration system
	Mission Estate Winery	Power and water consumption is monitored, as well as the use of all other materials that have an effect on the environment. Since 2007, Mission Estate has crushed 1000 tonnes of grapes, and bottled over 80,000 cases of wine annually. However, our power usage is similar to that of only four domestic homes.

		For every litre of wine produced, the power usage is an incredibly low 0.13 KWh. Mission Estate's new winery building is a thermo-mass construction, with the concrete panels containing a sandwich of extruding polystyrene. The roof is also insulated allowing the temperature to be controlled and stabilised in an environmentally sustainable way. All of the tanks are housed internally; this is unusual for a winery of this size and provides considerable energy savings. Unlike most wineries that run on high powered refrigeration glycol systems all year round, Mission Estate has installed two separate systems - a large, high powered system to be used during the busy six weeks of harvest, and a smaller, more efficient system to be used during normal operations. In terms of refrigeration, Mission has employed different systems for controlling fermentation temperatures and cold-stabilising the wines. This has been designed in such a way that specific compressors are used for different duties, enabling considerable energy savings by minimising compressor inefficiencies. This innovative approach creates lower demands on New Zealand's stretched energy resources, which is especially important through the critical winter months.
	Montana	Low-energy light bulbs have also been fitted, with movement sensors that ensure the lights are off when there is nobody around.
	Mundo Vira Winery	Reducing all forms of energy usage
	Owhanake Bay Estate	We aim to use our water and energy consciously and wisely We use energy efficient options and appliances where possible
	Orinoco Vineyard	The building has excellent temperature stability which minimizes the use of refrigeration. Just like the vines, our vineyard shed and office is powered by the sun. No powerlines, no grid, just solar power.
	Scared Hill Wines Ltd	Our winery is energy consumption conscious, and we aim to reduce carbon usage and CO2 emissions whilst maintaining the highest standard of premium wine production. We are currently reviewing future energy requirements for the winery and investigating the feasibility of

		installing solar heating panels to reduce hot water requirements which offers potential savings in natural gas usage. We are also reviewing existing refrigeration capacity to improve efficiency of heat transfer through new and improved technology by replacing outdated plant equipment. Once quantified we can set targets for reducing energy inputs and costs.
	Sileni Estate Ltd	The winery has been investigating methods to reduce the energy consumption required to cool and heat wine and juice. A number of these methods have already been introduced, resulting in significant savings. A new refrigeration plant is to be installed before vintage 2009, which will further improve energy efficiencies.
	Wairau River Wines Ltd	When building our winery in 2002, it was essential that everything was housed under one roof, and that the building was fully insulated to minimise the amount of energy needed to keep the temperature constant inside.
	Woollaston Estate Ltd	Gravity moves the wine through the 18m high building, minimising the use of pumps which reduces electricity use as well as aiding the gentle handling of the wine. Power is also saved in the heating and cooling of the insulated wine tanks which is managed precisely via a sophisticated computer system, and the concrete winery building is passively cooled, being partly buried in a south-facing hillside and insulated by its 'living roof'. Other initiatives incorporate all areas of the business.
	Yealands Estate Wines Ltd	Solar-reflective, high insulation cladding Recovery and recycling of heat energy from refrigeration Temperature monitoring throughout building All winery tanks individually temperature-controlled Motion sensors to control lighting Solar panels and wine turbines
Human Resources &	Cape Campbell Wines	RSE is a government work policy for the viticulture and horticulture industry in New Zealand. RSE allows employers to recruit from the Pacific Island nations provided that they adhere to strict guidelines regarding

Management		work conditions, accommodation conditions, pay rates ect. Cape Campbell was one of the first companies in New Zealand to use RSE labour.
	Delegat's Wine Estate Ltd	Careful training and pruning of our vines to achieve a balance between growth and regular yield. Feedback from our winemakers to the viticultural team on every individual batch of grapes. On-going education and investment in the latest management systems and mechanization.
Product Development	Ascension Wine Estate	We use almost exclusively recyclable packaging
	Jackson Estate Ltd	The Jackson Estate screwcap and cartons (also known as shippers) are made with 70% recycled material. We are also trialling a new glass manufacturer that uses 50-70% recycled glass. Up to now the only glass we could source was only 30% recycled. We are committed to decreasing bottle and in turn carton weights. Our current sauvignon blanc bottle lightest available on market in NZ (490gms). Our labels are not currently made with recycled material but our label printer is experimenting with paper made from potato and bamboo. The adhesive used to apply labels to bottle is difficult to recycle so we need to develop an alternative. Label weight is less than 5g rams of the overall package. We are committed to working with our domestic and international customers towards tractability (recycling programmes) for environmentally friendly disposal of end product and packaging material. We use milk cartons that are generated as waste by the local milk company when they overprint the number of cartons they require to protect new vine cuttings. These break down in the vineyard and decompose naturally.
	Owhanake Bay Estate	Food - We source locally grown organic seasonal produce where possible for both guest breakfasts and our own use. Guest room product - We provide environmentally friendly, natural and safe products in our guest rooms. Our soaps, shampoo, conditioner and hand wash are all sourced from Eco Store, who have a philosophy to

		be the cleanest, greenest company in the cleanest, greenest country in the world. Put simply, they use no nasty chemicals, we like that approach. We use environmentally friendly products, again sourced from Eco Store.
	Palliser Estate Wines of Martinborough	Ensure our wines are in recyclable or reusable packaging, including our aluminum screw-caps
	Montana	Less packaging material is now used by Montana, while increased recycling means minimum waste is going to landfill. These advances are part of our ongoing efforts towards greater sustainability and environmental responsibility. It also supports the New Zealand Packaging Accord, an initiative to limit packaging waste. One of our major savings was to stop using dividers in cases for the Classic wine range. This reduced the use of raw material by about 20%. A further saving comes from the cases themselves being 4% smaller, to press the bottles together and prevent scuffing. While the Montana Brut Cuvée sparkling does use dividers, these are now made of thin, light fibreboard instead of corrugated cardboard. On this wine, we avoided the need for the customary separate neck label by printing the label design directly onto the shroud. We achieved a further saving of 90g of glass per bottle, reducing its weight from 890g to 800g. Not only are the bottles lighter throughout, but some of them also contain up to 70% recycled glass. With our pallets, we are now using thinner pre-stressed stretch wrapping to bind the cases together. This uses less plastic and obviates the need for further adhesives.
	Mt Rosa Wines Ltd	Our goal is to limit the pretentious element in an attempt to create approachable, consistent wines which encourage the consumption of not just a glass, but the whole bottle.
	Scared Hill Wines Ltd	Scared Hill Wines is also a member of the New Zealand Packaging Accord, a voluntary initiative to cut done on wasteful packaging. We use cartons made from recycled cardboard and purchase glass made with the maximum percentage of recycled glass content possible whilst maintaining bottle integrity.

	Sileni Estate Ltd	Sileni is investigating the use of alternative packaging solutions that are more readily recyclable, and require less energy for transport and manufacture. Sileni Estates are proud to be part of the Glass Packaging Forum. With around 5% more glass packaging recovered from homes year on year, New Zealand needs to find additional sustainable alternative recycling uses for its glass. To finance research and development into these alternatives, the Glass Packaging Forum, has established a voluntary levy on all those making, using or selling glass containers in New Zealand. For more information please visit the Glass Forum website.
	Spy Valley Wine	We have imported a glass crushing machine from America, crushing all company and staff members' glass into a fine glass dust. This is then mixed with mulch and distributed below the grapevines to enhance light reflection into the vines. To the best of our knowledge we are the first company in NZ to import a glass crushers so that we can personally reuse the crushed glass.
	Yealands Estate Wines Ltd	Use of recycled glass and cardboard in packaging.
Waste		
Recycling	Ascension Wine Estate	We recycle as much as possible at Ascension… Our glass bottles are returned to ACI glass to once again become wine bottles. Our milk and soft drink bottles are recycled for more plastic. We often use our wine cartons more than once before they are recycled along with other cardboard packaging. Our food scraps either become chicken or worm feed, or compost. We even recycle carbon dioxide! The wine industry is a "net user" of CO2 as grapevines consume more CO2 than is given off during fermentation.
	Gladstone Vineyard	We are also committed to improving waste management and recycling practices, reducing pollution, monitoring and minimizing the use of fossil fuels (and therefore minimizing our carbon footprint) and

		meeting or exceeding all relevant New Zealand environmental legislation
	High Plains Wine Co Ltd	Recycling is key to our daily processes with all our food waste going to either the compost heaps or to the chickens. We recycle all our cardboard, plastic and glass from the restaurant and kitchen and all the office paper waste is shredded to the chicken coup and then later onto the compost heap.
	Jackson Winery Estate	Increasing the usage of recycled products
	Montana	Recycling on Montana's vineyards and wineries has made great strides in recent years, with minimal waste going to landfill. 100% of the plastic used on our vineyards is recycled. Plastic is used on vineyards for chemical containers, sheeting; grow guards for young plants; bird netting; irrigation equipment and packaging material. Some of the chemical containers are returned to collection depots set up as part of New Zealand's AgRecovery scheme, while other plastics go to commercial recyclers.
	Owhanake Bay Estate	Waste is kept to a minimum by reducing, reusing, and recycling. Plastic, glass and tins are collected for recycling.
	Palliser Estate Wines of Martinborough	Recycle as much as we can, with the ultimate aim of zero waste
	Scared Hill Wines Ltd	We also have recycling collection areas for all glass, paper, aluminum, cardboard and plastics.
	Wairau River Wines Ltd	After assessing the amount of plastic we use, we contacted plastic recycling company to install a system which bales all our used plastic and is taken away for recycling All marc from our presses goes straight out on our vineyards within 30 minutes of being emptied from the press. We distribute the marc down the middle of the rows (not under the vines – this would encourage roots to come to the surface) and it breaks down within 2 weeks. Being predominantly alluvial soils this has increased the organic matter of the vineyards significantly therefore the moisture retention (meaning less irrigation is necessary) is much healthier vines from the

		nutrients which ultimately means better wine!
Organic	Ascension Wine Estate Ltd	It is necessary for us to dispose of the waste generated by food preparation, wine making, and thousands of visitors. In simple terms, the waste travels by gravity through a system of underground concrete chambers. The first are inhabited by millions of worms, which break down any solids. The worm castings are periodically taken for gardens, while the liquid produced then travels through other clarifying chambers. Over time most particles settle to the bottom by gravity and are removed every couple of years. The water, which by then is of very good quality, emerges through subsurface irrigation lines into Ascension's wetland evapo-transpiration field for secondary treatment. This wetland was developed by taking a virtually "dead" piece of land in a corner of the property and, following extensive mulching and composting, over 6,000 mainly New Zealand native plants were planted. The species are largely sedges, rushes, cabbage trees, flaxes, manuka, kahikatea, reinga lilly and hebes. These wetland plants absorb the water from the irrigation lines and transpire it naturally into the atmosphere. The plants also absorb nitrates and phosphates, which are undesirable in our rivers and streams. Any water not transpired filters through the soil, where the soil bacteria destroy any remaining waste bacteria, to a pond planted with reeds. This water gradually leaves the property in a highly pure state, joining the area's natural watercourses. This system is the first of its type in New Zealand and has been touted by many as the "model" of how to dispose of large amounts of waste in an environmentally responsible manner. We have processed several million litres of waste under the auspices of the Auckland Regional Council, with no negative effects on the environment!
	Hunter’s Wines (NZ) Ltd	The grounds at Hunter’s winery have undergone a major change in direction over the past seven years, moving away from heavily water-dependent plantings borrowed from the English cottage garden tradition. The winery’s wastewater is now irrigating the gardens, ensuring they look magnificent throughout the year.
	Jackson Estate Ltd	Reducing water usage

		Reducing the usage of cleaning products. Reducing the impact of winery waste/grape by product on landfill and waste treatment systems
	Martinborough Vineyard Estate Ltd	Since 1998 years we have been monitoring and recording our waste water volumes, water, power and fuel use. With this information we challenge ourselves to find new and innovative ways to reduce this either in total volume or as a percentage of the total wine we make.
	Mission Estate Winery	Power and water consumption is monitored, as well as the use of all other materials that have an effect on the environment.
	Mt Rosa Wines Ltd	We have 4 soil water monitors that allow us to only use the water we need to meet the growth requirement of the vine, saving huge amounts of water and power.
	Montana	The amount of resources used on our vineyards has been reduced significantly through smarter work practices. Depending on the vineyard site, vines require additional inputs of water, fertiliser and controls for pests or diseases. We minimise these inputs by keeping a close watch on the vines and not adding anything to the vineyards that is not needed. Water usage is minimised by reusing rinse water for other purposes where purity is not crucial. At wineries, grape marc is a major waste product – the stems and pips that remain after destemming and crushing. This has been composted in our Hawke's Bay operation for a number of years now, returning the organic matter to the soil. As soon as we get regulatory approval, the practice will be extended to Marlborough as well.
	Mudbrick Vineyards/ Shepherds Point Vineyard	Meanwhile, all of our waste was being trucked away, in plastic bags and taken to the tip. It just didn't make sense. Gardens need compost and restaurants produce a lot of organic waste. All those potato peelings, outer cabbage leaves, coffee grounds, the list goes on. The vineyard produces it's own bounty of organic waste also. We talked to the chefs, the waiters and all of our support staff.

		Could we organise a system to separate our waste to make compost? It took a little while to instigate the system but now we run like a well oiled machine. Waste is composted, only to be returned to the soil to regenerate a new flush of herbs and vegetables, picked from the potager to your plate It is a sign of the times when people stand over piles of compost, amiring a mound of decomposing green waste.
	Mundo Vira Winery	Conserving water with the most efficient irrigation systems
	Orinoco Vineyards	All rainwater is collected and used for cleaning and wastewater system purifies then returns all nutrients to the earth.
	Owhanake Bay Estate	We aim to use our water and energy consciously and wisely We collect and maintain our own water supply using rainwater from our roof and also have a water bore. We buy in bulk and choose products that have minimal packaging. Paper and card are reused under mulch on our property. All food waste is put in our worm farm or composted for use on gardens
	Palliser Estate Wines of Martinborough	Minimize the use of resources in our winery and offices, such as by reusing the winery's wastewater for irrigation and distributing our newsletters and updates by email.
	Spy Valley Wines	We have moved from using diatomaceous earth as a filtering aid, to using a product called Auspel which is 74% silica. Unlike earth, this product can be tipped directly into the grape marc which is then used in organic mulch and supplementary farm feed. This reduces our landfill input by eliminating the need for skips for the waste earth. Our winery wastewater is treated onsite and when it meets quality standards it is pumped over the winery lawn In the office we distribute our company newsletter by e-mail to 75% of recipients. We intend to make this 100% as soon as everyone catches on to technology. We recycle our waste paper and we have even taken the step of collecting our lunch step of collecting our luch scraps and feeding them to a very grateful Ted, a Kune kune pig.

		Perheps he'll end up on the company dinner table in time… Our waste plastic is baled onsite and sent to Christchurch for recycling, as is our waste cardboard. We are also active members of TerraNova – a non-profit organisation which links one company's waste to another who might have a use for it, eg, old pallets.
	High Plains Wine Co Ltd	The Freefall Wine brand has an eco friendly basis utilizing 66% recycled glass bottles, having smaller labels than the industry norm to reduce paper use and the majority of the marketing is through electronic media, and database emails to reduce paper use.
	Wairau River Wines Ltd	With much of the wine world concerned about water quality and access, we feel extremely fortunate that our vineyards are on top of a series of aquifers. So we need to protect this precious resource. The Lyve water treatment place was commissioned this year. This treats all water that leaves our winery before being pumped down our driveway to water the avenue of Plane Trees. We are now emailing our newsletter to our database to save unnecessary printing. To go on the mailing list click here Wherever possible we are using soy inks and environmentally friendly paper and card in our printing processes and are committed to continually searching for greener way. Introducing Wairau River's unique, environmentally friendly water treatment system. To achieve this required a highly efficient waste water management system. Unfortunately the system installed did not live up to its promise and last year the winery sought an alternative. "The irrigation field was blocked: it was overflowing, a real mess," says Phil Rose. In March this year the less than reliable system was replaced with a "LIVE" Water Treatment System; the first of its kind, and the only one installed in New Zealand to date. Manual tests and weekly tests by an independent laboratory in Nelson are already showing the system is working well beyond expectations. The results show a dramatic decrease in BOD (biological oxygen demand) and COD (chemical oxygen demand).

		“This is pivotal in having happy bacteria and bugs in the water doing the work for us,” explains Phil. As a direct result, there’s no need for unnecessary chemical additives (such as flocculants to clear the water), as the system is working naturally, using healthy bacteria. The processed water is then cycled through an irrigation field to water the stand of 200 large Plane trees that frame the Wairau River winery driveway. “We are proactive in sustainable wine making through the vineyard and the winery,” says Phil. “We use as little water as possible, and limit the use of chemicals. This waste water management system is the next logical step.”
	Woollaston Estate Ltd	Waste paper from the offices is composted along with prunings from the vineyard and the marc (pressed grape skins and pips) from the winery. When the compost is returned to the vineyard it improves soil structure and reduces the need to add fertiliser.
	Yealands Estate Wines Ltd	Rainwater harvesting from roof On-site waste water treatment and reuse Composting of grape marc, leaves and stalks for vine much
Community Involvement	Owhanake Bay Estate	We also belong to ‘Waiheke Weedbusters’, a volunteer group dedicated to weed removal. We believe in participating in and supporting our community, both local and international. We contribute to several organisations, including The Spirit of Adventure Trust, Amnesty International, Waiheke Weedbusters, and Fossil Bay Kindgarden.
Others	Hunter’s Wines (NZ) Ltd	Marlborough’s dry summers made such a garden difficult to maintain and appear totally out of place as the temperatures rose.
	Jackson Estate Ltd	We farm the land in accordance with our extensive experience on it (160 years!).
	Mt Rosa Wines Ltd	We were officially registered in 2001.
	Owhanake Bay Estate	Both we and our guest enjoy organic fruit, vegetables and drinks
	Seifried Estate	In an effort which took 12 months of monitoring and close record keeping.

	Spy Valley Wines	We are still seeking ideas for the sustainable disposal of wooden vineyard intermediated posts and plastic winery hoses. Any ideas are gratefully received, E-mail them to info@spyvalley.co.nz.
	Yealands Estate Wines Ltd	If you'd like to know more about our sustainability practices, please don't hesitate to ask. Call us on +6435757618 or email us here.