

**THE ADOPTION AND IMPLEMENTATION OF
ENVIRONMENTAL MANAGEMENT SYSTEMS IN
NEW ZEALAND HOTELS: THE MANAGERS'
PERSPECTIVE**

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Table of Contents

List of Figures	V
List of Tables.....	VI
Abbreviations	VI
Attestation of Authorship	VII
Acknowledgements	VIII
Abstract	X
Chapter One - Introduction.....	1
1.1 Introduction	1
1.2 Background of the research	1
1.3 Statement of the problem	5
1.4 Purpose of this research	8
1.5 Structure of the dissertation.....	9
1.6 Summary.....	9
Chapter Two - Literature Review	10
2.1 Introduction	10
2.2 The concept of sustainability	10
2.3 The concept of environmental sustainability.....	12
2.4 The concept of environmental sustainable management	14
2.4.1 Sustainable management vs. Sustainability management	14
2.4.2 Environmental management.....	15
2.5 Environmentally sustainable hotel management	17
2.5.1 Energy Consumption.....	18
2.5.2 Water Consumption.....	19
2.5.3 Waste Generation.....	21
2.6 Use of environmental management systems (EMS) in hotels	22
2.7 ISO 14000 / ISO 14001: Environmental management systems	25

2.7.1 Background of ISO 14000 standards.....	25
2.7.2 ISO 14000: Environmental Management System.....	25
2.8 Green Globe 21	28
2.8.1 Background of Green Globe 21	28
2.8.2 Green Globe 21 in New Zealand.....	30
2.9 Qualmark accreditation	30
2.9.1 Background of Qualmark	30
2.9.2 Qualmark Green	31
2.10 BS 8901	32
2.11 The benefits of environmental management systems	33
2.11.1 The application of EMS in hotels	33
2.11.2 Motivations for EMS adoption and implementation.....	35
2.11.3 Perceived benefits of EMS adoption and implementation	37
2.12 Barriers to EMS adoption and implementation in the hotel industry	41
2.12.1 High implementation and maintenance cost	42
2.12.2 Lack of professional advice and lack of knowledge and skills	42
2.12.3 Lack of resources	43
2.13 Summary	44
Chapter Three - Research Methodology	45
3.1 Introduction	45
3.2 Research objectives	45
3.3 Methodology.....	46
3.3.1 Research strategy	46
3.3.2 Research instrument.....	47
3.3.3 Structure of the questionnaire	48
3.3.4 Content of the questionnaire	49
3.3.5 Pilot testing the questionnaire	50

3.4 Population and sample size	51
3.5 Data collection process.....	52
3.6 Ethical considerations.....	53
3.6.1 Participants informed consent and confidentiality	53
3.6.2 Participant information sheet (PIS)	54
3.7 Data analysis method	54
3.8 Limitations of the research design and methodology.....	57
3.9 Summary.....	58
Chapter Four - Results	59
4.1 Introduction	59
4.1.1 Research objectives	59
4.1.2 Response Rate	59
4.2 Descriptive characteristics of respondents.....	60
4.3 Hotel managers' awareness and understanding of EMS.....	62
4.3.1 Environmental policy and activities involved in environmental policy.....	62
4.3.2 Awareness of EMS and managers' understanding of EMS	63
4.4 EMS practices	64
4.4.1 EMS adoption and programmes.....	65
4.4.2 Environmental management practices implemented	66
4.5 Managers' attitude towards environmental management	68
4.5.1 Understanding of physical environment and hotel operations	68
4.5.2 Motivations for EMS adoption and implementation.....	69
4.5.3 Perceived benefits of EMS implementation.....	70
4.5.4 Perceived barriers to EMS implementation	74
4.6 Self-evaluation of EMS practices	78
4.7 Summary of Findings	79
Chapter Five – Discussion and Conclusion	81

5.1 Introduction	81
5.2 Discussion	81
5.2.1 Hotel managers' awareness and understanding of EMS	81
5.2.1.1 Environmental policy and activities involved in environmental policy	82
5.2.1.2 Awareness of EMS and managers' understanding of EMS.....	83
5.2.2 EMS Practices	84
5.2.2.1 EMS adoption and programmes	84
5.2.2.2 Eco-friendly Practices.....	85
5.3 Managers' attitude towards environmental management	86
5.3.1 Motivations for EMS adoption and implementation	87
5.3.2 Benefits of EMS implementation.....	88
5.3.3 Barriers to EMS implementation	89
5.4 Conclusion.....	93
5.5. Limitations of the research	95
5.6. Implications for future research.....	96
5.7 Summary.....	98
References	99
Appendix -1- Research Questionnaire	106
Appendix -2- Consent Form	110
Appendix -3- Participant information sheet	111
Appendix -4- Additional bar and pie charts	114
Appendix -5- Invitation letters to participants	123

List of Figures

Figure 4.1: The percentage breakdown of departmental managers	60
Figure 4.2: The percentage breakdown of number of employees	61
Figure 4.3: The percentage breakdown of New Zealand hotels holding EMS certifications	65
Figure 4.4: The percentage display of numbers of EMS certification held by New Zealand hotels.....	66
Figure 4.5: A percentage breakdown of eco-friendly practices	68
Figure 4.6: A percentage breakdown of reasons for implementing EMS.....	70
Figure 4.7: The percentage breakdown on improved public image	71
Figure 4.8: The percentage breakdown on gaining marketing opportunities.....	71
Figure 4.9: The percentage breakdown of cost saving opportunities	72
Figure 4.10: The percentage breakdown on competitiveness	72
Figure 4.11: The percentage breakdown on improved financial performance	73
Figure 4.12: The percentage breakdown on government incentives for EMS implementation	74
Figure 4.13: The percentage breakdown of high implementation cost.....	75
Figure 4.14: The percentage breakdown of lack of technology as a barrier	75
Figure 4.15: The percentage breakdown of no potential benefit as a less important barrier	76
Figure 4.16: The percentage breakdown of high renewal cost of certification	77
Figure 4.17: The percentage breakdown of lack of human resources as a less important barrier to EMS implementation	78

List of Tables

Table 2.1: Differentiation between sustainability management and sustainable management.....	14
Table 2.2: The ISO 14000 standards	26
Table 2.3: EMS practices in the hotel operations in Jamaica occurred during period of two years (1998 – 2000).....	34
Table 2.4: Benefits of Hotel Hyatt Regency Delhi (India) achieved by implementing EMS	39

Abbreviations

1. EMS – Environmental Management Systems
2. WCED – World commission on environment and development
3. UN – United Nations
4. UNCED – United Nations Conference on Environmental Development
5. IHEI – International Hotel Environment Initiative
6. ISO – International Standard Organisation
7. GG21 – Green Globe 21
8. HCIMA – Hotel Catering and International Management Association
9. HKHA – Hong Kong Hotel Association
10. GDP – Gross Domestic Product
11. PATA – Pacific Asia Travel Association
12. ETOA – European Tour Operators Associations
13. PDCA – Plan-Do-Check-Act
14. LOCOG – London Organisation Committee for the Olympic Games

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 extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.”

Signed: _____

Burzis Ustad

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Abstract

Hotel businesses consume significant amounts of natural resources, expel large amounts of raw and solid waste and affect the sustainability of the natural environment in which they are developed and operate. To reduce the negative impact on the environment, the hotel sector worldwide has embarked on a course of implementing environmental management practices or a much formal tool called environmental management systems (EMS), an innovation which has been profoundly promoted to offer additional benefits to its adopters. Among various environmental issues that have been addressed, greening in the New Zealand hotel industry is rarely investigated.

To better understand the environmental efforts of the New Zealand accommodation sector, this study sought to achieve four main objectives: to determine New Zealand hotel managers' awareness of environmental management system (EMS); to identify sustainable programmes that have been implemented in New Zealand hotels; to explore the hotel managers' understanding of the benefits associated with the adoption and implementation of EMS and to identify hotel managers' understanding of the possible barriers associated with the adoption and implementation of EMS.

To achieve the objectives of this study, the researcher employed a quantitative survey approach through which environmental management systems in the accommodation sector of New Zealand were examined. The data was collected through a postal questionnaire distributed to 41 hotels that agreed to participate in this research, out of which 36 hotels were involved in completing the survey. In total, 94 hotel managers participated in this study, representing 36 hotels from different parts of New Zealand. The key issues analysed in this study were environmental practices, awareness of EMS, reasons (motives), benefits and constraints for adoption and implementation of EMS.

Hotels that participated in this study showed greater involvement in energy, water and waste management practices than hotels examined by previous research in different geographical areas. It was further noted that New Zealand hotel managers have a limited basic understanding of the term EMS, and this may be an indication that EMS is currently not being widely used as a management tool, but rather as an approach or framework for implementing environmental practices.

This research provided some of the first practical evidence about New Zealand hotel managers' perceived benefits and barriers of implementing EMS. The managers in New Zealand showed greater commitment towards environmental safety and conservation and indicated it to be the greatest motivator for implementing EMS. However, in this study similar benefits were identified as compared to previous research where marketing and cost saving opportunities were highly acknowledged. The study identified two main barriers for the implementation of EMS. These barriers are implementation cost and lack of supporting technology. It was indeed surprising that lack of human resources and no potential benefits were rated as a less important barrier of EMS.

Chapter One - Introduction

1.1 Introduction

This chapter gives an overview of the entire research, beginning with background information about the key concepts underpinning this study. It then introduces the research problem and explains the purpose of the research and subsequently develops the research questions. This chapter also outlines the structure of the dissertation.

1.2 Background of the research

Global industry has brought unprecedented prosperity and improvements in the quality of life, but has also created enormous amounts of industrial, consumer and commercial waste and toxic gases. It has also resulted in rapidly depleting natural resources. Concerns about pollution have resulted in the introduction of environmental regulations in many countries, and accumulating evidence about global warming and the impact of human activity on the environment have brought about a focus on what can be done, both globally and locally, to minimise environmental damage. It is important to ensure that measures are taken to reduce and control the impact on the environment by adopting correct activities within an organisation or collaboration with external parties (de Burgos-Jimenez, Cano-Guillen & Cespedes-Lorenter, 2002).

Initially, the concern for the environment was only related to those industries which caused direct pollution to the environment through their effluents and discharges. However, a greater understanding of how human activity affects the environment has led to the recognition that all industries and individuals have a role to play in reducing waste, carbon emissions and resource consumption, and the hospitality industry is no exception.

An important concept behind efforts to reduce damage to the environment is 'sustainability,' an idea which gained importance because of the publication of 'Our Common Future' also known as the Brundtland Report (Filho, 2000; Daub & Ergenzinger, 2005). According to the Brundtland Report, sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Hobson & Essex, 2001, p.133).

Sustainability has been further described by Brady (2005) as comprised of three dimensions: economy, society and environmental stability.

The concept of environmental sustainability has continued to form the basis for many global initiatives, such as the Earth Summit in 1992, where the adoption of Agenda 21 encouraged the practice of environmental sustainable management by developing responsible entrepreneurs (Hobson & Essex, 2000; Kirk, 1998). Agenda 21 has highlighted the importance of safe and sustainable environmental practices across all industries, including hospitality. Further, Agenda 21 has led to the development of the concept of environmental sustainable hotel management, also referred to as environmental management (Kirk, 1996).

The development and future success of the hotel industry depends on the availability of natural resources. Furthermore, the natural environment of a destination is typically one of the main assets for the local hotel industry. At the same time, however, hotels are among some of the larger consumers of energy and water resources and also generate large amounts of waste (Bohdanwicz, 2005).

Two significant programmes during the 1990s included the development of the International Hotel Environmental Initiatives (IHEI) and Agenda 21, which further led to the development of voluntary systems such as environmental management systems and eco-labels etc (Kirk, 1998 & Tzschentle Kirk & Lynch, 2004). The literature to date also indicates that EMS is the most preferred voluntary system adopted by hotels all around the world (Lakshmi, 2002; Meade & Pringle, 2001; Arimura, Hibiki & Katayama, 2008). However, different definitions, although similar, have appeared for environmental management systems (EMS). One of the most accepted definitions of EMS describes it as “a framework for implementing environmental management into an organisation’s activities, products and services” (Meade & Pringle, 2001). Furthermore, it is also referred to as a problem solving tool that can be put into practice by the employees in an organisation in many different ways to implement environmental management into an organisation’s activities (Tinsley & Pillai, 2006; Lakshmi, 2002). An EMS is said to be a continual cycle which includes policymaking, planning, implementing, reviewing and improving the environmental performance of an organisation.

In order to further comply with the EMS cycle, hotels started complying with different certifiers who help organisations to verify their environmental management systems. The most common certifiers that were adopted by hotels are the use of ISO 14001 and Green Globe 21. These two EMS frameworks are the most accepted by hotels worldwide because they improve environmental performance and compliance with environmental legislations. It has been found that implementation of both the frameworks are rapidly increasing worldwide among different accommodation sectors which are diversely spread across countries and regions. Since then it has been observed that many hotel organisations have undertaken various green initiatives and have adopted environmental management systems.

Previous studies, have reported that EMS is a reliable and workable tool that helps hotel organisations to achieve their environmental targets (Tinsley & Pillay, 2006; Lakshmi, 2002; Meade & Pringle, 2001; Park, 2009). Some researchers further specify that the implementation of environmental management systems can bring benefits to a company not only in financial terms but also in terms of improving the company's image with the general public and other stakeholders (Kirk, 1995; Kirk, 1998; Mensah, 2006). Research undertaken by Chan and Wong (2006) and Ann et al. (2006) also found that many hotels had initiated green measures because of financial consideration and the rest were motivated by the government regulations rather than guest concern. Thus, the real motive of the hotels in implementing EMS is still not clear. It was further observed from past studies that some hotels may adopt EMS purely to improve their environmental performance, others may utilise EMS to gain marketing advantage while some want to benefit improved public image (Rivera, 2002; Kirk, 1995).

Despite the potential benefits for adopting EMS, some researchers identified barriers to the implementation of EMS (Chan, 2008; Hillary, 2000). It was also found that limited study has been undertaken on identifying the barriers to implementing EMS for the hotel industry. A study conducted by Chan (2008) stated that barriers can be divided into two broad categories: industrial and organisational barriers or internal and external barriers. The review of literature also indicated that hotels are normally hindered by both internal and external barriers, but found that it is the internal barrier that plays the most significant role in impeding the progress when considering a formal EMS. It was

seen from past studies that implementation cost, lack of professional advice and lack of knowledge and skills were considered as the most important barriers impeding the adoption and implementation of EMS (Chan, 2008).

The quality of a country's tourism industry plays a key role in the development of a country's reputation as a desirable tourist destination. The success of the New Zealand tourism industry is highly dependent on the maintenance of its reputation for environmental quality and image (Page & Thorn, 1997). The New Zealand tourism industry is a highly integrated industry comprising of different sectors including airline, accommodation, tour operators and travel agents (Pansiri, 2008). The success of the tourism industry is largely dependent on the tourism sub-sectors operating in harmony with the natural environment. The 2008 Lonely Planet traveller's pulse survey found that New Zealand ranked fifth as the most popular traveller's destination in the world (New Zealand Herald, 2010). The tourism industry in New Zealand is also considered to be the second largest major contributor to its overall economy. It was estimated that the tourism industry directly contributes around 3-4% of total annual gross domestic product (GDP) compared to agriculture, fishery and forestry which directly contribute around 8% of GDP to the New Zealand economy (Ward, Hughey & Urlich, 2002). Furthermore, it is reported that the tourism industry is a large sector that provides a greater share (16%) of export earnings and is an important source of foreign exchange earnings to the New Zealand economy (Kate & Graham, 2005; Ward, Hughey & Urlich, 2002).

The accommodation sector of the tourism industry also plays an important role in shaping the New Zealand economy. The New Zealand accommodation sector is comprised of the commercial and non-commercial accommodation sectors. The commercial accommodation sector is the larger sector accounting for 40% of visitor nights, compared to the non-commercial sector which comprises 12% of visitor's nights (includes student hostel, rented huts) and the remaining 48% of visitor's night are spent in other style of accommodation sector. The New Zealand commercial accommodation sector comprises over 3,852 establishments including hotels, motels and backpackers (Ministry Of Tourism, 2010). As seen from previous statistics, this sector together hosted approximately 2.2 million international visitor nights in 2007 in comparison with

1.6 million international visitor nights in 1999. It was further estimated by Becken et al., (2002) and Lonely Planet (2010) that the number of visitors to New Zealand will increase from 40% to up to 60% over the next six years and will rise to 3.2 million visitors by 2010.

According to 2006 statistics, the share of accommodation sector was as follows: 37.6% of establishments are holiday parks followed by 22.7% of hotels, 19.5% of motels, 17.8% of backpackers and only 2.3% of hosted accommodation (Ministry Of Tourism, 2010). It was further identified that among accommodated travellers, 59% of them were local travellers (New Zealanders) while only 41% were international visitors. The majority of travellers coming to New Zealand were said to be on a holiday while the remaining visitors were on a business visit, education and visiting friends and family (Ministry Of Tourism, 2010). Because of the significant role that the tourism industry plays in the New Zealand economy, and given the large numbers of people who come to New Zealand as tourists, it is clear that the tourism industry must have an impact on the environment and that members of the industry have a role to play in preserving the New Zealand environment.

The review of the literature shows that a background study on environmental management system and environmental related issues have raised interesting issues. However, to date, there has been no significant exploration of the implementation of EMS in the New Zealand hotel industry. Given the importance of the hotel industry to the New Zealand economy, it is useful to explore the implementation of EMS in the New Zealand hotel industry in order to determine the current state of environmental management systems in the New Zealand hotel industry. The following sections will discuss the gap in the literature based on the studies done by previous researchers.

1.3 Statement of the problem

Previous research started with addressing the broad issue of sustainability and moved towards focusing on environmental sustainability in the hotel industry. It was observed that the majority of writers have defined environmental sustainability from the standpoint of environmental management (Kirk, 1995; Kirk, 1998; Mensah, 2006; Penny, 2007). According to past studies, environmental management is a process adopted by hotel management which helps them to monitor the hotel activities and

implement appropriate programmes to reduce the negative impact of an individual hotel on the environment (Mensah, 2006). The research conducted by Mensah (2006) and Penny (2007) reported that, since 1990, there have been many advances in approaches to environmental management practices in the hotel industry. The main aim of implementing environmental management has been to address the issues of waste prevention, water consumption and energy savings which have been the main concern for most hotels worldwide.

Studies in the GAR region of Ghana, the Macao hotels in China and the European countries (Swedish and Polish hotels) have discussed the issue of environmental management practices and have shown ample data on a variety of activities and approaches that have been taken by hotels to deal with environmental issues (Mensah, 2006; 2007; Penny, 2007; Bohdanowicz, 2005; Bohdanowicz, 2006). However, few studies have addressed the current state of environmental activities (Penny, 2007; Bohdanowicz, 2006). Previous studies have also addressed various advantages and benefits that were obtained by hotels through practicing environmental management programmes (Chan and Wong, 2006; Ann et al., 2006). Research has shown that hotels that have addressed the issues of environmental management have experienced significant cost saving benefits and also improved the overall performance of the organisation (Mensah, 2006; Penny, 2007).

Moreover, the hotel industry significantly contributes towards the environment and there is no exemption to it and therefore its contributions and responsibilities towards the environment should not be ignored. The hotel industry is comprised of various smaller operations and departments which can have a significant effect on the environment because of the resources they consume. Implementing and practising environmental management practices is essential for all operations of a hotel, as this would result and lead to a greater sustainable development of the industry.

The literature indicates that hotels have developed environmental management systems to assist them with their environmental management efforts. It was observed that some writers have defined environmental management primarily from the standpoint of environmental management systems (Mensha, 2006; Meade & Pringle, 2001). It was further observed that the importance of environmental management systems in the

tourism industry had greatly increased in recent years. In contrast to the other sectors of tourism, the hotel sector has been slow to adopt environmental management systems in their daily operational activities. Previous research has indicated that EMS is a specific tool which is used to manage hotels' environmental efforts to gain better results. An EMS is not a specific tool for preserving and conserving resources. Rather, it is a framework that helps hotels integrate sound environmental management practices. Previous research results indicate that, on implementing EMS as a framework for practicing environmental management activities, hotels have shown improvements in operational activities, products and services.

As EMS has matured in the hotel industry, standards and certification programmes have been developed. A variety of EMS certification schemes are available in the hotel industry, but ISO 14001 and GG21 are the most common certification schemes used by hotels. Various studies have shown that adoption and implementation of EMS certification schemes have increased rapidly and helped hotel properties achieve environmental targets. For instance, Meade and Pringle (2001) studied five Caribbean hotels and examined their implementation of EMS. A similar study conducted by Lakshmi (2002) also indicated that hotels were more effective in their environmental efforts and were able to achieve better results when they implemented EMS. Furthermore, it was found that most of the research have associated the benefits and barriers arising from the implementation of environmental management with similar benefits and barriers achieved on implementing EMS (Kirk, 1998; Mensah, 2006; Penny, 2007; Bohdanowicz, 2006).

While various researches have been undertaken on environmental management systems over the years (Meade & Pringle, 2001; Lakshmi, 2002; Tinsley & Pillay, 2006; Park, 2009), no comprehensive study has been undertaken in New Zealand to identify the use of EMS and the challenges encountered for EMS implementation. This study also looks into perceived motivations for and benefits achieved from implementing EMS and identifies problems encountered in implementing EMS.

From a methodological standpoint, the study was conducted in New Zealand and comprised hotel managers, including departmental managers, general managers and owner managers. Previous researches (Kirk, 1998, Mensah, 2006; Ann, Zailani &

Wahid, 2006; Park, 2009; Chan, 2008) have included only the owner/general managers of the hotel while this research attempts to include the departmental managers' viewpoints on the research objectives under study. The research approach adopted is similar to previous research where a questionnaire survey was utilised as the main research instrument (Kirk, 1998; Mensah, 2006; 2007; Meade & Monaco, 2001; Chan & Wong, 2008). This research should provide new academic insights and will help open up some additional lines of inquiry for future researchers to further explore opportunities for environmental management in the New Zealand context.

This study offers several benefits to the New Zealand hotel industry. First, it provides comprehensive data on environmental management in the hotel accommodation sector. Second, it provides a greater understanding of environmental management systems in use in New Zealand, as well as information on the level of awareness of EMS among hotel managers. Third, the study provides information on what motivates hotel managers to adopt and implement environmental management systems, as well as the factors which facilitate and constrain the process of implementing EMS.

1.4 Purpose of this research

The main purpose of this research project is to identify the current state of EMS implementation in New Zealand hotels and to identify hotel managers' understanding of the various factors affecting EMS. The research also focuses on the following four main objectives:

1. To determine New Zealand hotel managers' awareness of environmental management system (EMS).
2. To identify sustainable programmes that have been implemented in New Zealand hotels.
3. To explore the hotel managers' understanding of the benefits associated with the adoption and implementation of EMS.
4. To identify hotel managers' understanding of the possible barriers associated with the adoption and implementation of EMS.

The present study attempts to answer the following research questions:

1. To what extent are New Zealand hotel managers aware of environmental management systems?
2. What environmentally friendly practices are hotel organisations currently implementing?
3. What possible benefits do New Zealand hotel managers anticipate from the adoption and implementation of environmental management systems?
4. What possible barriers do New Zealand hotel managers see to prevent the adoption and implementation of environmental management systems?

1.5 Structure of the dissertation

This chapter has identified problems and stated the research purpose and questions. The second chapter will present a review of the literature in the following areas: sustainability, environmental sustainable management, environmental management in the hotel industry, environmental management systems (EMS) and highlight motivations / benefits and barriers to the adoption and implementation of EMS. Chapter three will present the research methodology, while results of the analysis will be presented in Chapter four. Finally, Chapter five will include a discussion of findings, conclusion and suggest directions for future research.

1.6 Summary

This chapter gives an overview of the background of the research as well as the research objectives which need to be achieved by the research. It also gives an overview of the entire dissertation report. The next chapter will introduce some of the important sustainable development concepts and discuss the past studies conducted by various authors on environmental management systems and related issues.

Chapter Two - Literature Review

2.1 Introduction

This chapter sets the stage by discussing the issue of sustainability and how the concept of sustainability translates into initiatives such as environmental sustainability and environmentally sustainable management. This literature review then addresses the environmental impact of the hotel industry and the evolution of sustainable environmental management practices in the global hotel industry, including the concepts of environmentally sustainable hotel management and environmental management systems in the hotel industry. It then presents the steps that have been taken by hotels to minimise their environmental impacts by adopting various voluntary programmes and environmental management systems (EMS). Finally, it describes the benefits and barriers of EMS in the hotel industry.

2.2 The concept of sustainability

The term ‘sustainability’ has been broadly used and become widespread when discussing environmental and business issues. According to Filho (2000), the word ‘sustainability’ initially was used in the 1970s to refer to management of forests. Filho (2000) argues that the word sustainability has multiple meanings including long term, durable, sound and systematic. At its most basic level, the concept of sustainability is the philosophy that humankind should live in harmony with nature and with society (Mebratu, 1998). According to Goodman (2000), sustainability is an operating framework that is applicable to reducing the environmental impact of manufacturing companies which produce visibly unclean emissions of waste products as a result of their processes.

The usefulness of the word “sustainability” gained importance and additional new meanings in the 1980s with the publication of “Our Common Future” (also known as the Brundtland Report) which was produced by the World Commission on Environment and Development (WCED), an official group set up by the United Nations (UN) (Filho, 2000; Mensah, 2006; Daub & Ergenzinger, 2005). The main aim of the WCED was to investigate different ways in which environmental conservation could be advanced internationally, while considering economic, political and social issues (Filho, 2000;

Mensah, 2006). The concept of sustainability is further viewed by Filho (2000) as a development process which enables countries to progress economically and socially without adversely affecting their environmental resources, while being ethically acceptable, morally fair and economically sound.

The concept of sustainability has become important in national and international development policy making and is now a core principle in many policy documents of government, international agencies and business organisations (Mebratu, 1998). According to Brady (2005), sustainability in its simplest form is “the ability of something to keep going” (p.7). The concept of sustainability is further described as a three legged stool which is comprised of the dimensions: economy, society and environment (Brady, 2005). The interaction and interdependence of these three dimensions are a route to sustainability that recognises the need to achieve sustainability in each of these areas and that there may be tradeoffs between environmental and business sustainability (Leslie, 2005). The three dimensions of sustainability are interdependent and the point of convergence between the three dimensions shows the point of sustainable development (Brady, 2005).

All businesses must produce financial reports to enable management to measure assets, liabilities, and its achievement of financial goals. In a similar way, sustainability is also a strategic tool for a business to check on its achievement of goals and objectives set by a firm. Through the adoption of sustainable development principles, a business aims to protect the environment, ensure economic security and also create a fair society (Leslie, 2005).

Solow (1991) states that sustainability is often confused with ‘green’. Solow (1991) and Costanza and Patten (1995) critique the concept of sustainability and argue that it should not only refer to efforts to preserve the environment, but that it is a much broader term which is also important on the production side and refers to use of resources as well as minimising waste. Solow (1991) further states that sustainability is a vague concept. He proposes that it is humanity’s obligation to leave the world as we found it, but also argues that such an idea in the definition is unfeasible and not even desirable. Costanza and Patten (1995) suggest that, for any system to achieve its goal, there is a set time frame, but for the concept of sustainability, there is no time frame because once

achieved, sustainability needs to be maintained forever. The authors further explain that nothing lasts forever, not even the universe. They argue that sustainability cannot be measured nor can it be assigned a time frame. Sustainability can only be said to be achieved if the system attains its normal maximum life span because that would indicate that resource consumption and waste had been optimal (Solow, 1991; Costanza & Patten, 1995).

Although the concept of sustainability was initially applied to the manufacturing industry, its applicability to the service industries quickly became apparent (Goodman, 2000). Goodman (2000) indicates that sustainability can be used as a key building block in the service sector to move in new directions and achieve future growth and market success by integrating sustainability concepts into a company's strategic plan. For example, applying the concept of sustainability to the tourism industry means that we would find ways to regulate or manage the use of tourism resources so that they are not depleted or polluted and are available for future generations of tourists (Mensah, 2006). Hobson and Essex (2001) state that it is the responsibility of the tourism operators to safeguard the resources base for tourism. Because the hotel industry is an integral part of tourism, concepts of sustainability are clearly applicable to the hotel sector.

2.3 The concept of environmental sustainability

Environmental sustainability is desirable because it is fundamental to the continuation of lives on earth. Human life depends on plant, animal and mineral resources for food, shelter and other environmental life support. Because we are reliant on these resources, it is essential to conserve them so that they are available for future generations.

The main aim of environmental sustainability, as mentioned above, is to protect human life; however, the practices of sustainability adopted will not be the same in all countries. This is explained by Goodland (1995), who states that every country has to balance the flow of input and output of its services. The difference lies in the balance that needs to be attained between output and input of services in different countries to achieve environmental sustainability. For example, some countries would like to bring their population below carrying capacity (the maximum number of individuals that a given environment can support without harmful effects), some may concentrate on controlling their pollution and some countries may try to increase their per capita

income. The input and output factors are essential not only for environmental sustainability but also for economic activities.

The aim of environmental sustainability is to maintain crucial resources through effective conservation activities in an era in which these resources are becoming increasingly scarce. The three aspects of environmental sustainability (economy, society and environment) are interdependent and require tradeoffs in investment and maintenance in order to protect resources and ensure economic and political stability (Goodland and Daly, 1996; Goodland, 1995). According to Ekins (2000), Harte (1995) and Goodland (1995) economic activities, economic progress and human development largely depend on input from the natural capital. Environmental sustainability is further defined by Ekins (2000) “as the maintenance of important environmental functions” (p.80). Ekins (2000) further explains that environmental functions are referred to as the maintenance of natural capital. The continuous exploitation of natural capital has led to depletion of non-renewable resources (Harte, 1995; Ekins, 2000).

To attain environmental sustainability, it is important to look for substitutability between natural and human made capital or manufactured capital (Ekins, 2000; Harte, 1995; Goodland, 1995). The key to substitutability is that it can manufacture capital which will be able to replace natural capital if it is destroyed. For example, in Europe most houses were once built out of timber (wood) but, once the native forest was consumed, timber houses were replaced with bricks (Goodland, 1995).

It is further argued by Pearce and Turner (1990) that human made capital cannot be the perfect substitute for natural capital as the elasticity is not too high. Elasticity refers to the degree to which natural resources are consumed in creating the manufactured capital. If more natural resources are consumed than saved, there is a disadvantage of attempting to substitute manufactured capital for natural capital. The problem with use of substitution of natural capital with human made capital is that it is limited and thus it is a complement and not a substitute (Goodland, 1995; Goodland & Daly, 1996). Therefore, it would be logical to conclude that not all human made capital is a perfect substitute for natural capital. It is important for humans to preserve and learn to control the resources to achieve environmental sustainability. Various writers have expressed concern that, in spite of the high level of attention that sustainability is receiving, the

world is actually moving away from environmental sustainability and that there is in fact no consensus on the importance or value of sustainability. Historical and current production and consumption practices have led to degradation and depletion of resources which were once available in abundance, such as groundwater, top soil, forests, fisheries and biodiversity. One solution is to design investment strategies for new technologies and manufacturing processes based on rules of environmental sustainability.

2.4 The concept of environmental sustainable management

To understand the concept of environmental sustainable management, it is necessary to understand the terms ‘sustainable management’ and ‘environmental management’. The following section explains both terms.

2.4.1 Sustainable management vs. Sustainability management

It is necessary to understand that sustainable management is not the same as sustainability management as described by Daub and Ergenzinger (2005). Sustainable Management is defined as

[A] form of management, which clearly states that enhancing the value of a business is not simply about continuously increasing revenue and profit, but also about reconciling the economic goals of a business with environmental and social issues in an ethically correct way (Daub & Ergenzinger, 2005, p. 1001).

Daub and Ergenzinger (2005) further differentiate the concept of sustainability management and sustainable management which is shown in Table 2.1.

Table 2.1: Differentiation between sustainability management and sustainable management

Sustainability Management	Sustainable Management
Sustainability Management involves dealing with strategic and operational issues levelled in a sustainable way through the use of management systems like EMAS and ISO9000/14001.	Sustainable Management involves reconciling economic goals with environmental and social issues.

(Adapted from Daub and Ergenzinger, 2005)

The term 'sustainable management' is derived from a combination of management theory and the concept of sustainable development. The concept of sustainable development can be defined further as the development "which meets the needs of the present without compromising the ability of future generations to meet their own needs" (Daub & Ergenzinger, 2005, p.1002). This definition was published in the report of the World Commission on Environment and Development (1987). The same concept of sustainable development was further developed and elaborated upon at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, and the following summit in Johannesburg in 2002. Daub and Ergenzinger (2005) further state that the definition of sustainable development has also been recognised by national and regional political institutions such as United Nations Action Programme and its Agenda 21. They also highlight that the combination leads to advantages for the business organisation to link their business goals with those of the Agenda 21 and clearly allocates a considerable role to the companies and other organisations.

2.4.2 Environmental management

Environmental issues, as described by Kirk (1996), are very complex and include large amounts of interaction among different systems. Virtually all business activities involve a system in which alterations are made to convert inputs to an output from which revenue will be derived. The three essential components are input, in the form of raw materials or human capital, output, in the form of products or services and the production processes and systems.

The term 'environment' means anything that exists outside the system. The system itself can be either open or closed. An 'open system' is one with a porous boundary in which the system interacts with the environment smoothly and without any obstruction. A 'closed system' is one that does not directly interact with the environment. In a hotel system, for example, there is a high degree of human interaction which means that it is an open system with very large potential impact on the environment (Kirk, 1996).

Penny (2007) refers to environmental management in simpler terms as

[A] process and practices introduced by an organisation for reducing and eliminating and ideally preventing negative environmental impact arising from its undertaking (p. 288).

The concept of environmental management was developed after World War II when it was realised that industrial expansion was causing damage to the environment and to the people because of resource depletion and toxic pollution. The idea of environmental management gained popularity and was recognised by many hotels worldwide through efforts put in by various associations, for example, International Hotel Environment Initiative (IHEI) (Mensah, 2006; Scanlon, 2007; Revilla Dodd & Hoover, 2001; Penny, 2007).

Environmental Management is not only concerned with the output of the operations that damage the environment, but also the input and all of the systems and processes. The more open a system is, the more interfaces will exist between the various aspects of the system and the environment and a good environmental management system must consider all important interfaces. The fundamental objective is that every organisation needs to manage their operational practices to eliminate the negative impact on the environment (de Burgos-Jimenez, Cano-Guillen & Cespedes-Lorente, 2002). The goal of environmental management is protecting and preserving the environment and this has become increasingly important in the face of resource shortages, increasing costs and undesirable changes in climate and the environment (Bohdanowicz, 2006).

The concepts of 'sustainable management' and 'environmental management' together lead to the idea of 'environmental sustainable management.' All of these concepts work together in that they focus on the management of resources to protect the environment for future generations. The underlying logic is that as more successful environmental management activities are undertaken by organisations, the more sustainable the environment will become.

2.5 Environmentally sustainable hotel management

Environmental sustainable hotel management refers to the application of environmental sustainable management to the hotel industry, with recognition of the open nature of hotel systems and large amount of human interfaces that hotel systems have. It covers operational issues such as environmental impact, sustainability, resource and waste management, control, emission and pollution (Kirk, 1996).

The hotel industry is a service operated industry, and a significant consumer of resources (Bohdanowicz & Martinac, 2003). Hotels operate 24 hours, providing a range of different services and facilities to guests for their comfort and leisure. They are small cities involving the housing and support of people with associated demands for food, water and waste management.

Hotels can be divided into different categories and segments but the service remains the same, although the range and level of service differs from hotel to hotel. Hotels are not always managed independently but by a management team which runs daily operations. Hotel operations impact the environment in many different ways (Revilla, Dodd & Hoover, 2001). Kirk (1996) points out that many hotels and restaurants which are located in areas of natural beauty and historic significance, have a delicate eco-balance. It is not only the location of the hotel that affects the environment but also the amount of luxury and comfort provided by hotels to the customers to attract them to the destinations. More luxury and comfort can be associated with greater consumption of water, power and other resources.

Tzschentke, Kirk and Lynch (2008) indicate that their research sample (of hotel managers) viewed the hotel's impact on the environment as a "great concern" and some regarded it as their only "concern". To have environmentally sustainable hotel management operations, hotels need specifically designed environmental policies.

The hotel industry uses large amounts of energy resources for functions such as transportation, laundering, food service and air-conditioning, while it also releases waste in different forms. Bohdanwicz (2005) states that growth and progress of the hotel industry in tourism destinations depends on ongoing accessibility of natural resources. Hotels are enormous consumers of natural resources and hotel guests are

often much less concerned about conserving resources such as water and power when they are away from home. The following sections address the three different effects of hotels on the environment.

2.5.1 Energy Consumption

Hotels are immense energy users. A hotel operation requires and uses energy on a daily basis for 24 hours, irrespective of seasonality, number of guests and its location (Kasim, 2007; Deng, 2003). Hotel operations are made up of small operations which provide goods and services to satisfy guest needs. Energy is required to maintain the tools which are used to carry out the functions efficiently to maintain the flow of guests (Gossling, 2002). The energy consumed by hotels is used for space heating, cooling, ventilation, hot water, lighting, laundry and kitchen recreation and miscellaneous uses (Dascalaki & Balaras, 2004). It was found that the energy consumption patterns for hotels are different around the world. According to a recent study which compared energy consumption in hotels in Europe and America (Dascalaki & Balaras, 2004), European hotels consume 39TWh (39 billion Kilowatts) of energy annually, half of which is consumed in the form of electricity. For example, Gossling's study (2002) found that hotels in New Zealand use up to 75% of electricity as the main source of energy and also use other energy sources like coal (12%), LPG (9%), petroleum fuel (3%) and natural gas and wood (1%). Several researchers have also provided examples of hotels' consumption habits and types of energy consumed.

Bohdanowicz (2005) reveals that the use and consumption of different forms of energy by hotels leads to the release of harmful gases into the atmosphere and leads to air pollution. The harmful gases said to be emitted due to consumption of different energy resources by hotels is estimated at 160 and 200 kg of CO₂ per m² of room floor area, depending on the type of fuel used to generate electricity (Bohdanowicz, 2005; Kirk, 1996; Bohdanowicz & Martinac, 2003). Further, the use of energy represents a serious environmental penalty because 85% of world energy consumption is based on fossil fuels. The burning of fossil fuels results in emission of carbon dioxide, nitrogen oxide, water vapour, hydrocarbons and carbon monoxide. The emission of such harmful gases results in the alteration of biogeochemical cycles and also release of CO₂, for instance, leading into global warming (Gossling, 2002).

According to Becken et al., (2001), it is important to know the fuel type that is used to generate energy. They found that coal (12%) and LPG (9%), are the major fuel types used to generate energy, whereas petroleum fuel (3%), natural gas and wood (1%) play a very minor role in generating energy. However, a study conducted by Dang (2003) and Chan (2005) in Hong Kong shows that hotels operate on three types of energy (electricity, gas and diesel), which are used by hotel engineering services to operate its systems and provide hotel guests with suitable services. A survey carried out by Becken et al (2001) indicates, that within the New Zealand accommodation sectors, hotels are a large energy user in terms of annual usage and also per visitor night and consume up to 67% of the total energy of the New Zealand accommodation sector (Becken et al. 2001).

Based on this pattern of energy consumption, it is clear that the hotel sector could make a major positive contribution to the environment by taking some measures to reduce energy consumption which will, in turn, reduce pollution and resource depletion. Thus while the hotel sector consumes a big proportion of electricity as compared to other tourism sectors, hotel operators still have a chance to implement energy saving campaigns and environmental management systems.

One of the challenges is that in order to achieve measureable energy savings, more sophisticated use of technology is often required, but not all hotel operators and destination organisations start with the same foundation of technological understanding and expertise, resources, and other associated capabilities (Wang, 2008). One important benefit of this current study, therefore, is the exploration of how New Zealand hotels are approaching this problem and identification of the sustainable programmes that have been implemented to deal with the issue of energy use.

2.5.2 Water Consumption

Water is the essential requirement for all life forms. Fresh water consumption is essential for the health of all living species and necessary for food production (Kirk, 1996). Hotels may have high water consumption depending on each hotel's accommodation capacity, standard and the type of facilities and services provided (Bohdanowicz, 2005). Globally, there is intense pressure on these water sources because of the large number of demands on rivers, dams, reservoirs, and lakes in the form of household consumption, agriculture, manufacturing, leisure, development of

tourism and other purposes (Kasim, 2007). For example, the increase in tourism created a demand for more hotels in Goa, India. Developers built several hotels and the impact was seen on water consumption, as 66,000 gallons (249,837 litres) of water per day was drawn from wells and other sources. The result was that many wells and rivers went dry (Alexander, 2002).

Kazim (2007) noted that luxury hotels in particular consume large amounts of water for leisure purposes such as swimming pools, spas and golf course irrigation. As reported by Kirk (1996), the use of water in a hotel is extensive and it is used in many different ways, such as cold water for kitchen, laundry, drinking, circulation for air conditioning, hot water for guest bathrooms and circulation for space heating.

Research findings have indicated some numerical facts on daily water consumption. For example, in Spain, a tourist consumes 0.88 cubic meters (880 litres) of water per day as compared to a local Spaniard who consumes an average of 0.25 cubic meter (250 litres) per day (Kazim, 2007). Similar consumption patterns were seen in Mediterranean regions where 0.40 cubic meters (400 litres) of water are consumed by a tourist in comparison with 0.07 cubic meters (70 litres) per person per day (Kazim, 2007). It has been estimated that the consumption of water by guests in a hotel per night will depend on several factors like the hotel standard and facilities that are provided for the guest. For example, Alexander (2002) found that in a high standard hotel organisation the hotel room would require 396 gallons (1,499 litres) of water per day, which is enough to support 14 local people. It is further estimated by Bodanowicz (2005) that the standard consumption pattern of hotel guests would range between 170 and 360 litres of water use per night. According to Alexander (2002), water use in hotels will increase to 475 gallons (1798 litres) per day for each guest room in a luxury hotel by 2010.

Water consumption at these rates, and without monitoring or control, will likely lead to water shortages. Another factor that affects water is not only consumption but also contamination. The amount of water consumed by hotels is more than the normal household consumption, thus larger consumption means a larger quantity of contaminated water will be released in the environment, thus polluting the water bodies and harming the environment (Kirk, 1996; Kasim, 2007). Waste water management is

therefore an important activity for hotels to address in order to minimise environmental impacts.

Technology, knowledge and sustainability programmes are needed for organisations to consume water more efficiently and to minimise contamination of water supplies. Water conservation is a necessary step taken by hotels to control and minimise waste. Effective first steps include necessary modifications such as fitting low-flow shower heads and replacing toilet flush tanks with ultra flow toilet tanks and many more such activities. Alexander (2002) cites an example of a San Antonio based hotel which adopted water conservation programmes and achieved good results in its first month of operation, where an average of 100 gallon (378 litres) of water was used per guest as compared to previous usage of 396 gallons (1500 litres).

2.5.3 Waste Generation

The generation of waste by hotels is one of the visible effects that a hotel has on the environment. The generation of solid waste depends upon the size of the hotel. Kazim (2007) states that it is not the size of the hotel that makes the difference but also the type of functions being held at the hotel and any important events taking place at a particular time. Waste created by hotels not only increases the cost of the industry but it is also important to manage that waste to help save resources, energy and money.

Kirk (1996) reported that production and service of food operations generate more waste than other areas of hotel operations. A report on food waste conducted in the UK hospitality industry in 1980 indicated that 15.5% of edible food was wasted by the hotel and restaurant, compared with an average of 11.4% of the catering industry as a whole. According to Alexander (2002), there is a variety of waste produced by a hotel and it consists of paper, food, various metals, plastics, aluminium and glass. For example, Kasim (2007) estimates that hotel waste consists of 46% of food waste, 25.3% of paper, 11.7% of cardboard, 6.7% of plastics, 5.6% of glass and 4.5% of metal waste. As Kasim (2007) reported, hotel waste generation is on a much larger scale as compared to waste generated by households. This indicates that waste management is a serious environmental issue for hotels that are located on island destinations and small countries such as New Zealand, where there are problems of limited land areas to dispose of solid waste.

2.6 Use of environmental management systems (EMS) in hotels

Tinsley and Pillai (2006) point out that growing environmental pressure has resulted in an increase in concern on the part of organisations in addressing the issue of environmental risk minimisation. They have also looked at successful and unsuccessful approaches. It was found that governmental command and control approaches have failed and were criticised because of their inflexibility and cost-inefficiency. Successful initiatives have tended to be voluntary environmental actions (Arimura, Hibiki & Katayama, 2008). Voluntary approaches have been considered important initiatives since the 1990s to improve the environmental performance of industries that have direct or indirect effects on the environment from their operations (Paton, 2000). The term 'voluntary approach' means that the initiative is developed and implemented by the organisation or sector that causes pollution and is directed at improving their environmental performance (Higley & Convery, 2001). The goal of a firm for adopting voluntary approaches is to integrate the concept of sustainability into their business plans and objectives. Voluntary approaches adopted by firms help them to achieve the environmental goals of the firm and also help to improve internal actions to minimise adverse impact effects on the external environment.

There are three types of voluntary approach instruments:

- 1). Unilateral Initiative/Commitment: A commitment made by a firm to its stakeholders where the company commits to using products that are re-useable and recyclable. The firm gets the flexibility to set-up its own environmental improvement programmes and set targets to achieve results which are regularly monitored by an external committee composed of industry experts.

- 2). Public Voluntary Challenge: The firm agrees to achieve the targets set by public authorities, which could be non-government organisations or by industrial associations. An example of public voluntary schemes is eco-management and auditing schemes (EMAS) certification.

3). Negotiated Agreement: Most of the negotiated agreements are legally non-binding and the firm has no legal obligation towards fulfilling the responsibilities. However, Delmas and Terlaak (2001) further explain that some of the negotiated agreements that a firm adopts are legally binding and, thus, there may be a legal obligation to fulfil the responsibilities.

While Higley and Convery (2001) argue that there are three types of voluntary approaches, other authors, such as Delmas and Terlaak (2001) and Paton (2000), do not agree but consider there are a wide variety of different categories. According to Delmas and Terlaak (2001), negotiated agreements and public voluntary programmes are the two most important kinds of voluntary approaches. Rivera (2002) concurs with Higley and Convery's (2001) threefold classification but goes further and suggests that there are different levels of government involvement. According to Rivera (2002) and Arimura, Hibiki and Katayama (2008), voluntary environmental actions are meant to improve the impact of business operations on the environment but this also provides other benefits to the participating firm by improving cost effectiveness, improving flexibility and promoting technology innovation.

The hotel industry has been showing increasing concern and commitment towards sustainable tourism since the 1990s by adopting various voluntary tools. Ayuso (2006; 2007) states that the most common voluntary instruments used by the hotel industry are codes of conduct, environmental management systems (EMS), best environmental practices, eco-labels and environmental performance indicators. According to Ayuso (2006), eco-labels and EMS were considered as the best environmental practices for hotels. Ayuso (2006) further states that EMS certification is considered to be the most successful practice in the hotel sector.

Hotel operations require a wide range of goods and professional services and therefore have many opportunities to utilise environmentally friendly products and services, including manufacturing building materials, furniture and fixtures and advertising agents to communicate via diverse media. Hotels are highly interdependent with other businesses to function and this gives a unique opportunity to challenge their partners to help in attaining their environmental mission (Lakshmi, 2002).

According to Tinsley and Pillai (2006), environmental risk can be managed and minimised by the introduction of systems in business activities. One system referred to by Tinsley and Pillai (2006) is the Environmental Management System (EMS) defined by the British Standards Institute as “the organisational structure, responsibilities, practices, procedures and resources for determining and implementing environmental policy” (p.15). According to Meade and Pringle (2001), EMS is a framework for implementing environmental management into an organisation’s activities, products and services. Lakshmi (2002) describes EMS as a problem solving tool that can be put into practice by the employees in an organisation in many different ways, depending on its activities and needs. It is important for a hotel organisation to identify its needs to implement EMS effectively.

The steps involved in establishing the EMS consist of policymaking, planning, setting objectives and targets, implementation and review of existing environmental policies (Lakshmi, 2002; Meade & Pringle, 2001; Arimura, Hibiki & Katayama, 2008). The total effectiveness of EMS depends on the commitment of senior management and the availability of resources (including manpower cost and time for planning) within the organisation (Chan & Ho, 2006). The majority of hotels that adopt EMS have a common objective of improving practices towards environmental management and reducing environmental risk (Tinsley & Pillai, 2006). According to Chan and Ho (2006), many hotels in Hong Kong collaborate with outside bodies to implement EMS and these include educational establishments, environmental agencies, government industry departments as well as the local industry council. The example provided by Chan and Ho (2006) about Nikko Hotels International in Hong Kong has gained support from different partners such as the Hong Kong Hotel Association (HKHA), Friends of the Earth and other environmental enterprises. The author further states that the Nikko Hotel in Hong Kong was able to achieve its ISO 14000 certification effectively.

A variety of EMS certification schemes are available to hotels such as the ISO14001, Green Globe 21, Eco-management and Audit Scheme (EMAS). The most common certification schemes that are used and practised by hotels are ISO14000, Green Globe 21 and Qualmark Green (popular in New Zealand tourism industry) which are analysed in detail in the next section.

2.7 ISO 14000 / ISO 14001: Environmental management systems

2.7.1 Background of ISO 14000 standards

The International Organisation for Standardisation (ISO) was founded in 1946 and is composed of 119 representative members from different countries. The aim of the organisation is to develop and promote international exchange of trade and communication standards. ISO standards are used to address the technical products and manufacturing and quality control system standards.

The need for the development of ISO 14000 in addressing an environmental management system arises from the outcomes of the Rio Conference in 1992 (Zharen, 1996). The need for developing environmental management programmes after the Rio summit led to the launch of the ISO- Technical Committee 207 (TC207). This committee was responsible for framing and developing environmental standards for the ISO 14000 series. The development of all the ISO series of standardisation includes coordination and commitment from various international government bodies, industry and other regional government bodies.

All the standards developed by ISO are voluntary in nature. However, ISO standards are a requirement for some industries for undertaking business (Lakshmi, 2002; Chan & Wong, 2006; Zharen, 1996).

2.7.2 ISO 14000: Environmental Management System

According to Arimura et al. (2008); Lakshmi (2002); Zharen (1996) and Chan and Ho (2006), ISO 14000 is a voluntary standard developed by ISO that provides an effective guideline for organisations with the structure for managing environmental impact. However Ann, Zailani and Wahid (2006) state that the focus and main purpose of the ISO 14000 series is to improve business operations with respect to environmental issues. The ISO 14000 standard also focuses on bringing environmental issues into the corporate decision making process of a business. The development of the ISO 14000 series is intended to help organisations achieve preventive actions for environmental issues rather than corrective actions (Zharen, 1996). According to Lakshmi (2002) and Boiral and Sala (1998), the ISO 14000 family can be aggregated into seven major groups which are presented in Table 2.2.

Table 2.2: The ISO 14000 standards

Group	Standards
Environmental Management System	ISO14001, ISO 14004, ISO/TR 14061
Environmental Auditing	ISO14010, ISO14011, ISO 14012, ISO 14015, ISO 19011.
Environmental Labelling	ISO 14020, ISO 14021, ISO14024, ISO/TR 14025.
Environmental Performance Evaluation	ISO 14031, ISO/TR 14032
Life Cycle Assessment	ISO 14040, ISO 14041, ISO 14042, ISO 14043, ISO/TR 14047, ISO/TR 14048, ISO/TR 14049.
Environmental Management Vocabulary	ISO 14050
Environmental Aspects in Product Standards	ISO 14062, Guide, 64

(Adapted from Lakshmi, 2002, p. 8)

According to Lakshmi (2002), ISO standards are of two types, normative and informative. However, Chan and Wong (2006) state that ISO 14000 standards are further divided into 20 environmental standards which are voluntary and process based.

Among all the standards, ISO 14001 is the only standard which is used as a model for implementing an environmental management system. According to Chan and Wong (2006), organisations can achieve certification by adopting the ISO 14001 standard. Furthermore, according to Lakshmi (2002), ISO 14001 is the only descriptive document in the series of ISO 14000. However, Ann, Zailani and Wahid (2006) and Lakshmi (2002) suggest that the ISO 14001 series is not only applicable to large organisations but can be implemented by organisations of various size and status anywhere in the world. Adoption of the ISO 14001 certification is one way to demonstrate to stakeholders, competitors and customers that the organisation is serious about environment protection. It is not only applicable in technical and manufacturing industries, but it can also be applicable to service sectors such as hospitality, health care, transportation, telecommunication and local bodies. The key features of ISO 14001

highlighted by Lakshmi (2002), Ann, Zailani and Wahid (2006), Chan and Wong (2006), Boiral and Sala (1998), Zharen (1996) and Arimura et al. (2008) are as follows:

- It is a voluntary standard that does not require any legal obligation.
- It follows the cycle of (PDCA) that is Plan-Do-Check-Act.
- The main focus is to have continuous improvement of environmental performance.
- It helps the firm to focus more on pollution prevention and resource conservation.
- It is strongly committed to environmental legal fulfilment.
- It is designed to be flexible and can be applied to public or private sectors.
- It enables firms to achieve environmental management.

The ISO 14001 is based on five core principles, which includes environmental policy, planning, implementation and operation, checking and corrective action and management review. The effectiveness and success of the ISO 14001 standard depends on the reasons or intention of hotels to adopt a systematic EMS.

Chan and Wong (2006) further state that hotels adopt ISO 14001 certification standards because of government pressure and also because of financial help provided by government to hotels and other organisations to encourage pursuit of the ISO 14001 standard. It is important to note that the reason for the adoption of the ISO certification programme will depend on the hotel's motivational factors. Chan and Wong's study (2006) listed eight motivators, which include corporate governance, ISO benefits, top management, legislation, market trend, trade barriers, customers and competitors. As per directory of ISO 14001, as of 2001 a total of 132 certifications were obtained in Hong Kong, out of which four certifications were obtained by hotels (Chan & Wong's, 2006). This reveals that there were fewer hotels adopting ISO 14001 certification, which may indicate that managers are unaware of the benefits of ISO certified EMS standard or that appropriate motivations do not yet exist among them. Hoteliers often adopt environmental certification programmes purely for financial reasons (Chan & Wong,

2006). The benefits of ISO 14001 certification are many and they lead to cost reduction, market penetration and differentiation, meeting customer and market expectations, and achieving higher productivity (Ann, Zailani & Wahid, 2006). ISO 14001 certification assists firms in achieving potential benefits such as:

- The system helps the hotels to target ‘green’ consumers by showing their support for environmental issues and also through marketing of the hotel as a green hotel.
- ISO 14001 certification helps the firms avoid multiple registrations, inspection and labels and removes the need for compulsory “command and control” initiatives.
- The other benefits of ISO 14001 lie in the cost saving to the hotel as a result of less energy consumption, raw material inputs, waste management and improved public image.

ISO 14001 is effective for many industries, but for others it may not be appealing because it involves a high degree of cost. Some authors believe that ISO 14001 is just a management system which helps the organisation to track, manage and improve performance and will not help to save the world (Ann, Zailani & Wahid, 2006; Chan & Wong, 2006).

2.8 Green Globe 21

2.8.1 Background of Green Globe 21

Green Globe 21 (GG21) was established in 1994. It is a subsidiary of the World Travel and Tourism Council (WTTC) that was established with the aim of implementing Agenda 21 principles. Since 1999, GG21 has become an independent company which is run by an international advisory council, consisting of representatives from the tourism industry, non-government organisations and environmental consultancies from around the world. The change in the company’s ownership also brought about change in its name from ‘Green Globe’ to ‘Green Globe 21’. It was primarily focused on environmental education and awareness programmes. After 1999 it changed its focus

and was considered as an accreditation scheme for organisations who wished to improve their environmental sustainability practices.

The specific goal of GG21 is to help increase global participation of all travel and tourism suppliers and customers to ensure good environmental practices to minimise the effect of their operations on the environment (Griffin & Delacey, 2002). The certification is not limited to the travel and tourism industry but is also available to various other industries, including the destinations (Font & Harris, 2004). Green Globe 21 is also supported and promoted by various industry partners that were linked at the time of the development of Green Globe: these comprise national organisations such as the New Zealand tourism industry, African Travel Association and some broadly based international associations such as PATA (Pacific Asia Travel Association) and sector and regional specific associations such as European Tour Operators Associations (ETOA) and International Hotel Environmental Initiative (IHEI).

GG21 was open to the travel and tourism industry as well as other businesses or destinations that are willing to commit to improving their environmental performance. The total membership was 100 organisations by the end of 1994 and it increased to 547 members in 103 different countries in 1998. Griffin and Delacey (2002) studied the distribution of members around the world and found that, by March 1997, Western Europe accounted for about 55% of members. The second greatest growth was said to be in the Caribbean where membership was more than tenfold in 1997.

Membership also doubled in South Asia and China in 1997 but showed some decline in the number of memberships from South America, North America and the Pacific. The other interesting facts that highlight the popularity and effectiveness of GG21 in the travel and tourism industry was that three-quarters of members in GG21 represented the accommodation industry, ranging from international hotels and resorts to camps and youth hostels. The remainder consisted of tour operators, comprising of 15% of the GG21 members population. Other organisations listed under GG21 include regional and national tourist organisations, tourism investment companies, local government bodies and one educational establishment. GG21 is arguably one of the best known environmental management systems that meets the level of environmental and socio-economic sustainable development principles.

2.8.2 Green Globe 21 in New Zealand

According to Tourism New Zealand, the launch of GG21 took place in July 2001. Since then, 200 New Zealand companies have become affiliated members of GG21 (Tourism New Zealand, 2009). The Tourism New Zealand website indicates that Sheraton Auckland Hotel and Towers was the first hotel in New Zealand to officially become a benchmark holder of GG21. Although information is limited, it is likely that other hotels are also part of GG21 in New Zealand. It is believed that this current research project will help to fill this information gap and further clarify the status of New Zealand hotel's involvement with GG21.

2.9 Qualmark accreditation

2.9.1 Background of Qualmark

Qualmark New Zealand Limited was established in 1993 as a joint partnership between two official quality agencies, one being a government based organisation (Tourism New Zealand) and other private (New Zealand Automobile Association.) The main goal or aim of Qualmark New Zealand Limited was not to make profit but to improve the value and quality of accommodation products that are delivered to domestic as well as international tourists. The main reason to set up Qualmark was to launch a national system for grading the tourism businesses in New Zealand so that the best quality services are offered to tourists. The second most important reason was that the New Zealand tourism industry recognised that there was a surge in competition from other countries' tourism sectors. Therefore, New Zealand tourism felt the need to improve the value and quality of its products in order to stay ahead of other countries.

Qualmark is recognised as the world's first tourism industry licensing system that offers star grading for the accommodation sector and an endorsement system for non-accommodation sectors. The important concept of Qualmark was 'Quality'. It was proposed and recommended by the New Zealand Tourism Board to develop and implement a brand which is standard and provides an effective national accreditation framework. Qualmark today is responsible and has power to develop and implement a system with quality standards and an accreditation system in order to ensure a standard

quality level across all tourism activities within New Zealand (Venkatraman, 2005; Qualmark, 2009).

2.9.2 Qualmark Green

The success of the Qualmark quality assessment programme and increasing popularity among tourists and tour operators made it recognised as an official mark of quality for tourism businesses. New Zealand is known for its natural landscapes, scenery, and clean, green image to the rest of the world, which helps bring international tourists to New Zealand. Tourism is New Zealand's most significant industry because it contributes 19.2% of New Zealand economy in total. The development of an environmental accreditation programme (Qualmark Green) was to help ensure quality and consistency as it claims to promote itself as 100% Pure New Zealand to overseas visitors and also helps to achieve the main goal of the New Zealand Tourism Strategy 2015.

It is a government aim for New Zealand to be the first truly sustainable nation in the world by 2015 (Qualmark, 2009). Therefore, in August 2008, the new accreditation programme was launched, which marked the first official step by New Zealand to protect its image of clean and green New Zealand (Qualmark, 2009; Trenz, 2008). The main aim behind introducing environmental accreditation into the Qualmark quality assurance system is to introduce good sustainability practices and good environmental management practices within all tourism and non-tourism business sectors. The Qualmark environmental accreditation system was labelled as Qualmark Green and is recognised as one of the world's first fully integrated environmental and quality accreditation programme for tourism.

The assessment criteria for achieving Qualmark Green enviro-rating include energy efficiency, waste reduction, water management and involvement in conservation and community activities. The process involves a strict assessment of the organisation on the above mentioned criteria. The assessment process also requires that organisations provide evidence that there are processes and programmes in place to monitor and improve performance across these areas.

There are over 200 tourism businesses in New Zealand that have achieved Qualmark Green within 12 months of the programme launch. Qualmark claims that in the first 12 months of the launch there were 50 enviro – gold ratings that were achieved by tourism operators. This includes five accommodation providers that had achieved Enviro – Gold logos (Qualmark, 2009).

There does not appear to be any detailed evidence about academic research conducted on the use of the New Zealand responsible tourism programme (Qualmark Green). This current research project will help explore and understand the New Zealand hotel industry's approach to Qualmark Green.

2.10 BS 8901

For example, BS 8901 is another new environmental management initiative which has been developed recently in the event management industry. BS 8901 is a management system standard designed to help organisations in the event industry to improve their sustainability of their event related activities, products and services. The first launch of the standard BS 8901 was done in November 2007 which was triggered by the London 2012 Olympic Games. The standard is applicable to any organisation involved in the planning and delivery of any event. For example event clients, event and exhibition organisers, sponsors, venues and convention centres to production, audit-visual, catering, transportation, hotels, registration and security companies. As per the records there are over 50 organisations from across the entire industry actively implementing BS 8901. This includes organisations not only in UK but also from North America, mainland Europe and South East Asia (Sustainable Event Certification, 2010).

BS 8901 is said to follow the traditional management model of plan-do-check-act and shares common management system processes with the ISO 19001 Quality management system standard and the ISO 14001 environmental management standard. The difference between BS 8901 and other existing management system is that it is not about green issues. It is about how organisations understand the marketplace that they operate in and how they adopt strategies that will enable them to prosper. It is about delivering events that not only have a minimal environmental footprint, but which exceed clients and attendee expectations, contribute to stronger communities and networks, build capabilities and generate good return on the resources invested. In

addition it is also about resources efficiency, enhancing customer relationship, reducing risk, stimulating innovation and creativity, improving employee motivation and behaving responsibly (Sustainable Event Certification, 2010).

Most noticeably, the London Organising Committee for the Olympic Games (LOCOG) released its first London 2012 Sustainable Event guidelines in which they expect all companies and organisations that wish to be associated with the games to be working towards BS 8901. Therefore, in the near future the requirement of BS 8901 will become a minimum requirement for anyone wishing to operate in the events industry (Sustainable Event Certification, 2010).

2.11 The benefits of environmental management systems

2.11.1 The application of EMS in hotels

Many hotels are now adopting environmental management systems and have implemented activities such as recycling of water and waste, water and energy conservation and waste management programmes (Mensah, 2006). It is not only the activities that are carried out by the hotel that will lead to success of EMS but also the involvement of managers and proper training of employees (Meade & Pringle, 2001). For example, Meade and Pringle (2001) found that it is essential to appoint an environmental committee and an officer that would lead the proper efforts to sustainable environmental management.

Meade and Pringle (2001) observed that in Jamaica most of the hotels had established the position of environmental management officer and also had a green team composed of representatives from different departments of a hotel. Kasim (2007) and Rivera (2002) found that application of EMS in hotels should not be limited to having a stand-alone team, but it should also provide training to employees to assist them in conducting their jobs in an environmentally conscious fashion. For example, Meade and Pringle (2001) found that every hotel organisation in Jamaica established a classroom training programme for management and on the job training for line staff, which included information on how their job affected the environment.

The positive results of training and green team programmes were also seen being practiced at Fairmont Hotels and Hyatt Gainey Ranch, in a study conducted in the

United States by Scanlon (2007) which indicated that these activities were more effective in bringing staff awareness and helped the hotel to achieve its proper environmental practices. Meade and Pringle (2001) further reported that positive savings were achieved by hotels in Jamaica on water and electricity use when they had implemented EMS in their operations. Table 2.3 demonstrates the savings that were achieved over a two year period (1998 – 2000) by five hotels in Jamaica through implementing EMS practices in their hotel operations.

Table 2.3: EMS practices in the hotel operations in Jamaica occurred during period of two years (1998 – 2000)

Hotels	Savings on Water Use	Savings on Electricity Use
Sandals Negril	45,000cubic meter (45,000,000 Litres)	444,000 Kilowatt per hour
Couples Ocho Rios	31,000 cubic meter (31,000,000 Litres)	174,000 Kilowatt per hour
Swept Away	95,000 cubic meter (95,000,000 Litres)	436,000 Kilowatt per hour
Negril Cabins	11,400 cubic meter (11,400,000 Litres)	145,000 Kilowatt per hour
Sea Splash	7,600 cubic meter (7,600,000 Litres)	154,000 Kilowatt per hour

(Adapted from Meade and Pringle, 2001)

On the other hand, Mensah (2006) states that the least popular environmental practices in the hotel were the use of recycling of waste, use of composting of food waste and use of solar energy as an alternative to electrical energy. The reasons for not adopting the above mentioned practices are because they are expensive and many hotels do not have the technology to recycle the waste.

It was also noted that most of the hotels’ managers who did not adopt the above mentioned practices did not see any cost saving benefits for their organisation. In fact, they think it is an additional operational cost for the hotel (Scanlon, 2007). At the same

time, Mensah (2006) states that there are hotels like the Novotel brand of Accor chain of hotels who separate waste into different bins for plastic, bottles, metals and paper and recycle them, not because they consider it to be a cost saving activity for their organisation but, more importantly, because it shows their commitment to EMS. Scanlon (2007), through her research conducted with the nine hotels in United States, indicated that additional environmental actions were focused on energy conservation (63%), water conservation (65%) and air quality control (65%) activities and there was less focus on waste management (55%) activities.

The literature indicates that hotels in Europe and the United States have been the active participants in setting trends. For example, Scandic Hotels in Europe were the first to open two eco hotels in Oslo with an energy management system that automatically decreases the room temperature when the room is vacant thus reducing 30% of total energy consumption and saving energy cost for the hotel (Kasim, 2007). Another example is Forte Hotel Limited, which is considered as the largest hotel operator in the world. They implemented an energy management system known as CHP – “combined heat and power system” in more than 100 hotels by 1996 in various hotels since 1983 and have been able to reduce electricity costs by more than US\$340,000 a year (Kasim, 2007).

The examples above indicate that the ability of EMS in hotel operations to have a positive effect on the environment will depend on the firm’s willingness to invest time and resources. While the success of these programmes brings benefits to hotel organisations in tangible and intangible ways, the literature suggests that there are additional motivating factors for hotel organisations to implement EMS, which are discussed in the following section.

2.11.2 Motivations for EMS adoption and implementation

Several researchers have conducted research to identify the main reasons to implement environmental management practices in hotel organisations (Bohdanowicz, 2005; Mensah, 2006; Tzschentke et al., 2008; Bohdanowicz, 2006). It was observed that most of the hotel managers had different reasons and motivational factors to implement EMS practices due to different situational contexts, such as local government regulations,

overall social concern about environmental issues and characteristics of their establishments.

A large scale study was conducted by Bohdanowicz in 2005 and 2006 which examined environmental management in over 600 European hotels and found that reduction in operational costs is the most important driver for managers to adopt and implement EMS in their hotel operations. It was further found that demand from customers and improved public image were the second most important drivers which initiated implementation of EMS in European hotel operations. This indicates that hoteliers are aware of the customer's increasing concern for a clean and green natural environment. It has been further reported by Kirk (1995) that 75% of customers think they are environmentally minded consumers and 54% of customers think they are environmentally minded travellers and want to stay in hotels which show concern for the environment.

A study conducted by de Burgos-Jimenez, Cano-Guillen and Cespedes-Lorenter (2002) indicated that in the United States there are 43 million ecological tourists who are ready to pay up to 8.5% more for trips where efforts are made to minimise the impact on the environment. It further states that 10% of travellers from Spain were ready to pay the highest prices for hotel services that do not affect the environment. Tourists (customers) have expanded their awareness of environmental safety, and have thus become more demanding in terms of the environmental quality of their holiday destination. Rivera (2002) further states that the most important incentive for Costa Rican hotels to adopt EMS was to improve their market (image) reputation by creating a "green" image in the market to attract more customers. On the other hand, Bohdanowicz (2005) identifies that, for European hotel managers, improved marketing efforts and hoteliers' environmental concern are considered as the least significant motivational driver to implement EMS.

Mensah (2006) investigated environmental management practices and hoteliers attitudes in the Accra region of Ghana and found that most of the hotelier's main motivating factors were to provide a safe and healthy environment, along with quality service in a clean environment and reducing the cost of environmental hazards.

Much research emphasises government regulations as one of the most significant external forces that drive hoteliers to adopt and implement environmental management systems (Chan & Wong, 2006; Ann, Zailani & Wahid, 2006; Rivera, 2002). Two such examples were indicated by Chan and Wong (2006) who found that in Singapore, the government supports most of the companies who want to implement environmental management systems by providing them with 70% of the initial cost to obtain various certifications such as ISO 14001. Other countries, such as Austria and UAE (Dubai) have included EMS certification as a regulatory requirement into national legislation for all the companies who want to do business in those countries.

A study conducted by Chan and Wong (2006) in China (Hong Kong SAR) indicates that government regulation was the strongest motivator in China because industries that showed environmental failures and failed to accept the environmental standards were threatened with heavier penalties and pressured by more strict legislation. In Malaysia, it was observed that government encouraged industries by providing incentives in the form of subsidies to industries who act responsibly towards the environment (Ann, Zailani & Wahid, 2006).

Ann, Zailani and Wahid (2006) in their research found that Taiwan has established the industrial development bureau whose main focus is to help SMEs (Small and Medium Enterprises) to attain environmental certification by contributing up to 40% – 60% of the initial cost for about 50 SMEs annually.

The above examples suggest that government influences the hotel industry either in positive or negative ways to implement EMS for better sustainable development in that country. It indicates that government is a key external motivational factor that plays a very important role in encouraging hotels to be proactive about minimising their impact on the environment.

2.11.3 Perceived benefits of EMS adoption and implementation

Considering the effects of hotels on the environment, it is important that hotels have control of their operations so that they minimise their negative impact, both direct and indirect, on the environment. A significant amount of literature has been cited pointing out environmentally friendly practices such as efficient use of energy, water

consumption and waste utilisation which have resulted in cost saving benefits for the organisations. Various studies conducted by Kirk (1998); Alexander (2002); Sloan, Legrand and Chen (2004) and Meade and Pringle (2001) demonstrate that financial and cost saving benefits is one of the most visible advantages and a great motivational factor for hotel organisations that had implemented EMS.

The literature also provides quantitative evidence of financial and cost saving benefits from environmentally friendly practices. For example, the study conducted by Meade and Pringle (2001), which took place at five hotel properties in Jamaica, mainly focused on identifying the cost saving and performance improvement benefits that the hotels had from implementing EMS. The following results indicate the two years (1998 – 2000) financial benefits that were achieved by Jamaican Hotels on implementing EMS.

- Sandals Negril hotel saved up to \$261,000, representing a return on investment of 190% over a two year period. The payback period for the initial investment of \$68,000 was approximately 10 months.
- Swept Away Hotel saved up to \$294,000, a return on investment of 675% over the first 19 months. Other indirect financial benefits were observed in terms of saving 172,000 litres of petroleum gas and 325,000 litres of diesel. The payback period for the initial investment was four months.
- Negril Cabins hotel showed a saving of over \$5,000 on laundry chemicals. The property composted 35 tons of solid waste and saved the cost of purchasing the fertilizers for landscaping needs.

According to Alexander (2002), similar financial benefits were observed at Hyatt Regency International Hotel in New Zealand where the company had an annual saving of \$NZ14,000 on energy efficiency projects. A similar case was reported by Alexander (2002) when the Sheraton Auckland Hotel and Towers in New Zealand realised that a significant amount of energy was consumed on drying and cleaning of hotel linen. Process changes resulted in NZ\$2,000 saved in energy costs in the first three months.

Alexander (2002) further states that Sheraton Tacoma Hotel had a cost saving of NZ\$15,000 with a payback period of 18 months on replacing the incandescent light

fixtures with fluorescent light bulbs in various areas of the hotel and guest rooms. Another example stated by Alexander (2002) shows that various hotels took the initiative to control water usage by installing low flow shower heads in each room, resulting in savings of \$1.50 per room per month at a cost of \$3,250 and a payback of 2.1 years and saved 180,000 gallons (681,374 litres) of water per year. Another study conducted by Lakshmi (2002) found that implementation of EMS at Hyatt Regency Hotel in Delhi, India resulted in the cost saving benefits presented in Table 2.4.

Table 2.4: Benefits of Hotel Hyatt Regency Delhi (India) achieved by implementing EMS

Initiative and Benefits	Cost Savings
Installation of metal halide lamps and fittings in Tennis Court. <ul style="list-style-type: none"> • Reduction in electrical load from 32 kWh to 8 kWh. • Reduction in lamp replacement cost. • Reduction in manpower cost for handling fused bulbs • Improvement in distribution of light. 	Rs. 115 per hr. NZ\$ 3.74 per hr.
Installation of compact fluorescent lamp <ul style="list-style-type: none"> • Replacement of 3000 candle lamps of 25w in guest floor corridors, lobby porch and in banquet area with CFL of 5W. • Installation of a condensing coil in hot water tank to recover heat from the condensate mainly from Laundry and installation of plate type heat exchanger to recover additional heat from the condensate 	Rs. 2, 00,000 per month. NZ\$ 6,496.81 per month. Rs.20, 000 per month. NZ\$ 649.68 per month.
<ul style="list-style-type: none"> • Reduction in contract demand from 4118 KVA to 3000 KVA. 	Rs. 1, 67,700 per month. NZ\$ 5,447.58 per month.
Up gradation of capacitor panel to improve power factor from 0.96 to 0.99 <ul style="list-style-type: none"> • Usage of treated water from effluent treatment plant for gardening and water cascades. 	Rs.1, 50,000 per month. NZ\$ 4,876.61 per month.
<ul style="list-style-type: none"> • Removal of gas-pilot-burners from Kitchen. 	Rs.8500 per month. NZ\$ 276.11 per month.
<ul style="list-style-type: none"> • Renovation of chilled pool plant with installation of a plate type heat exchanger to use the chilling effect from central air conditioning plant to avoid running of compressor from April to October. 	Rs. 13,000 per month NZ\$ 422.29 per month.
<ul style="list-style-type: none"> • Installation of a heat exchanger in steam boilers-exhaust for heat recovery. 	Rs. 90,000 per month. NZ\$ 2,923.56 per month.

(Adapted from Lakshmi, 2002, p.13)

In the literature, several researchers have tested the attitude of hotel managers based on having the managers provide their views on the benefits obtained from EMS (Kirk,

1998; Kasim, 2007; Bohdanowicz, 2005; Sloan, Legrand & Chen, 2004). For example, Kirk (1998) proposed that there were five benefits that can be tested to investigate attitude of hotel managers that drive them to adopt and implement EMS: (1) increased profitability (financial benefits through cost saving opportunities) (2) increased customer and employee satisfaction (proper education and awareness) (3) improved relationships with the local community (4) improved public relations (improve image in the public) and (5) marketing advantage.

They conducted the research with general managers (145 participants) of chain hotels or hotels which had 3-5 star rating, or consortium hotels in Edinburgh (Kirk, 1998). It appeared from the study conducted by Kirk (1998) that hotel managers felt that improved public image was the most positive benefit. The second most positive benefit was improved relations with the local community. Other benefits that were rated to be more important than profitability were marketing benefits and increased employee and customer satisfaction. The study conducted by Kirk (1998) showed that improvement in profitability was rated significantly lower than all the other five benefits that were tested among general managers of the hotels.

It is interesting to note that, in the survey conducted by Kirk (1998), 22% of the hotels in the sample had a written environmental policy and saw profitability and marketing advantages as the main motivational factors for them to implement EMS. Accordingly, in the current research project, the researcher will attempt to identify benefits associated with the implementation of EMS by New Zealand hotels.

Another study conducted by Sloan, Legrand and Chen (2004) tested the attitude of German hotel managers towards implementation of EMS. This study showed that German hotel managers were more concerned with improving the environment and considered it as a higher priority than improving the profitability of the organisation. This indicates that, in spite of pressure from stakeholders and customers, there are hotel managers who consider environment protection as the biggest incentive for adopting EMS in their hotel operations. Interestingly, the findings indicate that cost savings, followed by improved public image were the important reasons for adopting EMS in the first place. Staff morale was cited as the least important factor. There was no indication of whether government incentives were a facilitator for implementing EMS.

Conversely, Bodanowicz conducted a survey in 2005 which suggests that the lack of government initiatives was slowing down implementation of EMS in European countries and that incentives such as tax breaks would encourage wider use of EMS tools.

To sum up, tourists are aware of and concerned about environmental issues and have become more demanding in terms of the environmental efforts of their hotels and tourism providers. Thus, it is important to know whether the attitudes of hotel managers are effectively aligned with those of customers who expect environmental initiatives. The current research study will focus on the New Zealand hotel managers' understanding of the factors that influence them to adopt and implement environmental management system (EMS).

2.12 Barriers to EMS adoption and implementation in the hotel industry

This section discusses the barriers to implement environmental management systems (EMS) in the hotel industry. Various hotels have adopted EMS or internationally recognised ISO 14001 environmental management standards to better manage and control the impact of their operations on the environment.

However, according to Chan's study (2008), 40% of hotels in China still do not have a formal EMS in place, despite being pressurised by various stakeholders, customers, financial institutions, government regulatory agencies and shareholders to increase their commitment to improve environmental performance (Cummings, 2008; Tilley, 1999). It was further highlighted by Chan (2008) that 10.6% of the hotels in China have EMS in place and were ISO 14001 certified.

This low level of certification makes it clear that there could be some barriers that are preventing hotels from adopting EMS in their operations. This section discusses barriers identified by several authors. These researchers categorise barriers as industry barriers versus organisational barriers and internal versus external barriers (Chan, 2008; Tinsley & Pillai, 2006). According to Chan's study (2008), the three important common barriers are (1) high implementation and maintenance cost, (2) lack of knowledge, understanding and availability of professional advice, and (3) lack of resources.

2.12.1 High implementation and maintenance cost

A successful EMS requires time, money and people (Chan, 2008). Implementation costs identified by Ann, Zailani and Wahid (2006) and Chang and Ho (2006) include training, documentation, process modification, registration fees, registration maintenance, organisational adoption, legal consequences, storage of equipment/accessories, hiring specialist environmental assistance, computer software and new staff recruitment. Ann, Zailani and Wahid (2006) refer to Stager (2000) who estimates that the implementation cost may range from US\$69,860 to US\$139,720. Graff (1997, cited by Ann, Zailani & Wahid, 2006) further mentions that there are additional costs associated with putting the ISO 14001 EMS standards in place and they range between US\$15,000 and US\$150,000 per site. Chan and Ho (2006) include the costs of maintaining and improving EMS in the company so that the programme remains responsive to the organisation's changing environmental circumstances and requirements.

Based on the interviews conducted with Spanish hotel managing directors, Ayuso (2007) further explains that some hotel operators do hire external consultants to help implement and design EMS and contract with external auditors to certify compliance and this represents an additional cost for these services.

The costs involved for the initial certification are from US\$4,890 – US\$10,479 and for the successive annual certification audits would range from US\$2095 – US\$3,493. The above examples indicate that there can be significant start-up as well as maintenance costs associated with an EMS and this is the most important obstacle or barrier for the EMS implementation in hotels.

2.12.2 Lack of professional advice and lack of knowledge and skills

According to Chan (2008), many managers are unaware of EMS standards and find it difficult to understand what they are expected to achieve in the initial stages unless there is professional advice from consultants who help in implementing and designing of EMS standards. Chan (2008), through a survey conducted with 83 hotels in Hong Kong SAR, further states that it is important to understand and interpret the formal EMS ISO standards or else it could be misleading. Similarly, Chang and Wong in 2006 conducted a survey with 164 hotels in the Hong Kong SAR which further criticised the ISO 14001 certification system because it involves a lot of paperwork, which creates additional

workload for employees. The other reason for not adopting the ISO standards is that managers find it difficult to balance the quality of service with the environmental performance.

According to Tinsley and Pillai (2006), there is limited knowledge about the standards and concepts among top management and this leads to a limited level of commitment towards EMS and ISO standards. There are also some underlying organisational factors that can be barriers to EMS implementation. These include: management style, top management commitment and communication, culture of the organisation, innovation and technology. These organisational cultural issues, coupled with lack of knowledge and availability of professional advice are also significant barriers to the adoption of EMS for various hotels.

2.12.3 Lack of resources

Resources include manpower, time, money and equipment. Implementing EMS ISO 14001 standards requires a commitment of resources for development and maintenance. The success of proper environmental practices will depend on the availability of resources, as hotels must either invest in additional resources or divert existing resources away from their current use.

A survey conducted with 262 Spanish hotels by Gil, Jimenez and Lorente (2001) found that the availability of resources depends on the size of the hotel. Proper implementation and effectiveness of an EMS is possible with the availability of modern and up to date computer systems and other measuring tools which would help hotels to measure their performance. There are more tangible resources that are required, along with financial resources, to carry out the practices as laid down by ISO 14001 standards. Resources are thus important criteria for any hotel before it adopts EMS. Insufficient and outdated resources are among the barriers to the adoption of EMS for various hotels.

Apart from the three main barriers highlighted above, additional criticisms were identified by other authors. For example, Boiral and Sala (1998) disagree with ISO 14001 because they feel that it is not an effective system and that it does not promise performance improvement in the area of environmental protection. A shortfall identified by Ann, Zailani and Wahid (2006) was that many organisations did not find ISO 14001

to be cost effective because it did not reduce the lead time and did not improve the level of quality in environmental protection.

2.13 Summary

This chapter gives a brief explanation on the concept of sustainability and later explains in general the concepts of environmental sustainability, environmental sustainable management and, in the end, focuses on the issues of environmental sustainable hotel management. It then discusses in depth the use of environmental management systems and further identifies the factors that motivate hotels to implement EMS, and also describes the benefits and barriers associated with implementing EMS. This chapter provides a background understanding of the important concepts and knowledge about EMS that was studied in the past literature. This material has been utilised in developing a framework for the design of the New Zealand hotel research. The next chapter will highlight in detail the selection of research methodology, data collection and data analysis methods adopted for this study.

Chapter Three - Research Methodology

“The foundation of a good study is the mixture of an accurate research method and a well-built data collection method” (Vevaina, 2007, p.30).

3.1 Introduction

This chapter describes and discusses the research methodology used to accomplish the research objectives proposed in Chapter one. It starts with a brief overview of the research objectives. Following this, the selection of a positivist paradigm is discussed and, more specifically, the research strategy used for this study is explained. This chapter also outlines the selection process of population and sample size used in this research study. It also describes the data collection process, explains the structure and development of the research questionnaire and provides a brief overview of ethical considerations that were addressed in this research. Finally, the data analysis method for this study is discussed.

3.2 Research objectives

The main purpose of this research project was to identify the current state of environmental management system (EMS) implementation in New Zealand hotels and to identify hotel managers’ understanding of the various factors affecting EMS adoption. The objectives of the research project were as follows:

1. To determine New Zealand hotel managers’ awareness of Environmental Management System (EMS).
2. To identify sustainable programmes that have been implemented in New Zealand hotels.
3. To explore the hotel managers’ understanding of the benefits associated with the adoption and implementation of EMS.
4. To identify hotel managers’ understanding of the possible barriers associated with the adoption and implementation of EMS.

3.3 Methodology

The results of this research were intended to fill gaps in the literature by investigating the New Zealand context and adding knowledge of New Zealand hotel managers' perspectives towards adoption and implementation of environmental management system (EMS) in hotel operations. The research aimed to present the data in quantifiable terms which is more practical and easy to understand in relation to the objectives of the research topic. A positivist approach was selected for this study because the research did not focus on how people feel and react to conditions but rather was intended to show what managers do and think in specific situations for which quantifiable findings could be developed (Altinay & Paraskevas, 2008; Gorard, 2001).

The purpose of the research was to quantify specific behaviours and does not include proposals for intervening to change behaviour or conditions. Conditions will remain the same after the study, which is consistent with the use of a quantitative method (Collis & Hussey, 2003; Hussey & Hussey, 1997). Previous studies such as Kirk (1998), Deng, Ryan and Moutinho (1992) and Bohdanowics (2005) on environmental management and related themes have also supported the use of quantitative research methods. The quantitative approach is helpful because it achieves the research objectives in a manner which is free from emotions, conjectures or personal bias.

3.3.1 Research strategy

The choice of an appropriate strategy is important to achieve the research objectives given any limitation the research may have (Altinay & Paraskevas, 2008). The two research strategies used in quantitative research methods are survey and experimentation (Altinay & Paraskevas, 2008). The preferred research strategy employed for this study was the survey approach. It is one of the most important and frequently utilised strategies for gathering information in the hospitality and tourism industry (Finn et al., 2000). Another reason for adopting survey as a research strategy is because it provides direction to the research method and facilitates the formulation of a general action plan which helps the researcher to achieve its objectives in a systematic manner (Altinay & Paraskevas, 2008). It helps to identify perceptions of hotel managers and to draw conclusions from the target group (Finn et al., 2000; Altinay & Paraskevas, 2008).

Most importantly, a survey strategy was preferred for the current study because the study aims at collecting primary data from a large group of individuals, which is possible by a survey approach as compared with an experiment approach (Hair et al., 2003).

There are two types of survey strategies: the descriptive survey approach and the analytical survey approach (Collis & Hussey, 2003; Altinay & Paraskevas, 2008). To achieve the research objectives, the descriptive survey approach was selected because it provides findings that were well defined and can be explained and portrayed numerically (Singleton jr & Straits, 1988; Finn et al, 2000; Collis & Hussey, 2003; Altinay & Paraskevas, 2008). The descriptive survey method allows the researcher to obtain representative data in a specified population (Collis & Hussey, 2003). Importantly, the research method is used frequently in research involving attitude surveys (Kirk, 1998; Deng et al., 1992; Bohdanowics, 2005) and to identify what managers do and think on a specific issue being studied (Collis & Hussey, 2003; Altinay & Paraskevas, 2008). This study seeks to identify the opinions, experiences and behaviours of managers in the New Zealand hotel industry, thus a descriptive survey approach was deemed to be the most appropriate research tool.

3.3.2 Research instrument

The research instrument used for this study was a questionnaire which is considered to be the most preferred research instrument for survey approach (Altinay & Paraskevas, 2008). The questionnaire survey method was chosen for several reasons. First of all, a questionnaire is a carefully structured instrument which is a good way to obtain information from a large number of respondents and at a reasonable cost (Altinay & Paraskevas, 2008; Singleton jr & Straits, 1988). The option of conducting a questionnaire survey provides great flexibility for the research participants and researcher as such surveys are frequently completed by respondents in their own time without the presence of the researcher, as compared to face-to-face interviews (Hair et al., 2003).

The questionnaire based survey allows the researcher to develop quantitative summaries and descriptions which are generally not possible in an interview approach (Singleton, Jr. & Straits, 1988).

A questionnaire approach allows the researcher to obtain generalised findings from a larger sample size, whereas the interview does not give that advantage to research because it is generally obtained from a smaller sample size and involves in-depth information which may be focusing on a single person's own views and thoughts (Collis & Hussey, 2003; Altinay & Paraskevas, 2008; Singleton jr & Straits, 1988).

Another advantage of the questionnaire approach is anonymity, which may provide a better chance for respondents to reveal their thoughts, ideas, undesirable behaviour and attitude more candidly and in more detail. This is generally not possible in a face-to-face interview which may include biased responses (Hair, jr. et al., 2003).

This study targeted a population which was geographically spread over a wide area in New Zealand. To avoid travelling, questionnaires were distributed using the post. In addition to cost and efficiency considerations, a postal survey helps to increase the response rate in some instances compared with an electronic or telephone survey approach. The disadvantage in using electronic or telephone approach is that they might be deleted or ignored by the participants, thus reducing the response rate, which might not help to achieve research objectives (Altinay & Paraskevas, 2008). This problem was observed in other studies on environmental management; for example, Kirk (1998), Deng and Ryan (1992) and Sloan, Legrand and Chen (2004) have used the same research method approach.

3.3.3 Structure of the questionnaire

The development of a good questionnaire is considered as a crucial aspect of the entire research project (Altinay & Paraskevas, 2008). The questions were developed based on the research objectives and with the following criteria in mind.

- The questions were grouped around each of the four objectives to make the questionnaire more understandable and to help it flow better.
- The wording of the questions was challenged for consistency and clarity to ensure that participants would be able to complete the questionnaire independently and without confusion.

- Use of technical terminology and jargon was kept to the minimum to avoid any confusion by the participants and the researcher.
- The format of the questionnaire was kept as simple and easy as possible so that it would be easy and quick for the participants to complete.
- Both closed and open-ended questions were used depending on the type of information sought by the particular question.
- Sufficient alternatives were listed in close ended questions to ensure that respondents could select the choice closest to their own thinking.
- The questionnaire also included some list-type questions where the respondents were offered a list of items.
- The questionnaire also included Likert Scale type questions because they are easy to answer and also help the researcher easily code and interpret responses, thus making the questionnaire analysis straightforward (Altinay & Paraskevas, 2008).
- Open-ended questions were also used but were kept to the minimum possible number. The reason for having open ended questions was to allow respondents to answer in an unrestricted way and thus enable the researcher to collect rich and detailed data (Altinay & Paraskevas, 2008).

3.3.4 Content of the questionnaire

The first five questions of the survey questionnaire aim to identify some of the characteristics of the hotel at which the responding managers work. Information gathered included the number of employees, the hotel ownership (specifically if the hotel was part of chain or locally owned) and also the respondent's position in the hotel.

The second section of the questionnaire addressed whether the hotel currently has an environmental policy and also asked the managers to highlight the number of activities that are included in their written environmental policy. The remaining questions further concentrated on whether hotel managers were familiar with the concept of EMS and asked them to explain their understanding of environmental management system

(EMS). The respondents were asked about whether EMS has been implemented in their operations and to specify what certifications their hotel may hold. Finally, the respondents were asked to indicate the various eco-friendly practices that are used in their hotel. The respondents were allowed to tick more than one option for some categorical questions.

The third section of the questionnaire concentrated on managers' perspectives by asking questions about reasons to implement EMS, their perception of the advantages of and barriers to environmental management systems and the managers' understanding of their current environmental management practices.

3.3.5 Pilot testing the questionnaire

The questionnaire was pilot tested to check its reliability before distributing it to the main sample participants. The testing of the postal questionnaire was done with five senior hospitality school lecturers from AUT University and included one manager from the hotel industry. The selection of the respondents for the pilot testing was based on respondents' experience at a management level position for minimum of five years. The reason for having one pilot respondent from the industry was to have a mix of feedback on the questionnaire, combining the academic and practical aspects to the research study. The main purpose to conduct a pilot study was to judge the strength and weaknesses (reliability) of the questionnaire (Nardi, 2006).

The pilot questionnaire respondents were asked to comment and provide feedback on the following points:

- Were the questions clear and understandable?
- Was there any difficulty in relating any of the questions to the research objectives?
- Was there a need to alter or remove any questions from the questionnaire that did not add value or might pose problem to the research?
- Did the questionnaire flow logically?

The researcher conducted face-to-face interviews with the pilot respondents after they had completed the questionnaire to clarify the pilot respondents' views on the questionnaire and to determine what modifications were needed to make the questionnaire more useful and effective. Necessary adjustments were made to prepare the final version of the questionnaire (See Appendix-1, p. 106).

3.4 Population and sample size

The sample population comprised hotels in New Zealand. In order to achieve the research objectives, the population sample unit was further defined as all hotel managers, including general managers or owner managers and departmental managers. Previous research (such as Kirk, 1998; Deng & Ryan, 1992; Sloan, Legrand & Chen, 2004) focused only on general managers and departmental managers were not included in their research sample unit. To fill in this gap in the existing research, this research project investigated the viewpoints of departmental managers as well as that of general managers. This was based on the understanding that departmental managers are also the senior decision making staff of hotel departments and they would likely be responsible for actual implementation of EMS in their organisations. Thus it was considered important to have their input on the issue of adoption and implementation of EMS.

The sample of a research population can be selected by either adopting a probability or non-probability sampling method. A probability sampling method was adopted for this research as it helps the study to be free of bias and enables the study to be conducted on a voluntary basis (Burns, 1990). A second advantage of probability sampling is that each sample item carries equal weight in the selection and evaluation process (Singleton, Jr. & Straits, 1988). Participants in the survey were selected using a random sampling technique. The biggest advantage of using random sampling is that each sample unit in the population will have an equal chance of being selected and that will ensure a more representative sample from which conclusions about the overall surveyed population may be drawn (Singleton, Jr. & Straits, 1988; Burns, 1990).

The sample population of this research project was hotels of New Zealand drawn from the current Qualmark membership listing which was used as a sampling frame. The reason to use Qualmark members as a sample frame was because their listing of hotels contained a total of 183 hotels spread throughout New Zealand and also provided

further categorisation of hotels as two star rating hotels to five star plus rating hotels. The Qualmark listing of hotels included all the necessary contact details such as postal addresses, e-mail addresses, direct telephone numbers and also the web page link of the hotels, which were listed under the hotel category of Qualmark website.

All the hotels from the sample frame were invited by e-mail and later followed-up by telephone resulting in a total of 41 hotels agreeing to participate in the research study. Of the 41 hotels, 36 completed the survey and, out of a potential 141 participants, 94 participants returned the survey questionnaires which formed the sample unit (including general or owner managers and departmental managers).

3.5 Data collection process

A crucial and important stage of the research is the process of contacting the sample participants and the collection of data which is described below.

The first stage of research included gathering information on hotel details, which was completed by using the Qualmark website as a sample frame. The participating hotels were initially sent an e-mail and also contacted by phone to obtain their consent to participate in this research. A spreadsheet was maintained to keep record of all the participants who agreed to participate with detailed contact information for each hotel.

The collected consent lists of participants were then used to post the final copy of the questionnaires along with a participant information sheet (PIS) as a cover letter, together with a pre-paid return envelope. All the hotels that had agreed to participate were identified by a code number assigned to each questionnaire to maintain their privacy and confidentiality. In total, 41 hotels agreed to be included in the research and 141 postal questionnaires were sent to hotel managers in New Zealand. The total time period provided to the participants to complete and return the questionnaires was five weeks. The overall process of distribution and collection of questionnaires took one month from September to October, 2009.

To enhance the response rate, the participants were reminded in the second week of the research by sending an e-mail and by a phone call. The second follow-up was carried out in the fourth week and all the participants who had not replied were sent an e-mail

with a copy of the questionnaire attached to it. The entire process also took into consideration all ethical points to avoid any discomfort to the target participants.

To further increase the response rate, participants were entered into a prize draw where two participants were randomly selected once all the questionnaires were received. This incentive was an important part of a postal survey approach as it helps to motivate the participant to complete the questionnaire (Bourque & Fielder, 2003). The kind of incentive offered in this research study was a material incentive which was appropriate to the research study and was merely to assure respondents that the surveyor appreciated and acknowledged their time and effort (Bourque & Fielder, 2003).

The participants were informed of the incentive in the participant information sheet which was posted along with the questionnaire. Two environmental kits were prepared as the incentive prize. Each kit included items that were environmental friendly, including recycled products and body products that were endorsed as being made from recycled materials and thus environmental friendly.

3.6 Ethical considerations

This research involved human participants, however, the level of interaction with the participants was considered of low ethical risk due to the nature of the study. The information was gathered by postal questionnaires and thus there was little possibility of one to one interaction with the participants in this study. However, ethical approval was obtained from the Auckland University of Technology Ethics Committee (AUTEK).

The objectives of the research were explained to all participants by attaching a participant information sheet along with the questionnaire, so as to enable every participant to understand the aim of the research. The research did not strictly focus on any ethnic groups but a mixed group of people. This research study also considered the three main principles of 'Treaty of Waitangi' which provides equal rights of partnership, participation and protection of all ethnic groups. The research was exploratory in nature and participants' involvement was completely voluntary.

3.6.1 Participants informed consent and confidentiality

To ensure the participants that their confidentiality and privacy would be maintained, the participants were initially contacted by e-mail, and a consent form was attached with

the e-mail. The consent form was retained by the participants on the acceptance via e-mail. The information gathered was kept confidential and was not disclosed to anyone except the researcher and project supervisors. Moreover, any information related to the organisation or pertaining to participants was not shared or discussed with any other participants. Confidentiality of each participant was protected throughout the research.

This was achieved by:

- Assigning participants with a numerical code to protect their identity.
- Assigning the participating hotel property with an alphabetical code.
- All the documents pertaining to the research participants such as completed questionnaires, lists of agreed participants, were stored in a secure environment with access limited to the researcher.

An example of the consent form is attached in Appendix-2, p. 110.

3.6.2 Participant information sheet (PIS)

A participant information sheet (PIS) was provided to all participants along with the questionnaire. The PIS was designed to provide a brief introduction of the research aims and purposes to the participants. It was necessary to inform the participants that the information provided would be used for the completion of a Master's Degree and that their participation was voluntary. Participants were also informed that there was no cost involved for them to participate in the study, other than their time and sharing of their perceptions and experiences. The PIS also included contact details for the research supervisor and the AUTECH to answer any concern that the participants may have about the research. The PIS form used for this research project is attached in Appendix- 3, p. 111.

3.7 Data analysis method

Generally, there are different levels of analysing quantitative data (Blaxter et al, 2001). The research was based on quantitative approach and aimed to achieve the set research objectives by using descriptive statistical analysis. The main purpose of using descriptive statistical analysis was to explore the data and present it in tables, charts and

graphs to show the data distribution patterns that have emerged after applying various statistical tests (Blaxter et al, 2001). The other added advantage that it gives to this research was that descriptive analysis was considered to be the preliminary technique which is independent and can be applied to data as a part or even as a full analysis (on its own) (Hussey & Hussey, 1997). Data for this study was calculated and analysed by using a Microsoft Excel spreadsheet, 2007 version.

In this research, all constructs and independent items were assessed through calculation of frequencies and percentage using a simple and easy to understand descriptive method. Some key construct scales were further shown by creating bar charts, pie charts and graphs to indicate the distribution of data patterns in each question in a percentage form. The advantage of running frequency and percentage distribution was that it helped build the profile of respondents which was later useful to describe the sample in the result section of this report (Altinay & Paraskevas, 2008). Furthermore, it describes the data in terms of measures to demonstrate the proportion or share of occurrences of the data according to the share each has of the total value.

On further note this method was chosen for three reasons. First, it helps to reduce the large mass of data into simpler and understandable terms (Burn, 1990). Second, this method helps to explore the data and helps to identify different patterns and trends into understandable numerical terms (Nardi, 2006; Burns, 1990). The third reason to limit this research to descriptive statistics was due to time constraint as this research was set to complete within a six-month time frame.

The first step for preparing the data for analysis was to organise the data by sorting them into variables. The reason to assign a variable was to have a better understanding of the main variables addressing the objectives of the research project. The next stage in the data analysis process was to code the primary data collected from the larger sample. The research adopted a numerical coding system than letters to avoid any confusion later during analysis (Altinay & Paraskevas, 2008). The successful completion of coding further led to inputting the data into the statistical software package; in this case Microsoft Excel 2007 was used. This method simplified the data and further demonstrated it in a more visual proportion presented through bar graphs and pie charts.

However, the important step of all in preparing the data for analysis was to check the coded data for any inconsistencies before moving on to analysis of the data.

To identify any kind of inconsistencies in the data, a simple analysis was conducted by constructing frequency distribution tables which was useful in identifying particular features or problems in the dataset (Gorard, 2001). A simple analysis of frequencies was used to check for the following: for illegitimate codes if any were assigned to possible answers that may not have any meaning.

Secondly, the data was cleaned of any incorrect codes that may have been assigned to the possible variable which might change the result of the analysis. Thirdly, the cleaning of data also included assigning a special code to missing data, that the respondent may not have wished to answer or did not know the answer or did not have an opinion on it. In the analysis process, questions that were not answered by the majority of respondents were excluded from the analysis and were treated as missing data. The reason to conduct the cleaning and correcting of inconsistencies in data was to avoid any errors that may have affected the results dramatically (Altinay & Paraskevas, 2008).

The final step of data analysis was to conduct descriptive analysis that included summarising and describing the data into percentages and presenting them in subsequent figures such as bar and pie charts (Gorard, 2001). The reason to use the subsequent figures (such as bar and pie charts) was to display proportions and particular features between the categories that were listed in a variable or a question (Gorard, 2001).

The questionnaire also included two open-ended questions which provided qualitative data to this research. The descriptive answers were analysed manually because the data was limited and manageable. The two open-ended questions which provided qualitative information were categorised into different groups depending on the themes of answers emerged. It can be observed in the following chapters that the qualitative information provided was used as examples to support the research results and added extra supportive meaning to the discussion of the results of this study.

3.8 Limitations of the research design and methodology

The research method for this study was a postal survey. This method for research was preferred because it helped capture a large sample size and increased the overall response rate of the survey. However, a postal survey approach does have some limitations. It is time consuming and not appropriate for a research with limited time frame. This method could have been further enhanced by using an e-mail based survey which would have speeded up the process for feedback for research with a limited time frame.

The study could have been limited in selecting the appropriate population, as much of the focus was on properties that had adopted some level of environmental management systems. Therefore, there was a low level of variations between the responses to the questionnaire. This relative consistency may have been the underlying reason why characteristics were not found to be predictors of adoption and implementation of EMS by all New Zealand hotels.

Due to time constraints, the data analysis method used for this survey was solely descriptive and did not include any form of statistical tests. Future research could use various correlation tests to further present the relationship between responses from different participant groups and compare results for consistency of findings.

Another limitation could be the time frame in which the data was collected. In this research, data collection started in September 2009, during the recession period. The economic downturn had a greater impact on many organisations during that period. Although the response rate of the postal survey was acceptable, it might have been better if the economy was stable or on the rise.

On the other hand, instead of using quantitative approach only, similar research can be duplicated using a qualitative approach such as semi-structured interviews as a data collection method with general managers from selected New Zealand hotels. This would give the researcher a chance to collect first hand information and capture individual views which can bring in unknown and more insightful information.

3.9 Summary

To summarise, this chapter described the different research methods employed to carry out the research process. The use of a quantitative survey method was useful to cover a large number of New Zealand hotels. The inclusion of the questionnaire survey in this study as a research instrument enabled valuable insight on understanding of managers' perspectives on EMS in New Zealand hotels. The selection of a random sampling method was useful to keep the research free from possible bias and gave a fair chance to all the participants to express their views. The quantitative information collected has helped to generalise the study, based on the analysis of patterns and trends which will be described in Chapter four.

Chapter Four - Results

4.1 Introduction

This chapter presents the results of the data analysis. It provides the information to demonstrate achievement of the research objectives which were described in Chapter one. This chapter is divided into the following sections: response rate, respondent demographics, environmental management practices, top managers' attitudes towards EMS implementation, top managers' perceived benefits of and barriers to EMS and their understanding of their current environmental management practices adopted in their hotels.

4.1.1 Research objectives

The research sought to meet the four main objectives which are listed below:

1. To determine New Zealand hotel managers' awareness of Environmental Management System (EMS).
2. To identify sustainable programmes that have been implemented in New Zealand hotels.
3. To explore the hotel managers' understanding of the benefits associated with the adoption and implementation of EMS.
4. To identify hotel managers' understanding of the possible barriers associated with the adoption and implementation of EMS.

4.1.2 Response Rate

As explained in the previous chapter, the population size for this research was 183 hotels selected from the Qualmark membership database. The hotel managers were invited by e-mail or telephone to participate in this research. In total, 41 hotels agreed to participate in the research and 141 hotel managers agreed to participate in the survey. Questionnaires were posted to the target participants from September to October, 2009. In total, 94 out of 141 hotel managers completed the questionnaires which led to a response rate of 67%.

4.2 Descriptive characteristics of respondents

The following section highlights the demographic profile of the respondents. The hotel managers who participated in the research were asked to indicate how long their hotel had been operating. The results indicate that most hotels in New Zealand are fairly new properties. Out of the 36 hotels that replied, 11 (31%) have been operating for less than five years, while there are ten hotels (28%) that have been operational for six–ten years. Only a small numbers of hotels (17%) have operated for 11–15 years and nine hotels (15%) which have been operating for more than 16 years. However, the remaining 9% of the data was missing because a few hotel managers did not reply to this question.

The respondents were asked to specify their positions in their hotels. The majority of the respondents were departmental managers (72%), followed by general managers (23%) and only 4% who are owner managers. Again, in this question 1% of the data was missing because a very small portion of managers did not answer this question. As part of the data analysis, departmental managers were further classified into specific categories, as follows: operations manager, business development manager, technical service manager, chief concierge, sales/marketing manager, executive chef, executive housekeeper, food and beverage manager, front office manager, finance manager, human resource manager, purchasing manager and reservation manager. The total percentage breakdown of departmental managers that participated in this research can be observed in Figure 4.1.

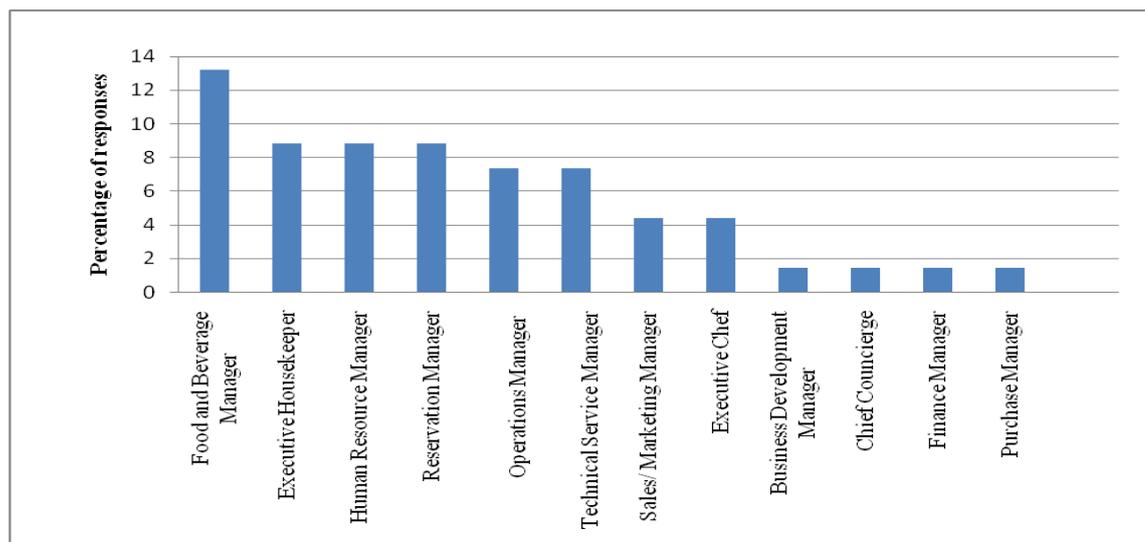


Figure 4.1: The percentage breakdown of departmental managers

The 94 managers represented hotels with different forms of property ownership. The results show that 76% of managers indicated that they were part of an international chain or group. Fifteen percent (15%) of managers indicated that they are locally owned and operated properties. A small number of respondents (6%) stated that their hotels are part of locally operated chain or group, whereas foreign owned and operated hotels that are not part of a larger chain, comprised only 3% of the total 94 responses. There were a small number of respondents (2%) who represented a new property ownership group which was stated as *“independently owned and managed by a franchise agreement.”*

The managers were also asked to self-categorise their property based on the facilities that their hotels provide and their target customers. The results show that the majority (62%) of the properties represent a mid-range (three star hotels) category, while 27% of the hotels belonged to luxury category and only 9% were budget hotels. Two percent of the respondents describe their property as four star plus rated by the Qualmark quality accreditation programme.

For this research project, the size of the hotel was determined based on its total employee numbers rather than number of rooms. Hotels with more than 100 employees (44%) were considered as large, hotels with more than 50 but less than 100 employees (33%) were considered as medium, and hotels with less than 50 employees (22%) were considered as small hotels. The total percentage distribution is displayed in Figure 4.2.

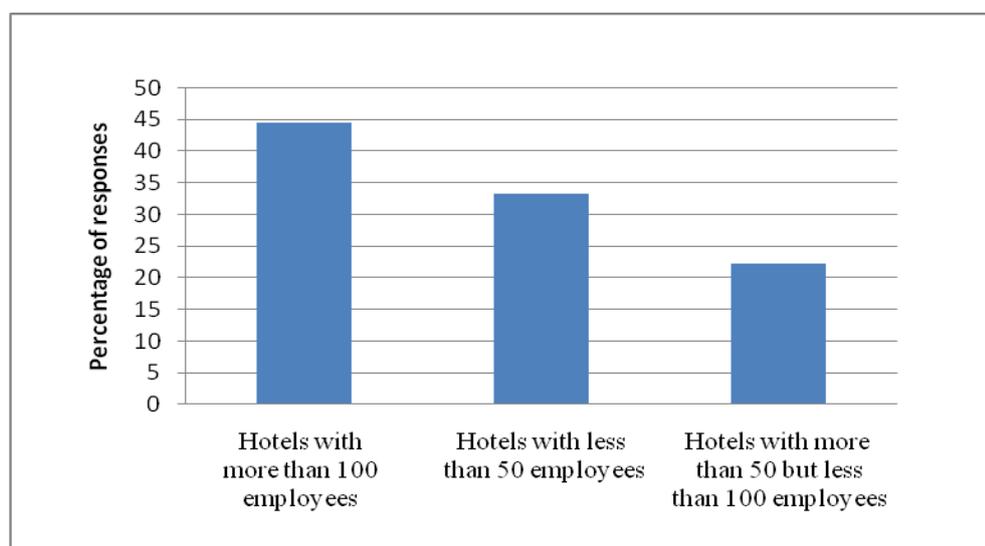


Figure 4.2: The percentage breakdown of number of employees

4.3 Hotel managers' awareness and understanding of EMS

The following sections present the results of hotel managers' awareness of environmental policy and activities involved in environmental policy. This section further focuses on hotel managers' familiarity and understanding of the term EMS.

4.3.1 Environmental policy and activities involved in environmental policy

The result for Q.6 was analysed from two different perspectives, first by individual managers and then from the hotel's perspective.

Ninety-six percent (96%) of the managers indicated that they were aware of having an environmental policy in their hotel and only a small number of participants (4%) were unaware of having an environmental policy in their hotel. The data was also analysed from the hotel's perspective and the results show that among the 36 hotels which participated in the survey, 35 of them (97%) stated that they had an environmental policy in place in their hotel. There was only one hotel which did not have an environmental policy in place.

The results show a range of different activities which are covered by the hotels' environmental policies. The majority of the respondents had adopted the following environmental management practices in their environmental policy to minimise effects on the environment: efficient use of energy (94%), recycling of waste (93%), minimisation of waste (86%), and support for the local community (80%). The results also show that less than one third of the hotel managers (28%) indicated that control of air emission as an activity included in their hotel's environmental policy.

Some respondents provided additional answers for EMS practices that were included in their hotel's environmental policy. These include biodiversity, reduce paper use, reduce carbon footprint, reduce landfill, possum eradication, limiting emission of CFC's (protection of ozone layer), informing and raising awareness about water and waste water and green purchase policy (i.e. purchase only products that are environmental friendly and have less packaging).

4.3.2 Awareness of EMS and managers' understanding of EMS

The respondents were asked to indicate their familiarity with the term EMS. The results show that over half of the respondents (57%) (54 participants) were familiar with the term environmental management system (EMS) and 41% responded that they had no idea about it. Two percent (2%) of hotel managers did not respond to this question. The respondents who were familiar with the term EMS also provided detailed explanations of their understanding of EMS. These responses are described below.

The respondents were asked to explain their understanding of the concept of EMS. Out of 54 participants who claimed to be familiar with the term EMS, 49 actually answered the question. The responses were grouped into four different categories based on the pattern of the responses. The first category includes all those responses that showed a clear understanding of the term EMS. The responses under this category have described the concept of EMS as a system to improve operational efficiency and provide guidelines for best business practices. In total, 20 responses have been included in this category. Two are highlighted below for illustrative purposes. One respondent said *“I guess it is a process or policy outlining actions for a company to take to manage itself within the environment sustainably.”* Another respondent claimed *“I understand environmental management systems help set the benchmark, standards and guidelines for a company's environmental management objectives and monitor the progress towards these.”*

The second category highlights those responses that show a basic understanding of the term EMS. The responses under this category have shown their understanding for EMS as a specific operational tool. Twelve such responses are identified in this category. For example one respondent said *“We have used both an environment charter that our company has used for a number of years as well as having recently completed green globe certification. Both require a policy, plan act approach.”*

Another respondent stated that EMS means to *“Conserve the natural resources by reducing energy and water consumptions. Minimise waste to landfills recycle all possible materials.”*

The third category highlights all those responses that show little knowledge and understanding of EMS as a concept. The responses under this category considered internal environmental management measurement as part of EMS. In total, ten such responses have been categorised this way. For example, one hotel manager said *“Unclear how to answer this. I have a comprehensive understand of EMS. ISO14001, Green Globe and Qualmark enviro gold requirement.”*

Another respondent claimed that *“We have been using environment guidelines to work towards environment.”*

The last category of responses is labelled as in-depth understanding, because the respondents in this category consider EMS as a tool for measuring environmental performance. Six out of 48 responses were found in this category of answers. For example, one hotel manager said *“It helps an organization to achieve and maintain a measureable improvement in its environmental performance. It shows you your compliance with policy”*.

Another respondent claimed that EMS is *“A system that runs in line with your quality management systems. It is a set of policy + procedures that will streamline your operations and process + allows you to save money and reduce your impact on the environment”*.

It can be concluded from the study that the majority of the respondents showed more than a basic understanding of the EMS concept.

4.4 EMS practices

The previous section indicates the results of EMS awareness among hotel managers surveyed in New Zealand. The following section will present results on whether these New Zealand hotels have implemented EMS and what different certification they hold for their environmental efforts.

4.4.1 EMS adoption and programmes

The questionnaire asked the managers whether they have implemented EMS in their hotels. The results show that more than half of the respondents (55%) had implemented EMS. However, a small number of hotels (17%) surveyed did not have EMS in place to monitor their environmental practices yet.

The respondents were asked to specify the type of certification that their hotel holds. The analysis shows that the majority of the hotels (81%) surveyed are certified as Qualmark Green for their environmental practices. Meanwhile, results also show that 36% of the hotels are Green Globe 21 certified, while there were a small number of hotels (6%) that are ISO14001 certified. Respondents were asked to indicate any additional certification that they use to implement environmental management systems and only 8% of respondents' specified examples such as "E 13" and "Accor Enviro (Internal environmental audit system for Accor hotels)". The distribution of EMS certification can be seen in Figure 4.3.

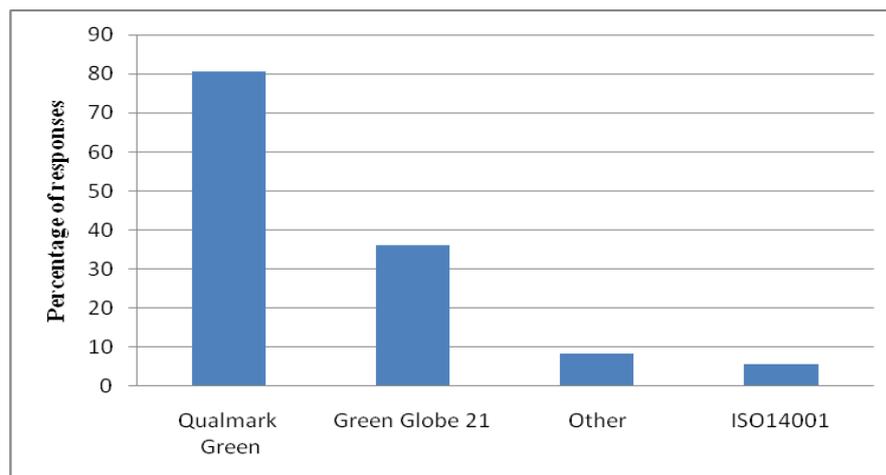


Figure 4.3: The percentage breakdown of New Zealand hotels holding EMS certifications

The results also show that there were hotels which were certified with more than one certification and thus the data was further analysed to show the total number of EMS certifications that are held by each hotel. It was found that 44% of the hotels surveyed hold only one certification. However, 31% of the hotels are certified with two types of certifications and a further 8% of hotels were observed to have three environmental

certifications in place. The results also reveal that there are 17% of hotels that did not hold any environmental management certification.

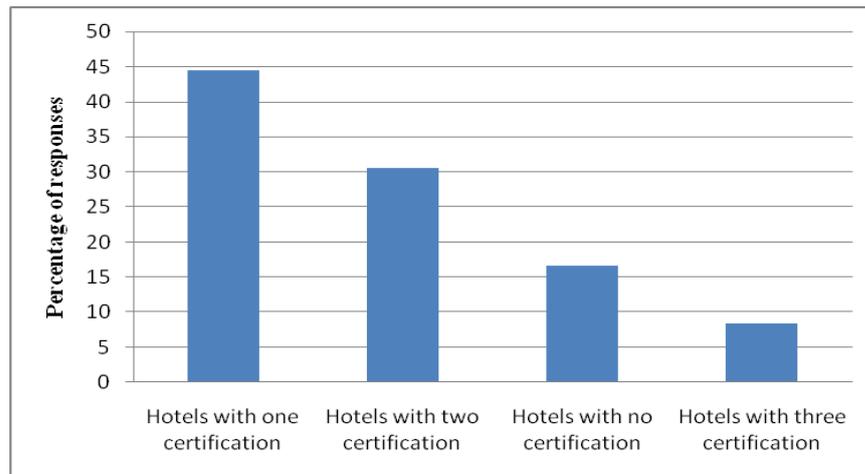


Figure 4.4: The percentage display of numbers of EMS certification held by New Zealand hotels

4.4.2 Environmental management practices implemented

The hotel managers were asked to indicate eco-friendly practices that they have implemented in their hotel. The most popular eco-friendly practices were: recycling of glass, plastic bottles and cans (99%), use of energy saving bulbs (98%), reuse of towels (87%), reuse of paper (83%), reuse of bed sheet linen (79%), minimisation of food waste (79%), use of low flow shower heads (73%) and use of low flush toilet (64%). The result shows that the majority of the hotel managers support all the eco-friendly practices that were listed in the questionnaire, which are being performed in their hotel. On the other hand, some managers claimed that they were also involved in other eco-friendly practices which are listed below:

- Reduce and reuse of paper waste programme. The programme instructs managers and employees of the hotel to reduce use of paper by not printing e-mails unless it is important, for example, accepting job applications by e-mail rather than having paper application.
- Use of efficient gas boilers to save energy consumption.

- Use of key cards to control room lighting thus helping the hotel to save on energy consumption.
- Use of hybrid vehicle for transport.
- The water management programmes that were used include activities such as use of cold water in guest laundry, water flow restrictions throughout the hotel, restrictions on use of sprinklers in gardens and parks.
- The waste / recycle management programmes that were highlighted as being practised by the hotels surveyed include controlling and recycling electronic waste, use of food waste as animal feed, recycling of used oil and recycling of cardboard materials, batteries, green waste and light bulbs.
- The other small programmes such as a new paper programmes and also ensuring that purchasing of food and beverage stock is done in the right quantity, purchasing sustainable stock (less packaged food stuff to reduce package waste) and purchasing home grown food rather than imported food to reduce carbon footprints.
- Hotels were also involved in training and spreading awareness among staff and guests on environmental practices in place in the hotel.
- Some hotels have programmes to use less concentrated chemicals for cleaning, and were also involved in various other social and community services, such as helping and supporting the community protect endangered species.

Figure 4.5 presents the percentage breakdown of eco-friendly practices that were performed by the hotels surveyed.

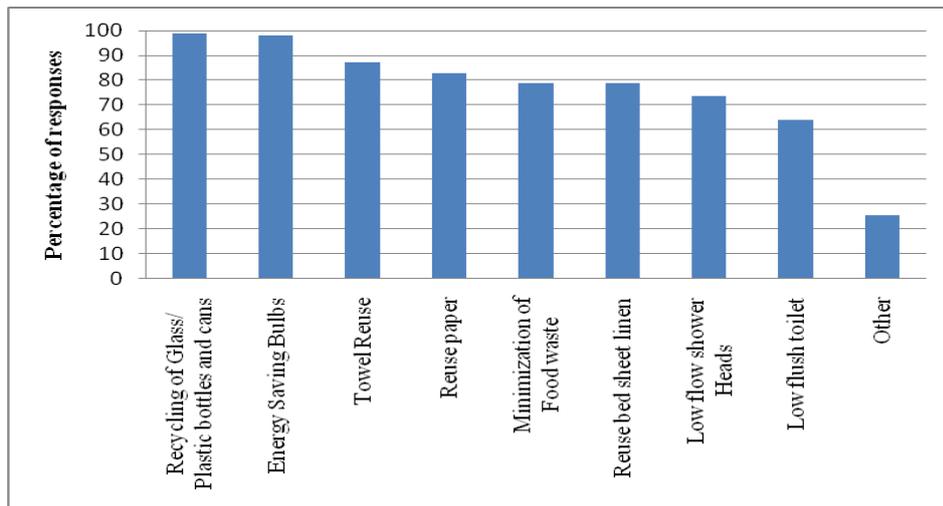


Figure 4.5: A percentage breakdown of eco-friendly practices

4.5 Managers' attitude towards environmental management

The following section of the survey results covers respondents' perceived reasons for implementing an environmental management system and their understanding of the benefits and barriers to adopting EMS.

4.5.1 Understanding of physical environment and hotel operations

The following section reveals managers' attitudes about hotel operation and the protection of natural environment. The results show that there was a high degree of agreement over the first statement, as 91% of participants strongly agreed that the accommodation sector plays an important role in protecting the natural environment.

With respect to whether the accommodation sector has a positive impact on the natural environment, slightly more than half of participants (57%) strongly agreed / agreed with the statement, while one third of participants (33%) neither agreed nor disagreed. Ten percent (10%) disagree/strongly disagree.

Eighty-eight (88%) of participants strongly agreed / agreed that the natural environment of New Zealand is very important to the profitable operation of their property. Five percent (5%) strongly disagreed / disagreed with the statement, and 7% of the respondents neither agreed nor disagreed.

4.5.2 Motivations for EMS adoption and implementation

Respondents were asked to indicate more than one reason that would have encouraged them to implement EMS. As shown in Figure 4.6, the majority of hotel managers (69%) think that conserving natural resources is the most important reason for them to implement EMS in hotel operations. It was further observed that 63% of hotel managers think that the adoption and implementation of EMS would bring potential cost saving benefits for the organisation and thus it was the second most important reason among managers in the surveyed hotels to implement EMS. Other reasons which are not as strongly supported are: over one third of the hotel managers (35%) had implemented EMS in their hotel because they felt the need to keep up with competitors, while 29% of managers indicated that pressure and demand from guests was also one of the reasons for the hotel to adopt and implement EMS in their hotel operations. Twenty percent (20%) of hotel managers indicated that they felt that government regulations were one of the reasons why they had to implement EMS. The results show that 19% of the hotel managers agreed that pressure from stakeholders was not the main reason that would lead to implementation of EMS and only 13% of hotel managers believed that pressure and demand from employees is a reason to implement EMS.

The answers to this question are not only limited to the nine points that were mentioned in the questionnaire. Participants were invited to include any additional points that would have been the driving force (reason) for their hotel to adopt and implement EMS. The written responses were analysed and three common themes emerged. They are pressure from a corporate owner (e.g. global commitment by chain or group; international brand direction; and pressure from the head office), pressure from third party such as Qualmark and environmental audit organisations. Some respondents indicated that personal commitment and belief to protect, save and preserve the environment as reasons (motivations) for EMS adoption.

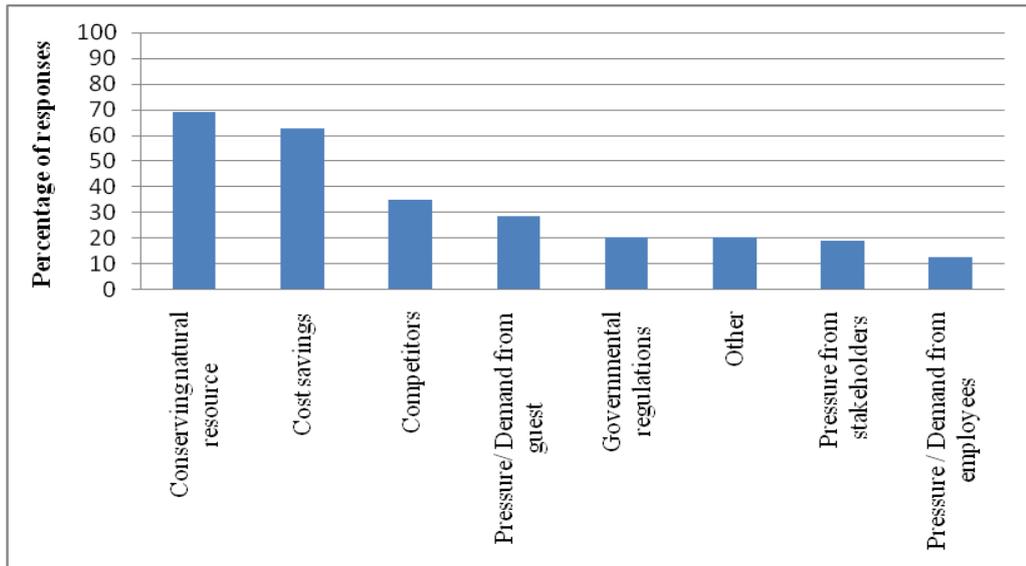


Figure 4.6: A percentage breakdown of reasons for implementing EMS

4.5.3 Perceived benefits of EMS implementation

Respondents were asked to indicate the extent to which they agree or disagree with the factors that are perceived to be a benefit for the hotel to implement EMS. Six items were listed and were rated on a Likert type scale with the end point labelled as 1- strongly agreed and 5 – strongly disagree. The majority of the respondents (96%) strongly agreed / agreed that a benefit of EMS is improved public image in the market.

A small number of respondents (4%) did not have any idea whether EMS brings a good public image for the hotel. Ninety-one percent (91%) of the managers surveyed also strongly agreed / agreed that they were able to increase their marketing opportunities due to proper commitment towards EMS practices. It was further observed that only 2% of respondents strongly disagreed /disagreed that implementing EMS had marketing benefits. A small number of respondents (7%) did not have any idea about whether an EMS provided marketing benefits. Figure 4.7 and Figure 4.8 display the percentage distribution of the top two most perceived benefits.

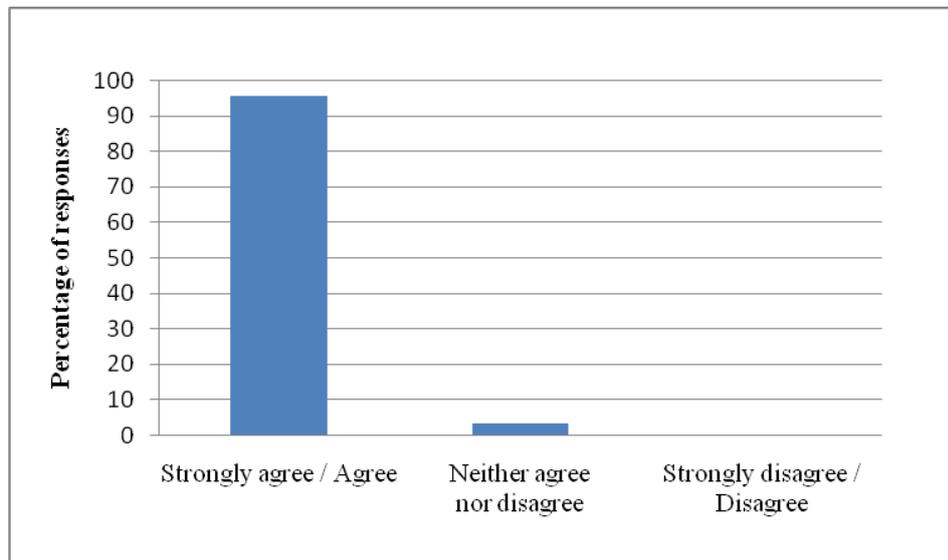


Figure 4.7: The percentage breakdown on improved public image

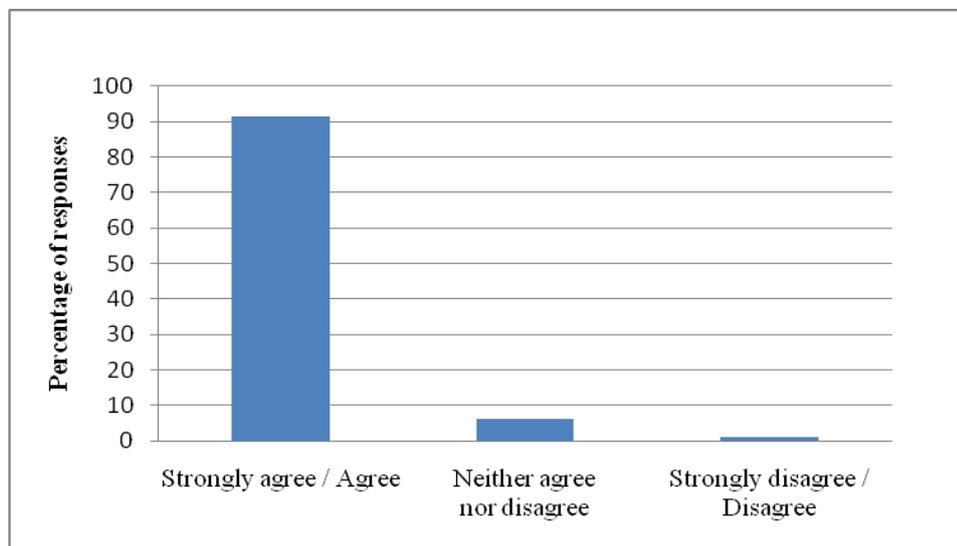


Figure 4.8: The percentage breakdown on gaining marketing opportunities

The results show the third perceived benefit was that EMS leads to cost saving opportunities. The analysis results reveal that out of the 94 respondents, 89% of them have strongly agreed/agreed that an EMS can provide cost saving opportunities for the organisation. However, a small number of respondents (5%) strongly disagreed/disagreed and 5% neither agreed nor disagreed that cost saving is a benefit for hotels in implementing EMS. Figure 4.9 displays the percentage distribution of the third most perceived benefit.

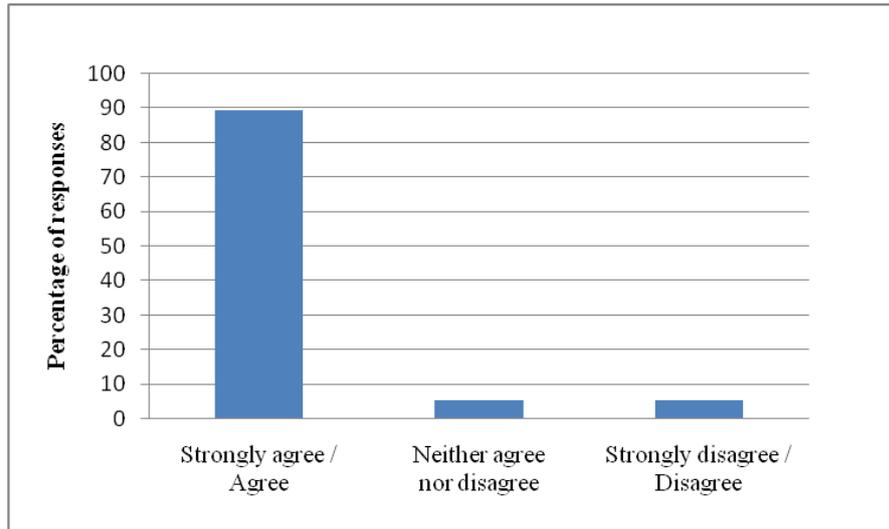


Figure 4.9: The percentage breakdown of cost saving opportunities

As shown in Figure 4.10, 89% of hotel managers strongly agreed/agreed that they were able to increase their competitiveness with other hotels in the market. Only 9% stated that they have no idea whether it helps the organisation increase competitiveness and 2% of the hotel managers strongly disagreed/disagreed that an EMS can provide competitive advantage in the market.

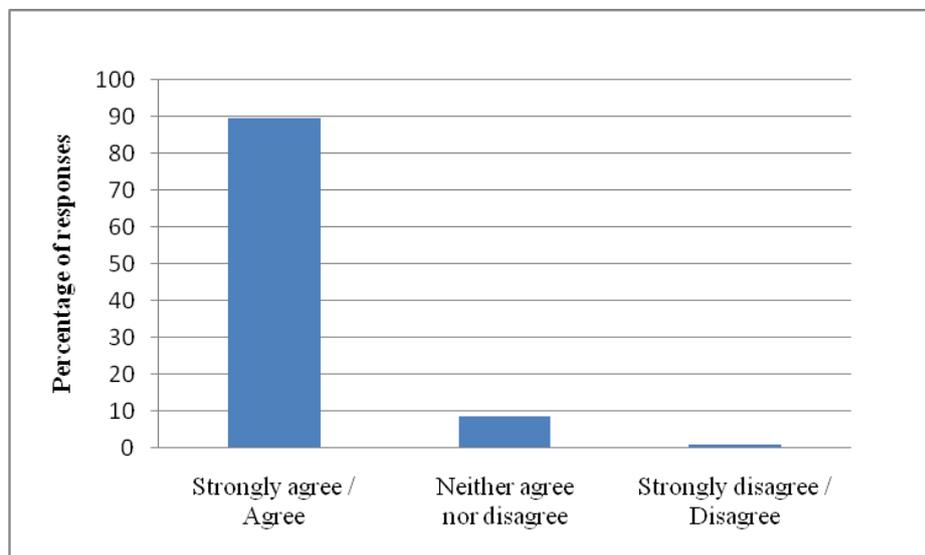


Figure 4.10: The percentage breakdown on competitiveness

The analysis shows that a significant number of the respondents (88%) strongly agreed/agreed that an EMS can improve the financial performance of the organisation and a small number of respondents (3%) disagreed. Nine percent (9%) neither agreed nor disagreed with this point. Figure 4.11 displays the percentage distribution of the perceived benefits.

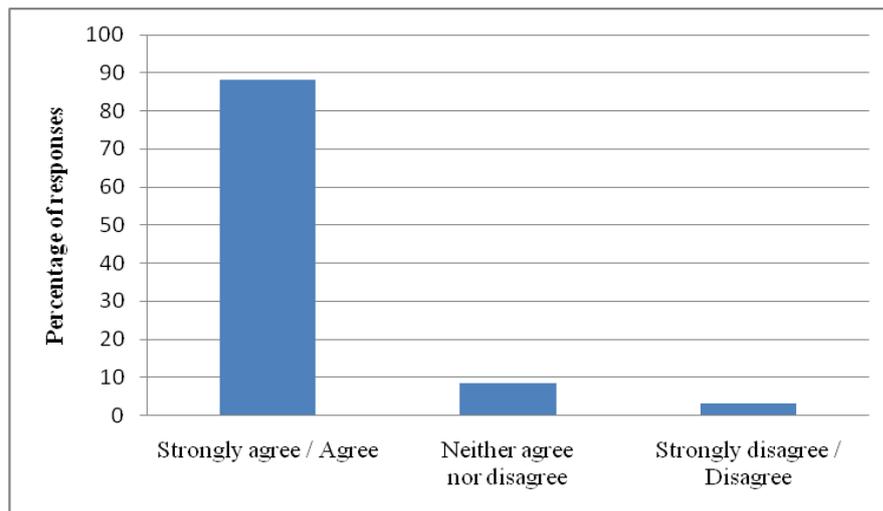


Figure 4.11: The percentage breakdown on improved financial performance

Of the six factors that were listed as benefits from implementing EMS, government incentives were considered as less important to the participants. Almost 70% of hotel managers indicated that it was the least expected benefit as compared to benefits mentioned above.

Less than one third (25%) of hotel managers neither agreed nor disagreed that there are any benefits from the government for the adoption of EMS. However, a small number of respondents (3%) have disagreed on having any kind of government incentives (for example tax benefits) over adopting of EMS. Figure 4.12 displays the percentage distribution of the perceived benefit.

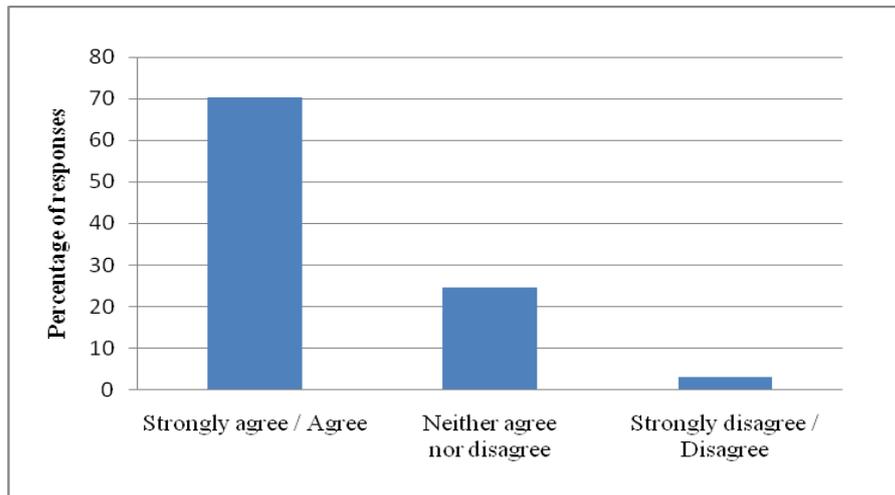


Figure 4.12: The percentage breakdown on government incentives for EMS implementation

Looking at the overall responses, it appears that improving public image, marketing opportunities and competitiveness are the most compelling benefits from implementing EMS. Improved financial performance, cost saving opportunities and government incentives were considered to be less important benefits.

4.5.4 Perceived barriers to EMS implementation

This section will highlight the views of respondents on factors that are considered as barriers for the organisation in implementing EMS. Nine of the ten items were negatively phrased in the questionnaire. Each item was measured on a five point Likert scale with the end points labelled 1 as Strongly Agree and 5 as Strongly Disagree. Respondents were asked to rate all the items that they feel are barriers to an organisation in implementing EMS.

The results show that 70% of the managers strongly agreed / agreed that the high implementation costs act as a significant barrier for organisations in establishing EMS. At the same time, 14% of the managers do not see implementation cost as a barrier for the organisation and 15% of them have no idea whether high implementation cost acts as a barrier. Figure 4.13 displays the percentage distribution of the perceived barriers to EMS implementation.

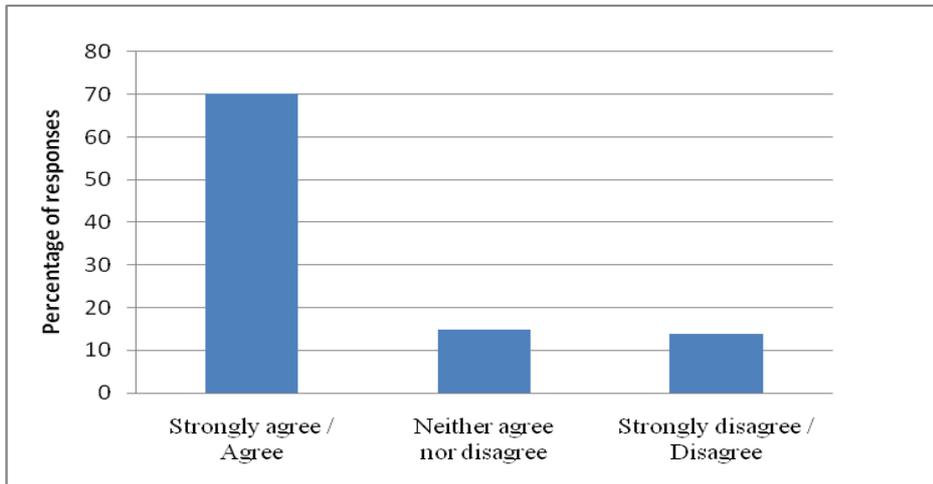


Figure 4.13: The percentage breakdown of high implementation cost

With respect to technology, more than half of the managers (51%) strongly agreed/agreed that lack of technology in the hotel is a barrier for the implementation of EMS in hotel operations. However, 33% of managers strongly disagreed/disagreed to the same proposition. A small number of managers (16%) have no idea of whether lack of technology is a barrier or not. Figure 4.14 displays the percentage distribution of the second most important barrier to EMS implementation.

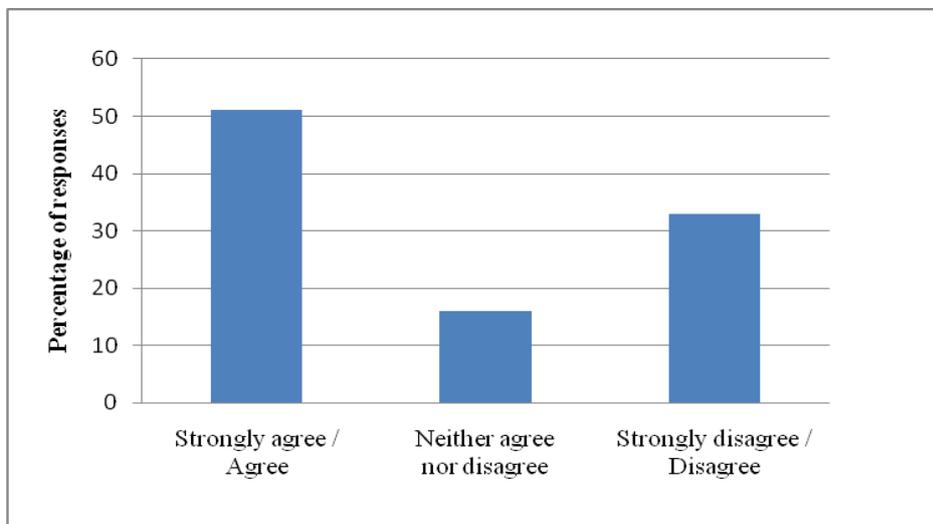


Figure 4.14: The percentage breakdown of lack of technology as a barrier

As shown in Figure 4.15, less than one third of the respondents (27%) strongly agreed/agreed that there are no potential benefits from adopting EMS. However, over half of the managers (52%) strongly disagreed/disagreed, believing that there are

potential benefits from implementing an EMS. The result also shows that 21% of the managers neither agreed nor disagreed that EMS has no potential benefits.

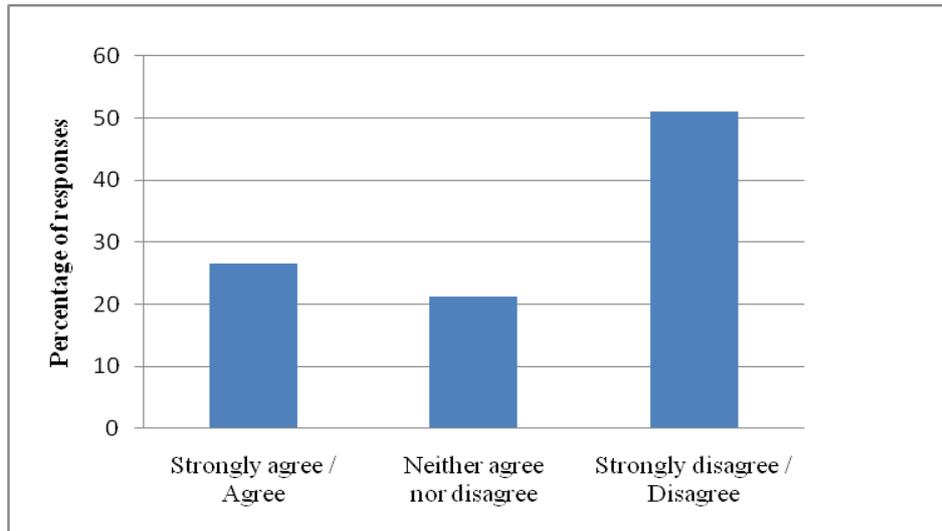


Figure 4.15: The percentage breakdown of no potential benefit as a less important barrier

Less than half of the managers (47%) strongly agreed/agreed that the process of EMS is time consuming and it requires additional time and effort to maintain control of and to keep records of the process. However, almost one third of managers (29%) strongly disagreed/disagreed that the process of EMS is not time consuming. Twenty-four percent (24%) of the respondents did not know whether implementation of EMS is time consuming.

The results show that 42% of managers strongly agreed/agreed that infrastructure changes are too difficult to be made and considered this a barrier for the organisation but 34% of managers strongly disagreed/disagreed, believing that it is not difficult to make the necessary infrastructural changes for implementing EMS. However, there are also 24% of the respondents who do not know whether it is a barrier for the organisation.

Analysis showed that there were 39% of managers who agree that they are having difficulties in understanding the concept of EMS and feel that EMS is too complicated and that lack of knowledge has prevented them from adopting EMS in the organisation. However, 37% of the managers surveyed disagreed and do not see there is any lack of

understanding or knowledge that would prevent them from implementing EMS in their organisation. Twenty-four percent (24%) responded that they do not know whether lack of knowledge is a significant barrier for EMS implementation.

More than one third of the managers (39%) strongly agreed/agreed that EMS requires a lot of paperwork during and after the process of implementation. Twenty-eight percent (28%) of managers strongly disagreed/disagreed. There are, however, 33% of managers who do not know whether adopting EMS involves too much paperwork.

The results show that more than one third of the managers (38%) strongly agreed/agreed that the renewal cost of certification is too high. Thirty-five percent (35%) of the respondents did not know and 27% of them strongly disagreed/disagreed with the statement and think that renewal cost for certification is not too high. Figure 4.16 displays the percentage distribution of the perceived barrier to EMS implementation.

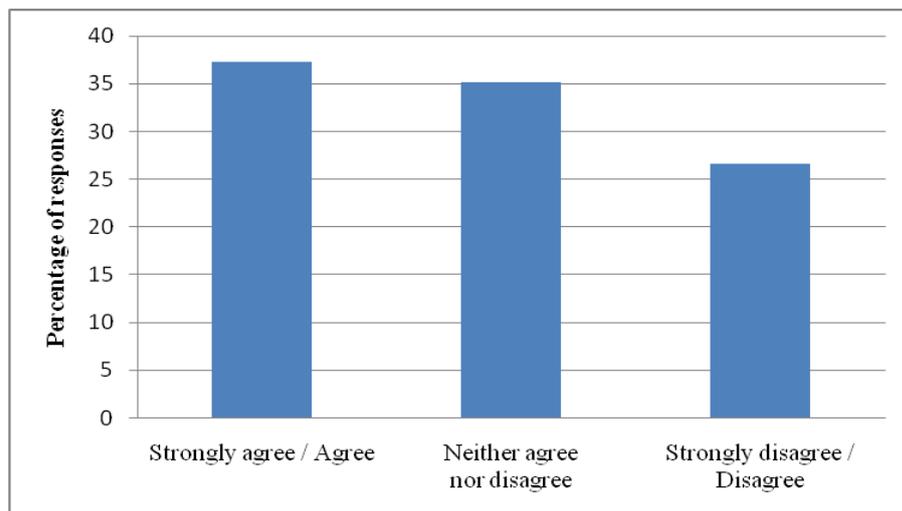


Figure 4.16: The percentage breakdown of high renewal cost of certification

Forty percent (40%) of the hotel managers surveyed disagreed with the statement that human resource constraints can be a barrier preventing the implementation of an EMS. Only 35% of the managers agreed that they do consider that lack of human resources is a barrier and 23% are unsure whether human resources issues could be considered as a barrier or not.

However, it was found that two percent of data was missing as some respondents did not wish to answer the factor. Figure 4.17 displays the percentage distribution of the perceived barrier to EMS implementation.

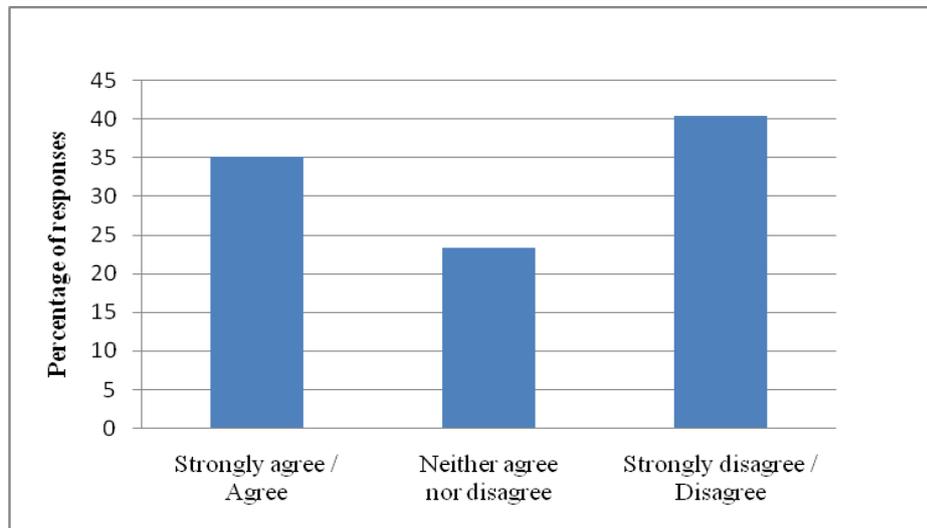


Figure 4.17: The percentage breakdown of lack of human resources as a less important barrier to EMS implementation

The above results show that most of the respondents indicated seven of the ten factors cited in the questionnaire are barriers in implementing EMS. Looking at the overall responses, the most important barriers according to the majority of the respondents are excessive implementation cost, lack of technology, process is too time consuming, and infrastructure change is difficult, excessive paper work, lack of knowledge and high cost of certification renewal. Lack of human resources and no potential benefit were not seen as significant barriers by the majority of respondents.

4.6 Self-evaluation of EMS practices

At the end of the questionnaire, respondents were asked to assess their current environmental management practices. They were asked to rate their EMS practices and indicate if they were very satisfied, satisfied, just started, need more improvement and not satisfied at all about their hotels environmental performance. The results show that 57% of managers were satisfied with their current environmental practices and 21% of managers were very satisfied with the environmental practices at their hotel. Fifteen percent (15%) of the managers reported that they have just started with their environmental programmes.

A small number of the hotel managers (6%) indicated that there is a need to improve more in terms of environmental practices that are performed by their organisation at present. However, it was found that seven percent of data was missing because some of the respondents did not answer the question.

4.7 Summary of Findings

This chapter summarises the numerical data derived from an analysis of the received responses. This chapter does not include conclusions about the results or a discussion of the implications of the findings. As described previously, the response rate for the questionnaires sent out was 67%, which is acceptable and is considered as reliable for the selected sample size. The key observations from the results are as follows:

First, and most importantly, the majority of the hotel managers surveyed are aware of the concept of EMS, although half of the respondents stated that they had implemented EMS in their operations. Based on the sample, the majority of the hotels are certified with the local environmental accreditation. A limited number of hotels hold international certification such as GG21 and ISO 14001. The research results further show that out of nine eco-friendly practices that were pre-identified in the questionnaire, almost all are being performed by the hotels surveyed in this study.

The questionnaire asked respondents to indicate their agreement or disagreement with various statements about the benefits and barriers of implementing EMS. The results reveal that New Zealand hotel managers are concerned about environmental issues and conserving natural resources. In general, they believe that EMS brings potential cost saving opportunities and they feel that EMS can be important in keeping up with competitors. These were the three most important reasons the managers cited for implementing EMS in their hotel.

Out of the six factors listed as benefits of implementing EMS, the three most important factors, according to the respondents, are improved public image, marketing opportunities for the hotel and maintaining competitive edge. With respect to barriers to implementation, out of the ten factors listed as possible barriers in the questionnaire, seven were considered as barriers by the respondents while two were not considered to be significant impediments.

Based on analysis of the results, all four of the stated research objectives have been achieved. This will be discussed further in Chapter five along with implications of the findings, correlation with previous research and opportunities for further study.

Chapter Five – Discussion and Conclusion

5.1 Introduction

In response to increased awareness of the impact of human activity on the environment, there has been a steady rise in the use and implementation of environmental management practices around the world in the hotel industry. In this chapter we will relate the research findings discussed in Chapter four to the four main objectives of this research. To reiterate, the objectives are (1) to determine New Zealand hotel managers' awareness of environmental management systems, (2) to identify sustainable programmes that have been implemented in New Zealand hotels, (3) to explore the hotel managers' understanding of the possible benefits and (4) to identify barriers that managers see as associated with the adoption and implementation of EMS.

This study addresses a gap which is set to examine the adoption and implementation of EMS in a New Zealand context. Furthermore, this study will add new data to the existing literature, with respect to current environmental practices in the hotel industry in New Zealand. It will also interest future researchers to study and explore the New Zealand hotel industry.

This chapter is divided into three sections: (1) how the results of the study support the above mentioned objectives, (2) conclusions drawn from the research in comparison with previous research and (3) limitations of the research and implications for future study.

5.2 Discussion

5.2.1 Hotel managers' awareness and understanding of EMS

This section discusses the findings of this study covering two research questions.

- Research Question 1

What environmentally friendly practices are hotel organisations currently implementing?

- Research Question 2

To what extent are New Zealand hotel managers aware of environmental management systems?

5.2.1.1 Environmental policy and activities involved in environmental policy

This research explores the New Zealand hotel industry to determine the degree of implementation of environmental practices and hotel managers' understanding of Environmental Management Systems (EMS). In previous research on EMS (Lakshmi, 2002; Meade & Pringle, 2001; Arimura, Hibiki & Katayama, 2008) an environmental policy was considered as a foundation for any organisation to establish EMS. It was also stated by Lakshmi (2002) that environmental policy is a framework for the organisation to improve and monitor their environmental impact. The Hotel Catering and International Management Association (HCIMA) has described the central role of a written policy in their technical brief on environmental issues as follows:

Every business should have a policy statement which should as a minimum make a commitment to the concept of sustainable development; practical action to protect the environment (HCIMA, 2009).

The results of this study found that most New Zealand hotels surveyed do have a formal written environmental policy in place and in the majority of hotels surveyed in NZ, the policy extends to environmental management. However, previous research in other countries indicate much lower engagement with environmental policy. In the Accra region of Ghana only 58% of hotels had an environmental policy and, of those, 34.5% were aimed at achieving a safe and healthy environment (Mensah, 2006; 2007). In another study of hotels in Edinburgh (Kirk, 1995), out of 53 participants, only 19% of the hotels had a written environmental policy statement that covered environmental management. The remaining had no policy at all. Furthermore, a similar study conducted by Bohdanowicz in 2006 showed that more than half of the hotel managers in Sweden indicated having an environmental policy statement in their hotels, while in Poland only 4% of hotel managers stated that they had an environmental policy.

On the basis of this current research, it appears that the surveyed hotels in New Zealand are ahead of their counterparts around the world in terms of having an environmental

policy and integrating it with overall business goals. It could further be concluded that hotel managers in New Zealand recognise that having an environmental policy is one of the first steps required to successfully adopt an environmental management system for hotels seeking to reduce the impact of their activities on the environment.

However, it cannot be concluded that a policy alone means that a hotel is committed to the environmental protection. The results further show that environmental policies in New Zealand hotels are mainly aimed at reducing the consumption of energy and water while also aiming to minimise waste. Similar results were also observed from previous studies conducted by Scanlon (2007) and Penny (2007). These results make sense because energy, water and waste are among the three largest environmental impacts of the hotel industry.

Although conclusions cannot be established about the effectiveness of the policies, or the degree of compliance with policies in individual hotels, the widespread existence of environmental policies in New Zealand hotels demonstrates a high level of commitment on the part of the hotel industry to environmental considerations.

5.2.1.2 Awareness of EMS and managers' understanding of EMS

EMS is a tool which is designed to help an organisation measure and limit its impact on the environment. Existing research indicates that EMS is the most common environmental management tool used in hotel industry (Ayuso, 2006; Tinsley & Pillai, 2006). Studies reviewed as part of the literature indicated that some of the hotels that have implemented EMS include Hyatt hotel in Delhi, India; several hotels in Jamaica; The Orchid Hotel, Mumbai, India; Nikko Hotel, Hong Kong; Sheraton Towers Auckland, New Zealand, and others (Lakshmi, 2002; Chan & Ho, 2006; Meade & Pringle, 2006). The literature indicates that the majority of hotel managers consider EMS to be a system that can improve operational efficiency and provide guidelines for best business practices. Further, a subset of managers considers it a measuring tool for environmental performance.

The results indicates that New Zealand hotel managers did not share a consistent understanding about the purpose and uses of EMS. Written responses to the question of the purpose of an EMS yielded a range of replies. One manager stated that EMS is

“The way the hotel manages the environmental factor”. Other managers in this study considered EMS as *“minimization of waste, efficient use of energy and recycling”*. Some respondents related EMS to *“green globe” and “sustainability.”* One manager equated the hotel’s environmental policy with EMS, stating: *“. . . has its own environmental charter and policy.”*

However, a few responses indicated a thorough understanding of the concept of EMS; for example, one manager stated that EMS is *“The implementation of internal control + procedures to ensure the property performs in a responsible manner with regards to sustainability while maintaining profitability. The process involves guest, staff and suppliers.”*

The evidence that New Zealand hotel managers have a limited understanding of the term EMS may be an indication that EMS is currently not being widely used as a management tool, but rather as an approach or framework for implementing environmental practices. According to the literature, EMS is not only a tool to control hotel practices but it is also a formal assessment process which is designed to fully integrate environmental and business management and enable organisations to take a more proactive approach towards managing environmental issues.

On the basis of the above findings and discussions, it can be concluded that the first objective of this research project to ‘explore the awareness of EMS among hotel managers in New Zealand’ has been achieved. However, future research is needed to collect first hand information to capture individual unbiased views about actual implementations of EMS in specific hotels.

5.2.2 EMS Practices

5.2.2.1 EMS adoption and programmes

The above section has shown that there is a limited understanding about EMS among hotel managers in New Zealand. Before turning our attention towards benefits and barriers of EMS, it is useful to identify the current state of EMS certification schemes that are adopted by hotels in New Zealand.

Most of the organisations responding to this study stated that they have an EMS in place. It was observed that that majority of hotels surveyed are certified with the local ‘Qualmark Green’ accreditation programme. A review of the literature shows that in European countries, eco-labels are the most common certification programmes that were adopted by most of the hotels (Bohdanowicz, 2006). This research project indicates that, as far as international EMS certification programmes are concerned, Green Globe 21 is used more widely in New Zealand than other international programmes such as ISO 14001. It was interesting to note that in New Zealand, national programmes such as ‘Qualmark Green’ are more popular than internationally recognised EMS certifications.

This research project also showed that hotels in New Zealand generally hold more than one environmental certification; however, six out of the 36 hotels surveyed did not hold any certification for their environmental practices.

5.2.2.2 Eco-friendly Practices

Energy, water and waste related issues are the biggest environmental challenges for hotels, and previous research has indicated that most hotels have procedures in place to deal with these issues (Bohdanowicz, 2006; Dascalaki & Balaras, 2004; Deng, 2003; Bohdanowicz, 2005; Becken et al., 2001; Kirk, 1996).

This research project revealed that recycling activities (glass, plastic bottles and cans) were the most popular ‘eco-friendly’ practises in place in New Zealand hotels. Energy, water and waste management programmes are also popular. Interestingly, research conducted in other parts of the world by Mensah (2006) and Bohdanowicz (2006) have shown recycling activities to be less popular than in New Zealand surveyed hotels. Furthermore, this study found an overwhelming majority of managers (99%) indicated that their hotels are highly involved in separating recyclable products such as glass, plastic bottles and cans and to help proper reuse of resources. However, surveyed New Zealand hotel practices seem to be more in line with other countries in respect to energy and resources saving initiatives. These initiatives include use of energy saving bulbs, reuse of towel and bed sheet linen, low flow shower heads/ low flush toilets, waste minimisation, New Zealand practice seems to agree with that of other countries based

on research conducted in other parts of the world, (Mensah, 2006; Bohdanowicz, 2006; Bohdanowicz, 2005).

The research indicated that after recycling programmes, energy saving and water management programmes were considered to be the second most important activity among surveyed hotels in New Zealand. These activities help hotels to reduce their overhead cost and also help to conserve resources. Respondents also highlighted some additional environmental management programmes which were not mentioned in any of the previous research. These include use of key cards to control room lights, cold water for washing guest laundry, use of sprinklers in gardens and parks, recycling of electronic waste (example: computers, TV, etc.), use of waste food as animal feed, use of eco-friendly cleaning chemicals to minimise water contamination, purchasing less packaged food to reduce package waste, helping the community by supporting endangered species and expanding recycling beyond paper glass and aluminium (e.g. batteries, green waste, light bulbs, oil and cardboard materials). However, it should be noted that the specific items listed above indicates that surveyed New Zealand hotels have adopted additional environmental management programmes to reduce the impact of their hotels on the environment. Furthermore, this research project found much significant difference between the current study and research carried out in Europe and GAR region of Ghana over environmental management programmes that are being implemented to either reduce the environmental impact of the hotel or to save costs.

5.3 Managers' attitude towards environmental management

The last two objectives of the research relate to managers' motivation for implementing EMS and the benefits and barriers that they see in connection with EMS implementation. The results of this research indicate that the majority of hotel managers in New Zealand believe the accommodation sector in New Zealand has an important role to play in protecting the natural environment. Further, the majority of the respondents strongly believe that their hotel has a positive impact on the natural environment.

5.3.1 Motivations for EMS adoption and implementation

The results of this survey reveal that hotel managers in New Zealand have a personal belief that it is important to conserve the environment and save natural resources. This could motivate them to find tools to help manage the impact of their hotel on the natural environment and pre-dispose them to accept and implement a tool such as EMS.

The survey results reveal that cost saving opportunities are the second most important reason for implementing EMS. This finding is not consistent with other research conducted around the world where cost saving was considered to be the most important reason to utilise an EMS (Penny, 2007; Ayuso, 2007; Rivera, 2002). However, this was also observed in countries such as Costa Rica, Spain and China.

It was further observed that the third most important reason for New Zealand hotel managers to implement EMS is to keep up with competitors. This is in contrast to existing literature where no studies have indicated that competitive edge is the main incentive for the hotels to implement EMS. This implies that there may be a higher level of expectation among New Zealand consumers that businesses take care of the environment. It may also mean that New Zealand businesses see their environmental image as important in the market.

The results of this survey further indicate that hotels in New Zealand do not consider government regulation as one of the important reasons to implement EMS. This contrasts with a study conducted in Costa Rica by Rivera in 2002 which found that governmental regulation was one of the main reasons for hotel managers to implement EMS. Another study conducted in Malaysia by Ann et al. (2006) also stated that hotel managers were encouraged to implement EMS because of different governmental grants and benefits that were offered to hotels. Chan and Wong in 2006 found that the Chinese government in Hong Kong provided more resources and support to hotels that intended to implement EMS in their operations, and accordingly government regulation became one of the primary reasons for hotel managers to implement EMS. The different perspectives shown by the hotels surveyed with respect to the importance of government regulation might indicate that there may be less support available from the New Zealand government in terms of environmental practices and the implementation of EMS certification.

In summary, the reasons for implementing EMS range from the hotel managers' personal commitment, the opportunity for cost saving and the desire to meet the expectations of stakeholders such as guests and employees. The results of the survey indicate that up until now pressure and demand from guests, stakeholders and employees have not been the primary reason to implement EMS in the New Zealand hotel industry. However, personal belief in the importance of protecting the environment and individual commitment seem to be the main motivators for New Zealand hotel managers.

5.3.2 Benefits of EMS implementation

This section discusses the findings of this study covering the third research question.

- Research Question 3

What possible benefits do New Zealand hotel managers anticipate from the adoption and implementation of environmental management systems?

The questionnaire asked managers to evaluate six perceived advantages of implementing EMS. Managers indicated that the greatest benefits were in marketing. A significant number (96%) of the respondents indicated improved public image as a benefit and 91% of them thought that new marketing opportunities had been created from implementing an EMS. These findings indicate that hotel managers in New Zealand may approach environmental practices with a socially responsible perspective. This is consistent with other research conducted by Kirk (1998) and Park (2009) which revealed that hotels in Edinburgh and the U.S also saw improved public image and marketing opportunities as important benefits of EMS.

In this study, hotel managers indicated that they did experience cost savings as a result of implementing EMS and had also improved their competitive position. Eighty-nine percent (89%) of the respondents rated both cost savings and improved competitive position as the second most important benefits from implementing EMS. These findings indicate that hotel managers in New Zealand may have experienced good results from their energy saving, water consumption and waste management practices. However, the current study findings do not contrast with the research conducted by Meade and Pringle (2001) which revealed that among five hotels in Jamaica that had achieved cost

saving opportunities because of improvements in their water, energy and waste management practices, led them to rank cost savings as the greatest benefit of EMS. The current finding of this study on competitive advantage was indicated as a benefit from implementing EMS. However, it was observed that competitive advantage was not reported as a benefit in the previous studies on EMS (Sloan, Legrand and Chen, 2004; Kirk, 1998). This was probably because most of the previous research concentrated on tangible benefits and ignored intangible benefits that would arise from implementing EMS. These findings are not surprising considering that competitive advantage and cost savings are the two main benefits perceived by the surveyed New Zealand managers.

Nevertheless, this study surveyed 94 hotel managers in New Zealand and 88% of the respondents strongly agreed that implementing EMS leads to improved financial performance (increase in profitability) of the hotel. This observation is not in line with other research (Kirk, 1998; Park, 2009 & Sloan et al., 2004), which revealed that hotels in Edinburgh, the US and Germany did not experience any significant improvement in financial performance of the organisation because of EMS. In all three of those studies, hotel managers ranked improved financial performance of the organisation as the least expected benefit from good environmental management practices.

The prospect of having government incentives over implementation of EMS was seen as a least expected benefit in comparison with the above ranked benefits. This is different from other previous research findings in which government incentives are seen as an important benefit (Chan & Wong, 2006; Ann et al., 2006; Rivera, 2002). Further research in this area would be useful to determine the role of government in encouraging or discouraging businesses to have environmental policies. The research would need to differentiate between government incentives in the form of subsidies or tax benefits and penalties for non-compliance.

5.3.3 Barriers to EMS implementation

This section discusses the findings of this study covering the fourth research question.

- Research Question 4

What possible barriers do New Zealand hotel managers see to prevent the adoption and implementation of environmental management systems?

The survey asked hotel managers to evaluate ten factors as possible barriers associated with the adoption and implementation of EMS. Out of the nine factors listed, two were identified as the least important barriers of EMS by the respondents. Of the remaining seven, high cost of implementation; lack of technology and the process is time consuming were considered as a major barriers to implementation of EMS.

Hotel managers in New Zealand ranked implementation cost as the most important barrier for hotels to adopt and implement EMS. This is in line with the previous studies carried out by Chan (2008), Chan and Ho (2006), Best (2008) and Ann et al. (2006). In the current study two managers commented on the cost of EMS. One respondent stated: *'Go green could cost money.... [and] during these tough economic days, some companies have other priorities.'* Another respondent referred to EMS as sustainability and said: *'Sustainability is a very good idea but it is also a very expensive procedure to implement especially in New Zealand because China produces products that are so cheap and tempting.'* These responses stated above further suggest that there is a possibility that because this survey was conducted in the middle of the economic downturn, resulting in cost being a greater concern than in previous research conducted during the better economic conditions.

It was observed from previous research that EMS implementation does involve a financial commitment in the form of training costs, documentation, equipment and storage costs, computer software (Chan & Ho, 2006; Ann et al., 2006). This implies that EMS is an effective tool that helps hotel organisations to overcome their environmental difficulties but it also requires an investment which needs financial commitments.

A further important barrier identified by the surveyed respondents is the lack of supporting technology. This barrier was ranked second by the hotel managers surveyed. Technology is considered an expensive resource and organisations feel that they need additional investment in technology in order to support a system such as EMS to monitor and control its activity and progress. The success and effectiveness of EMS is possible only if there are proper supporting tools available, including technology tools such as motion sensors, power saving fittings, solar power panels, computers and also monitoring devices to measure environmental practices. Furthermore, some respondents cited lack of support for technologies such as composting or recycling. Two comments

from hotel managers reflect this concern. One respondent said: *“the hotels are sometimes limited in certain area of waste minimization and recycling supply surplus through the lack of resources in the local infrastructure quoted.....”* Another respondent stated *“we are currently looking into a compost system here at the hotel. Food waste is extremely difficult to get recycled in Auckland. Would like to know if you have any suggestions or how else it can be done?”* These results suggest that technology is an indirect resource which is necessary for the success of EMS and thus lack of up-to-date technology may lead to barriers for implementation of EMS.

The third important barrier identified by the respondents was that the process of implementing an EMS was too time consuming. Previous studies have noted that EMS is an ongoing process, requiring continual management and support in order to ensure that it continues to be effective (Chan & Ho, 2006). The process of EMS follows an interactive Deming cycle of Plan-Do-Check-Act (Lakshmi, 2002). Writers on EMS have pointed out that EMS is based on five core principles that include framing of environmental policy, planning of environmental efforts, implementation and operation of environmental activities, checking and corrective action and management review (Lakshmi, 2002; Ann, Zailani & Wahid, 2006; Chan & Wong, 2006; Boiral & Sala, 1998; Zharen, 1996 & Arimura et al., 2008). All of these make EMS implementation an on-going process which requires time and proper commitment from management for its success.

According to the survey results, another barrier to EMS implementation is the need for infrastructure changes. No previous studies have raised this as a barrier and further research in this area would be desirable. An example of infrastructure change required by an EMS implementation might be rewiring or installation of new electrical equipment to enable energy-saving lighting or heating equipment. New Zealand hotel managers recognise that proper implementation of an EMS may well require infrastructure investment and saw that as a potential barrier to implementation.

The respondents also felt that EMS implementation involved a lot of paperwork which is considered as an additional task for the managers along with their daily tasks. The process of EMS implementation involves five different steps and each step requires proper documentation (Chan & Wong, 2006; Boiral & Sala, 1998; Zharen, 1996 &

Arimura et al., 2008). As one respondent observed, *“We have just been GG certified and about to be Qualmark rated this seems to double up on a lot of the reporting.”*

In this research, participants were asked to either agree or disagree whether the cost for renewing the EMS certification is too high. One third of the hotel managers surveyed agreed that renewal cost for certification is too high. It was noted by Ayuso (2007) that the actual certification process varies depending on the protocols of the certifying organisation, therefore there is little standardisation of the process. Further, most of the certification programmes require hotels to recertify their EMS every year and this generally requires payment of an annual fee. Given that the EMS process itself is seen as a costly investment, an additional annual cost for certification renewal acts as a further constraint for the hotels to implement EMS.

As mentioned above, the survey questionnaire included nine potential barriers to EMS implementation and asked hotel managers for their assessment of how significant each barrier represented. Three of the items, ‘no potential benefit’, ‘lack of human resources’ and ‘lack of knowledge’ were identified as least important barriers by the surveyed respondents. Over half of the respondents disagreed that there was no potential benefit for EMS implementation.

With respect to human resource constraints, previous research (Hillary, 2000; Gonzalez, 2004) suggested lack of human resources as a barrier to EMS implementation; however, some respondents in this survey did not support their findings (40%).

Interestingly, research conducted by Chan (2008) found that lack of knowledge was the third most important barrier for hotel managers in Hong Kong. Further, Gonzalez (2004) pointed out that lack of knowledge is also a barrier for other industrial sectors, including chemical and manufacturing. Conversely, in this current study it was observed that there was a lot of confusion among participants on whether to consider ‘lack of knowledge’ as a barrier or not. The results show that there was almost an equal split between participants (38%) who see it as to be a barrier while 37% who disagreed with this point of view. This leads to a conclusion that hotel managers in New Zealand may possess good knowledge and are much more aware of EMS and therefore are inclined to be less concerned about lack of knowledge as a barrier for the implementation of EMS.

There have been very few studies on barriers to EMS in the hotel industry and this study has sought answers to the question of what will hinder the hotel from implementing a formal EMS. This study should be viewed as a preliminary step to understand the barriers for implementing EMS in the New Zealand hotel industry. Further research needs to gather information on the actual experiences of hotels implementing EMS and identify specific barriers and impediments.

5.4 Conclusion

This research study adopted a descriptive survey approach to investigate the current state of environmental management in New Zealand hotels. To date there has been limited research directed towards environmental management practices in New Zealand hotels and none that have sought to investigate the factors that act as benefits and barriers for New Zealand hotel managers in implementing EMS. This study provides some interesting results which can be explored further to gain a better understanding of current practice and perceptions of hotel managers about EMS implementation. One goal of this research was to include a wide range of hotels from across New Zealand to provide a broad overview of current practice and enable a descriptive analysis. The purpose of this section is to draw conclusions from the findings and discussions of the study and provide the implications of the research. Furthermore, the limitations of the research are highlighted and recommendations for future research are made.

The conclusion for this study is divided into three parts: (1) The current state of environmental management in the New Zealand hotel industry (2) the awareness and understanding of New Zealand hotel managers about Environmental Management Systems (EMS) and (3) the attitude of New Zealand hotel managers toward environmental matters and their perception of the advantages and barriers of implementing EMS.

With respect to the current state, hotels that participated in this study showed greater involvement in energy management, water conservation and waste management practices than hotels examined by previous research in different geographical areas. However, return on investment is a major concern for hotel managers who are considering investing in 'green' programmes for their property. The results of this study also suggest that hotels need to focus more on environmental management systems,

which can be essential for hotel companies to deal with environmental issues more effectively in the long term.

Cost is a major consideration for the hotel industry. This research demonstrated that under current economic conditions, energy, water and resource conservation practices are getting more attention from hoteliers than ever before as a way of reducing operating cost and increasing efficiency. One of the objectives of this research was to identify the eco-friendly practices that are currently performed by New Zealand hotels. This research identified recycling and waste management programmes as the fundamental aspects of a hotel's environmental management. It was also found that hotel businesses, to maintain their reputations as environmentally friendly hotels in New Zealand, have been taking necessary environmental steps to maintain New Zealand's clean and green image. This further leads to the conclusion that the current state of New Zealand environmental practices has been positive and that practices and attitudes in New Zealand are consistent with practices identified in past studies.

The second part of the study examined the awareness and understanding of New Zealand hotel managers with respect to EMS. Hotel managers that participated in this study showed that they were aware of EMS as a concept. Some respondents were very well informed about EMS, while others had a poor or limited level of understanding. Some were very enthusiastic about EMS and others were unsure about the benefits. It is further suggested that in order to achieve meaningful improvement, hotel managers must obtain adequate knowledge and develop appropriate understanding for the effective implementation of environmental management systems.

In terms of EMS certification, New Zealand hotels showed a strong commitment to national programmes, however, there was less interest in adopting internationally recognised EMS certification programmes such as ISO 14001 and Green Globe 21. This finding is surprising considering that one of the key benefits that managers saw in having an EMS was competitive advantage. The researcher would expect there to be more interest in international certification on the grounds that international certifiers would be more widely recognised and provide additional competitive edge. It is further suggested that lack of understanding and awareness among hotel managers about EMS was observed because of limited holding of a formal EMS certifications (ISO 14001)

among New Zealand hotels. Therefore, it may be desirable for New Zealand hotels to intensify their efforts towards adopting more formal EMS certification programmes. It is further recommended that such efforts will help organisations to develop meaningful training programmes for staff and guests, establish job responsibilities and help monitor environmental activities, because the certification programme provides a useful framework for developing in-house policies, procedures and programmes. The results of this study also suggest that environmental management systems will help organisations to deal with environmental issues in a more effective manner on an ongoing basis.

The final part of this study examined New Zealand hotel managers' attitudes towards EMS adoption and what they saw as the advantages and barriers of implementing EMS. It was observed that the geo-political, economic and socio-cultural context of New Zealand all have an influence on the environmental attitude of hotel managers. For example, most New Zealand hotel managers indicated strong affinity with the green image of New Zealand and placed considerable emphasis on preserving and protecting that image.

It was also observed that New Zealand hotel managers showed that they are aware of all the possible benefits that are associated with implementing environmental management systems and are willing to make changes to accommodate the environmental programmes. It was further noted that the barriers to EMS implementation cited by the New Zealand managers were consistent with those identified in the literature, although different from previous studies, the New Zealand managers additionally cited barriers such as high cost of implementation, high cost of certification renewal and the process is too time consuming.

5.5. Limitations of the research

This study has several limitations. Firstly, the study utilised the Qualmark membership directory as a sampling frame. By virtue of their membership in Qualmark, there is a possibility that the hotel may have already adopted some form of environmental practices or acquired some sort of certification for their environmental efforts. As a result, the sample may not have included organisations that are not interested in environmental initiatives and this might restrict generalisation of the findings of this study to the New Zealand hotel industry as a whole.

Secondly, this study utilised a postal questionnaire as a research instrument to collect primary data. This may have limited the response rate and, although the response rate of 67% is quite good, some managers indicated that they would have preferred an on-line survey on the grounds that it would be quicker and more efficient.

Thirdly, this study targeted departmental managers, general managers and owners of hotels because they tend to make major decisions within a property. However, implementation of EMS is a decision generally taken by top management. The involvement of departmental managers complicated this research because of multiple respondents from the same organisation which provided confusing, misleading or contradictory responses. This created significant challenges for data analysis and raised questions about the validity of the information gathered.

Fourthly, it was further observed in this study that relatively large numbers of international chain hotels were part of this research and there was a limited participation of small independent hotels, which indicates that backpackers, bed and breakfast operators and motels were not represented in this research. This also affects the representativeness of the findings.

Fifthly, one caution from this research is that the present findings are indicative rather than conclusive. It is expected that other researchers will be able to survey larger samples of hotels across longer periods of time in the future to validate the conclusions regarding the benefits and barriers to EMS implementation in the hotel industry.

Lastly, this study is purely descriptive and did not include any kind of statistical testing such as correlation analysis among different variables due to time constraints and the nature of this research project. This limitation has made it difficult to explain the research results in a more quantitative manner.

5.6. Implications for future research

The survey performed among New Zealand hoteliers casts some light on the perception of environmental issues within the New Zealand hotel sector and on factors affecting the implementation of EMS. The hoteliers participated in this study recognised that their facilities influence the natural surroundings, although the magnitude of the impact is often underestimated. The findings of this study contribute to new knowledge about the

current state of environmental management awareness in the New Zealand hotel industry and should be viewed as a preliminary step to understanding the approach of New Zealand hotels towards environmental issues and factors affecting implementation of EMS. The questions raised by the findings as well as the limitations of the current study, coupled with the literature reviews as part of this research, should provide useful directions for further research on this important topic.

This study was mainly quantitative in nature and collected data by survey method. The results of this study are purely descriptive and do not include any kind of correlation analysis. It is further suggested that a similar study can be duplicated using a qualitative approach using case studies which may be able to generate in-depth findings.

The lesson learned in this study was that the sample frame for this study was not helpful as it did not cover a broader sample size and thus it is recommended that future researchers should use a sample frame that allows them to cover a wider population. It would be preferable to use a New Zealand accommodation directory rather than the Qualmark database.

This research is seen as a beginning of the exploration of New Zealand hotels' involvement in environmental management systems and as such has established a basic foundation about EMS and environmental management practices utilised by hotels in New Zealand. It is recommended that for future researchers there is a much wider scope to carry out research on environmental issues as there are many areas that could be explored such as:

1. Considering the large number of small hotels in New Zealand, a study that focuses on identifying understanding of the small hotels' relationship with environment and reconciles what small hotel firms do with respect to the growing pressure from stakeholders and customers to improve their environmental efforts would be very useful. The literature also indicated that only a few authors, (Tilley, 1999; Kasim, 2007; Tzschentke Kirk & Lynch, 2004; Horobin & Long, 1996), have touched briefly on this issue in their research in other countries.

2. This research has identified energy, water and waste management as environmental management practices widely adopted in New Zealand hotels. The popularity of these programmes is largely due to the cost savings that can accrue from them. However, gathering statistical data to quantify both resource and cost savings was beyond the scope of this project, but an important area to explore for future research.
3. An interesting finding of this research is that while implementing an EMS does involve an investment of time, money and resources, there are financial cost saving benefits from the implementation. It would be useful to gather quantitative data on both the costs and benefits associated with EMS implementation.

5.7 Summary

This chapter has covered some of the important findings of this research and has discussed in detail the key results in relation to the findings of previous research in the field of EMS. This chapter further concludes the research topic by describing the three major outcomes that were achieved from this study. In addition, it explains the limitations of this research study. In the end, the chapter further highlights the implications for future research in the field of environmental management. The research has tried to contribute a new knowledge to the literature which will be useful for future researchers who have similar interest in the field of environmental management.

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Q.10 Does your organization have an environmental management system (EMS) in place?

- Yes No (If your answer is 'NO', please proceed to Q.12)

Q.11 Does your hotel hold any of the following environmental management certification?

(Please tick a box that applies).

- ISO 14001 Green Globe 21
 Qualmark Green (Gold /Silver/Brown) Others (Please specify)

Q.12 Please indicate from the following eco-friendly practices that have already been implemented in your property? (Please tick all that applies).

- Energy saving bulbs Low flush toilets (in the guestrooms)
 Low flow shower heads (in the guestrooms) Reuse of bed sheets linen programme
 Recycling of glass/plastic bottles & cans Reuse of paper
 Minimization of food waste Towel reuse programme
 Other (Please specify)

Q.13 Indicate the extent to which you agree with the following statements about the accommodation sector and the natural environment by circling the appropriate number using the scale given below:

Statements	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
The accommodation sector in New Zealand has an important role to play in protecting the natural environment.	1	2	3	4	5
The accommodation sector in New Zealand has a positive impact on the natural environment.	1	2	3	4	5
The natural environment of New Zealand is very important to the profitable operations of this property.	1	2	3	4	5

Q.14 What encouraged your property to implement environmental management systems?

(Please answer this question only if your answer is 'YES' to Q.8 and Q.10). (Please tick all that applies).

- Pressure from stakeholders Need to keep up with competitors
 There is potential cost savings Governmental Regulations
 Importance of conserving natural resource Pressure / Demand from employees
 Pressure / Demand from Guests
 Other (please specify)

Q.15 Indicate the extent to which you agree with the following factors that would motivate a manager to implement an environmental management system (EMS). Circle the appropriate number using the scale given below:

Factors	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Improve financial performance	1	2	3	4	5
Cost saving opportunities	1	2	3	4	5
Government incentives (For example tax benefits)	1	2	3	4	5
Improved public image	1	2	3	4	5
Gain marketing opportunities	1	2	3	4	5
Competitiveness	1	2	3	4	5

Q.16 Indicate the extent to which you agree with the following factors that would act as a barrier to an organization's implementation of environmental management systems (EMS). Circle the appropriate number using the scale given below:

Factors	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Implementation cost is too high	1	2	3	4	5
Lack of knowledge (too difficult to understand or complicated)	1	2	3	4	5
Lack of technology (For example motion sensors, power saving fittings etc.)	1	2	3	4	5
No potential benefit	1	2	3	4	5
Lack of human resources	1	2	3	4	5
Making necessary infrastructure changes is too difficult	1	2	3	4	5
Renewal cost of certification is too high	1	2	3	4	5
The process involves too much paper work	1	2	3	4	5
The process is too time consuming	1	2	3	4	5
Others(Please specify)					

Q.17 How satisfied are you with your current environmental practices? (Please rate yourself).

Very Satisfied	Satisfied	Just started	Need more improvement	Not Satisfied at all
1	2	3	4	5

Q.18 Any other Comments? (Please share your thoughts and comment on anything relating to the topic that would be helpful for my research).

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Thank you for your participation.

Appendix -2- Consent Form



Consent Form

Project title: **The adoption and implementation of environmental management systems in New Zealand hotels: The manager's perspective**

Project Supervisors: **Dr Claire Liu and Warren Goodsir**

Researcher: **Burzis Ustad**

- I have read and understood the information provided about this research project in the Information Sheet dated 23rd August 2009.
- I have had an opportunity to ask questions and to have them answered.
- I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- If I withdraw, I understand that all relevant information including questionnaire, will be destroyed.
- I am 20 years of age or older.
- I agree to take part in this research.
- I wish to receive a copy of the report from the research (please tick one): Yes No

Note: The Participant should retain a copy of this form.

Participant Information Sheet



Date Information Sheet Produced:

23/07/2009

Project Title

The adoption and implementation of environmental management system in New Zealand hotels: The manager's perspective.

An Invitation

My name is Burzis Ustad and I am a Master of International Hospitality Management student at AUT University.

The operations and activities that are performed to satisfy hotel customer needs have an effect on the environment. Hotels have taken steps to correct their environmental impact by reducing their effect and contributing towards improving the quality of the environment. The hotel industry has been showing concern and commitment towards sustainable tourism by adopting various voluntary systems. The most common and the most effective voluntary system applied by the hotel sector is the environmental management system (EMS). Tourists have developed awareness on environmental issues, and have thus become more demanding in terms of the environmental issues of their holiday destinations. Thus, it is important to know whether hotel managers are ready and have the same attitude to provide new environmental services to the new category of customers who want environmental safety.

I invite you to participate in a study which explores the attitudes of New Zealand hotel managers towards adoption and implementation of environmental management systems.

Your participation in the study is voluntary and you may withdraw at any time prior to the completion of data collection.

What is the purpose of this research?

The main purpose of this study is to investigate New Zealand hotel managers' attitude towards the adoption and implementation of environmental management systems in the hotel industry. More specifically the current research aims to achieve the following four objectives.

1. To determine New Zealand hotel managers awareness of environmental management system (EMS).

2. To identify sustainable programmes that have been implemented in New Zealand hotels.
3. To explore the hotel managers' understanding of the benefits associated with the adoption and implementation of EMS.
4. To identify hotel managers' understanding of the possible barriers associated with the adoption and implementation of EMS.

How was I chosen for this invitation?

You are a hotel manager of a hotel that comes under Qualmark registered list, or a senior staff member.

What will happen in this research?

If you agree to participate this will involve completing a postal questionnaire asking you questions about your attitude towards adopting and implementing of environmental management systems. The questionnaires should take approximately 20 - 30 minutes to complete.

What are the discomforts and risks?

There are no expected discomforts or risk in this research.

What are the benefits?

This research may help the managers to deal with issues that they may confront in protecting the environment through the implementation of environmental management system. The purpose of this research is to explore the New Zealand context and to create some new knowledge. The information gathered will be used to complete a dissertation as part of my study towards a Master of International Hospitality Management at the Auckland University of Technology.

You have a chance to win an "Environmental Kit" which comprises of different environmental friendly products. There will be a lucky draw and from which two participants will be picked who will win the prize.

How will my privacy be protected?

Your privacy and confidentiality will be protected. Your survey will be given a code number to keep your identity hidden. The completed questionnaire then will be identified by the assigned code number. The records of your name and codes will be kept with the researcher in a secure file at AUT. All the research material will be stored in a secured location and only accessible to the researcher and the two supervisors for my dissertation.

What are the costs of participating in this research?

There are no costs except your time to complete.

How do I agree to participate in this research?

You were e-mailed or telephoned for permission before the questionnaire was posted out. Once your confirmation was received the final version of the questionnaire along with the cover letter and the return envelopes were posted to you.

Will I receive feedback on the results of this research?

If you would like to have a copy of my final report please let me know by email at bx5053@aut.ac.nz. The report will be e-mailed to you upon request.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr. Claire Liu, claire.liu@aut.ac.nz, (09)-921999 ext 6431.

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEK, Madeline Banda, madeline.banda@aut.ac.nz, 921 9999 ext 8044.

Whom do I contact for further information about this research?

Researcher Contact Details:

Burzis H Ustad

Student

School of Hospitality and Tourism

E-mail: - bx5053@aut.ac.nz

Project Supervisor Contact Details:

Dr. Claire Liu (Senior Lecturer), School of Hospitality and Tourism, AUT.

E- mail: - claire.liu@aut.ac.nz

Tell No: - (09)-921999 Ext (6431)

Approved by the Auckland University of Technology Ethics Committee on 21st August, 2009, AUTEK Reference number 09/182.

Appendix -4- Additional bar and pie charts

Figure 1: Distribution of years of operation for the 36 hotels

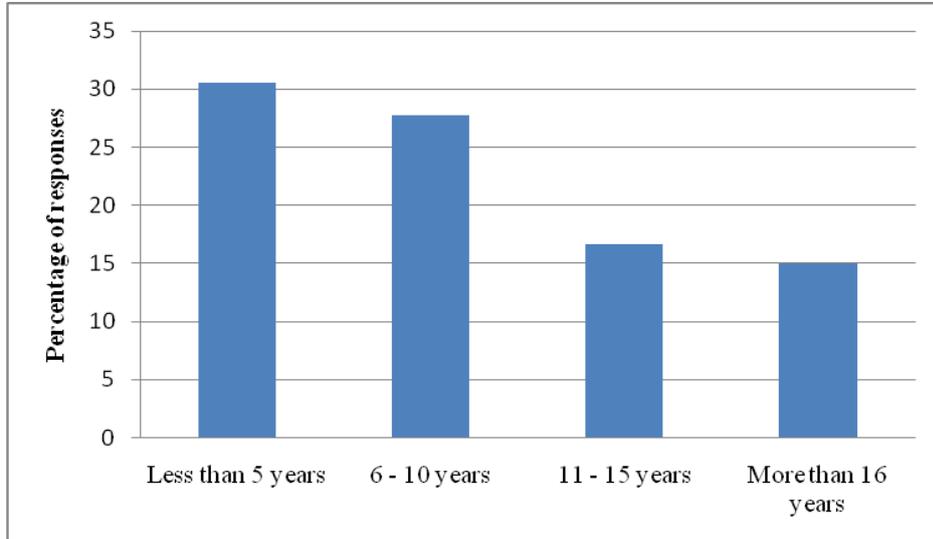


Figure 2: Distribution of hotel managers' position

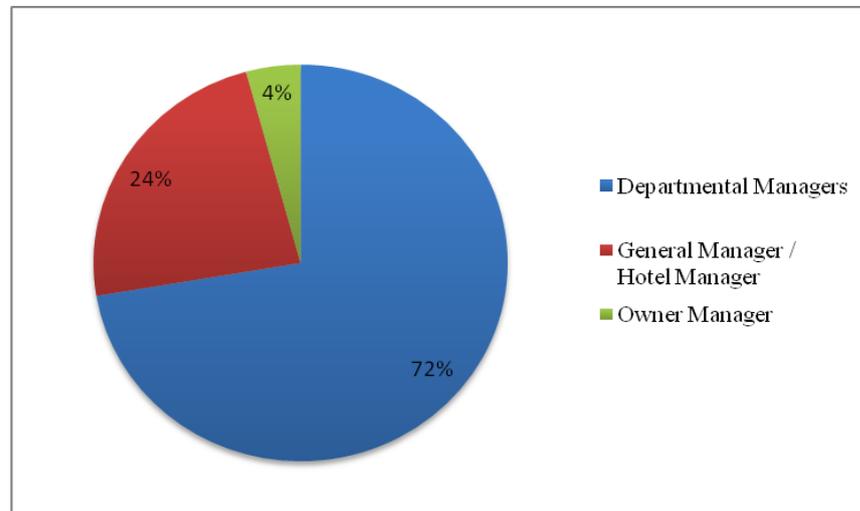


Figure 3: The distribution of property ownership

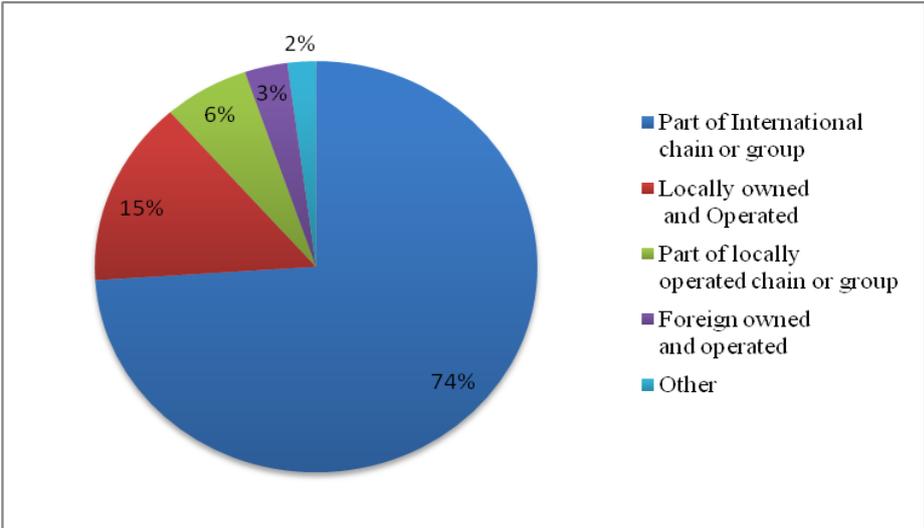


Figure 4: The distribution of different type of New Zealand hotels surveyed

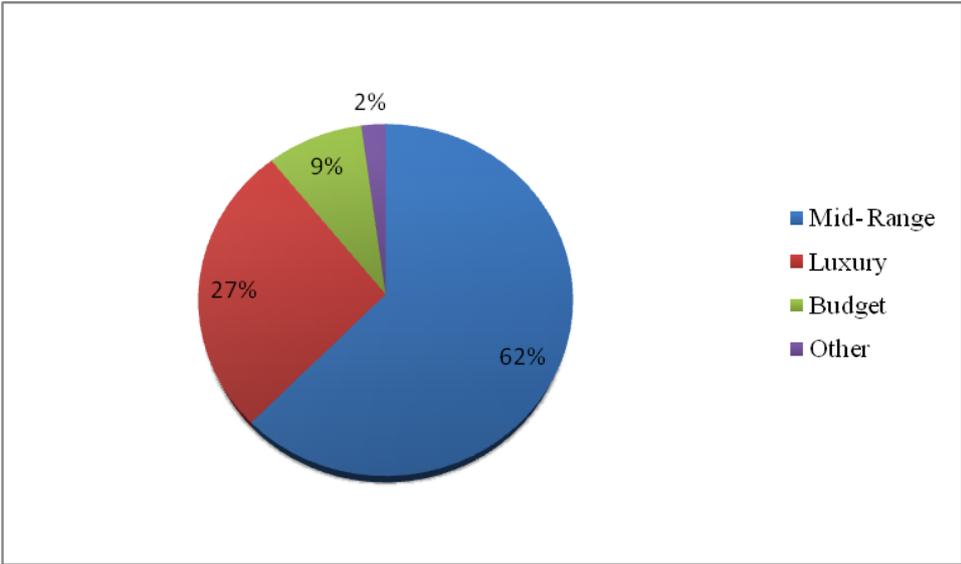


Figure 5: The distribution of awareness of environmental policy among New Zealand hotel managers surveyed

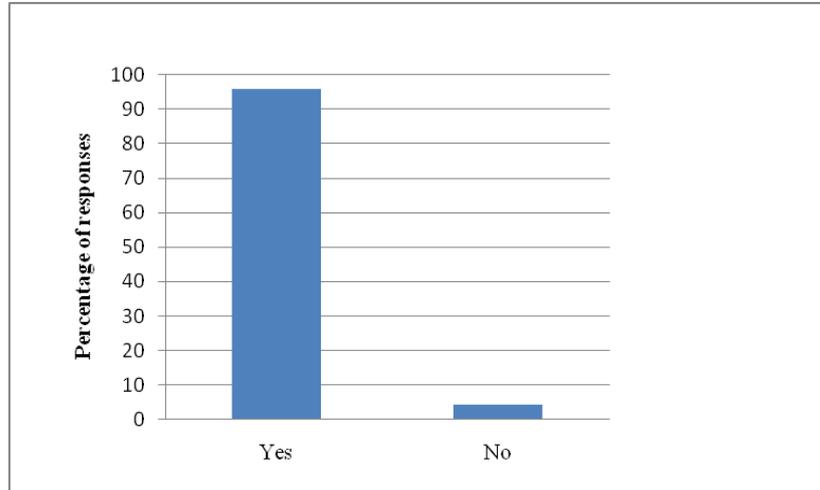


Figure 6: The distribution of environmental policy among New Zealand hotels surveyed

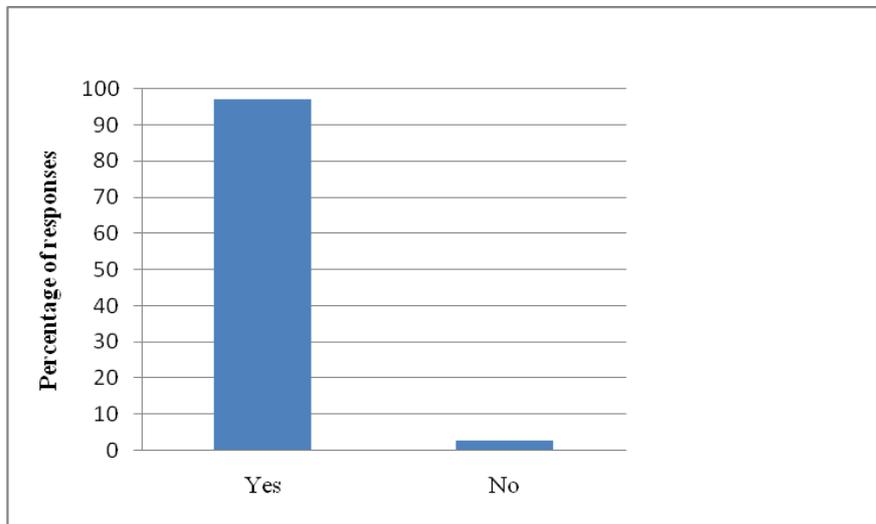


Figure 7: Pie chart showing the percentage distribution of activities involved in environmental policy

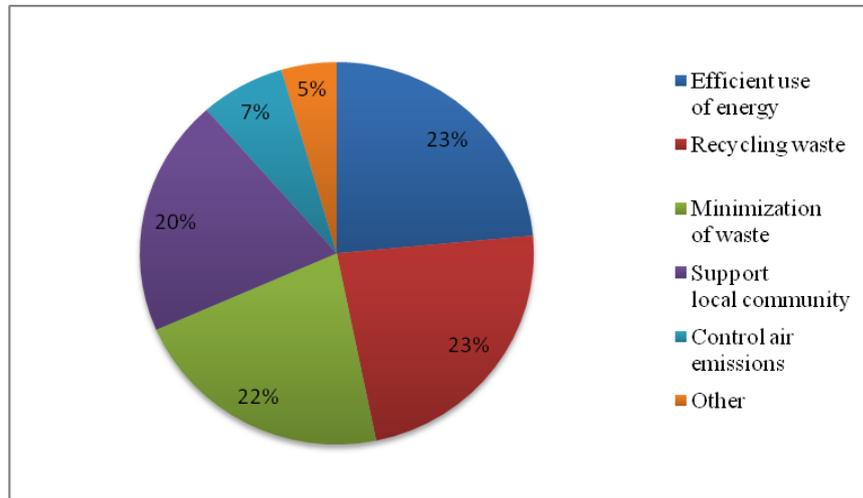


Figure 8: The percentage breakdown of familiarity of EMS among hotel managers in New Zealand surveyed

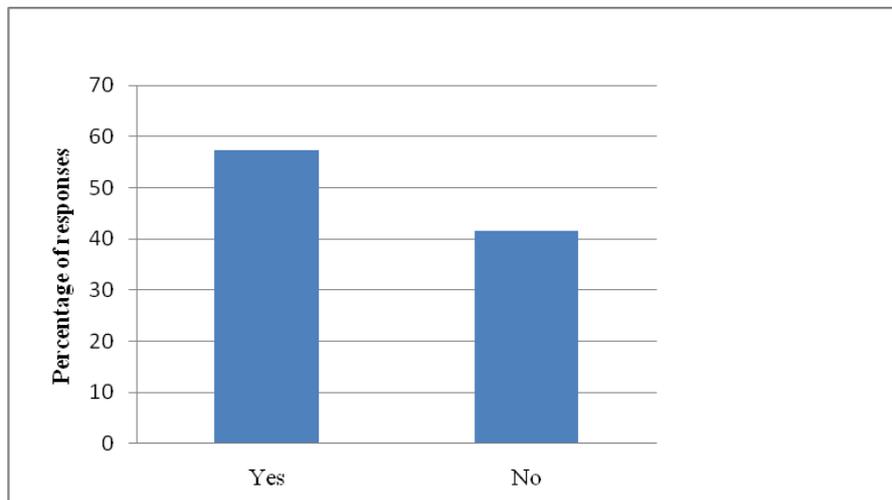


Figure 9: The percentage distribution of hotels that involved in EMS implementation

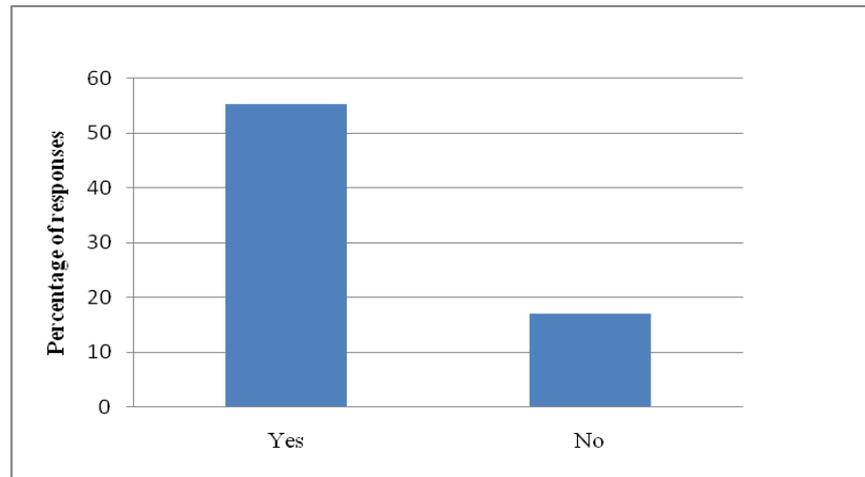


Figure 10: The three figures that highlight the attitude of New Zealand hotel managers towards environmental management systems

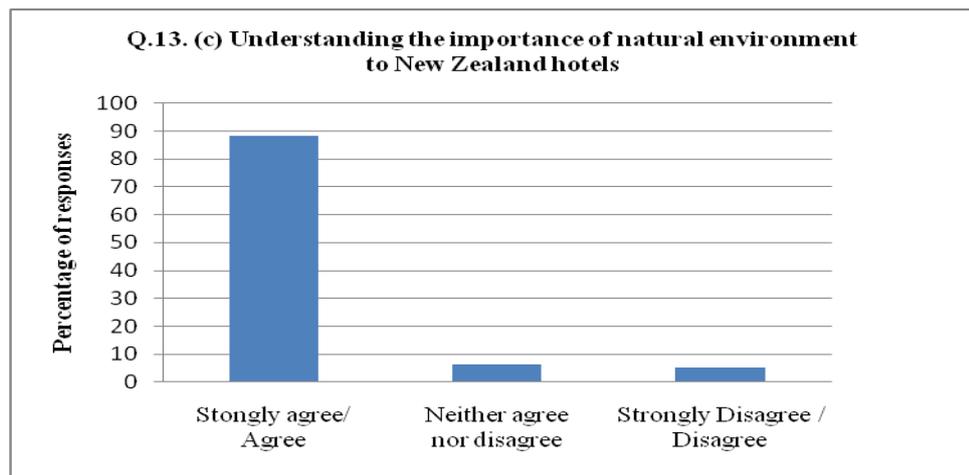
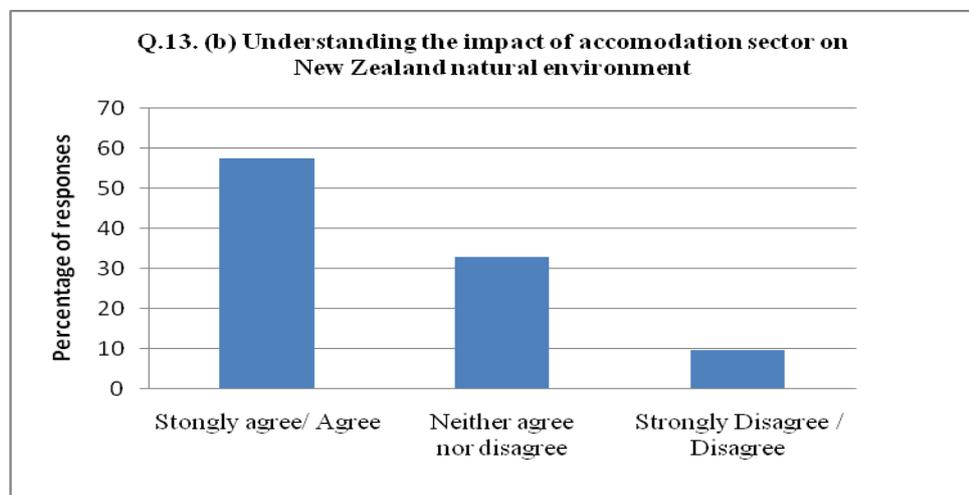
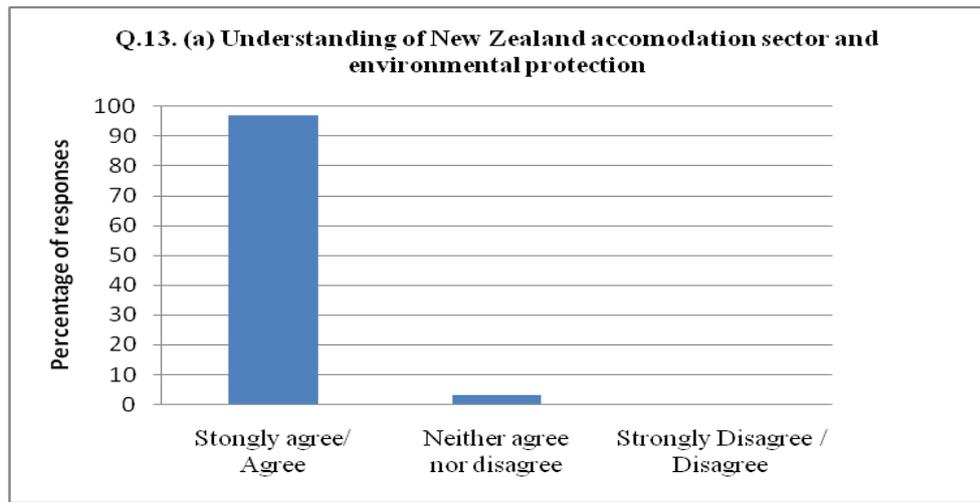
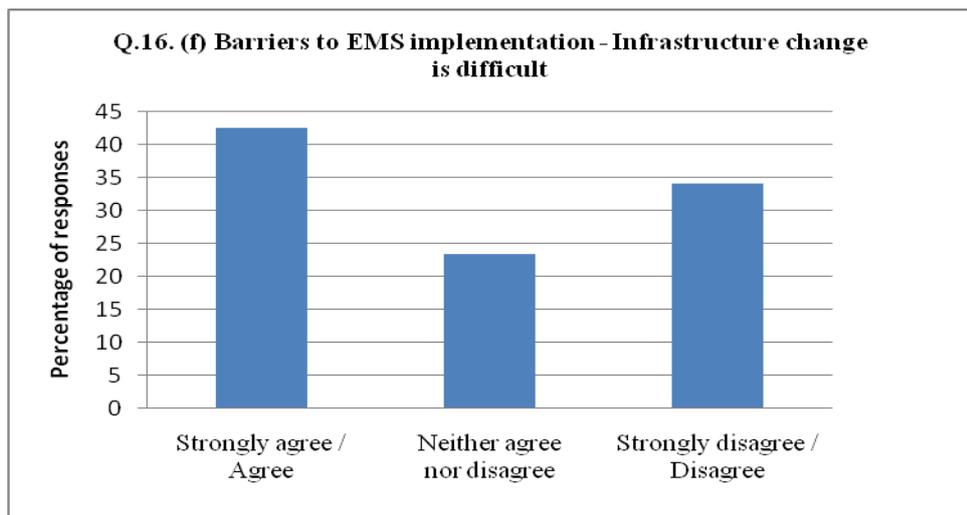
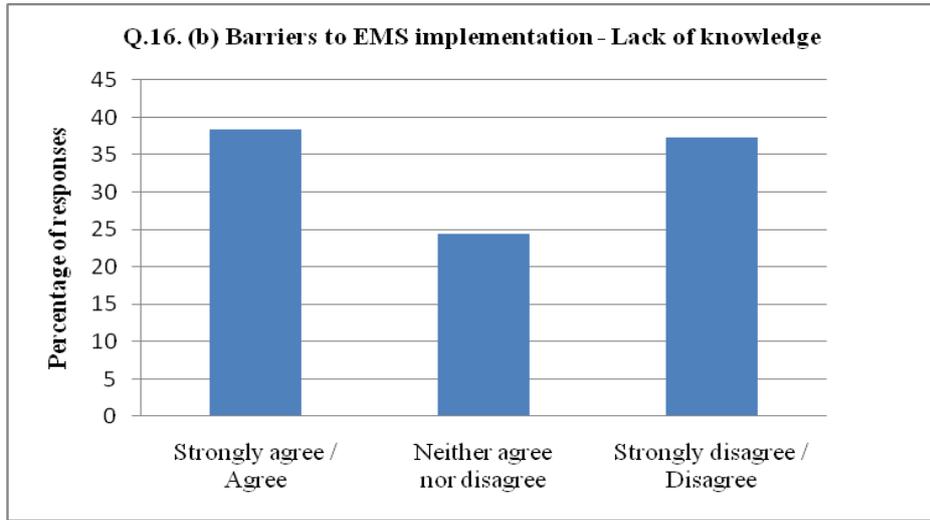


Figure 11: Bar graphs showing the percentage distribution of barriers to EMS implementation



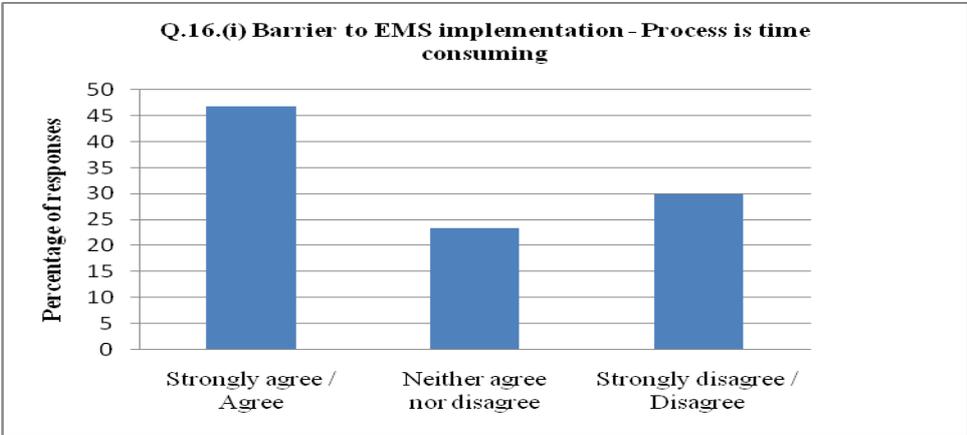
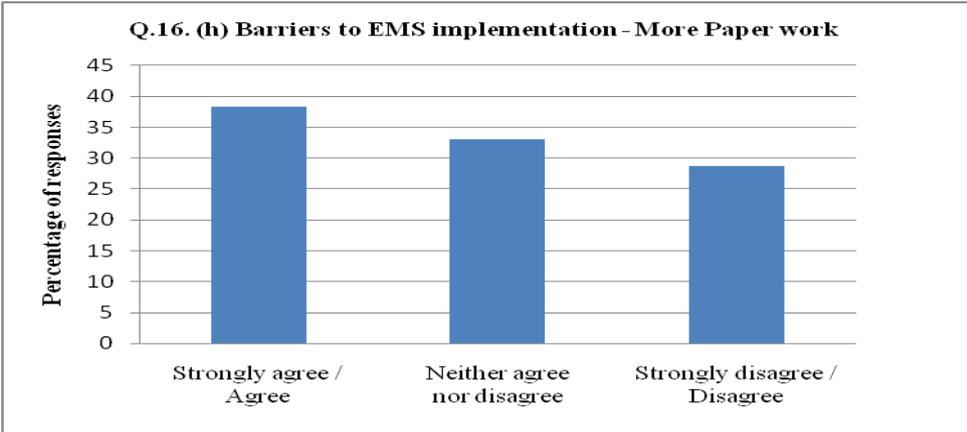
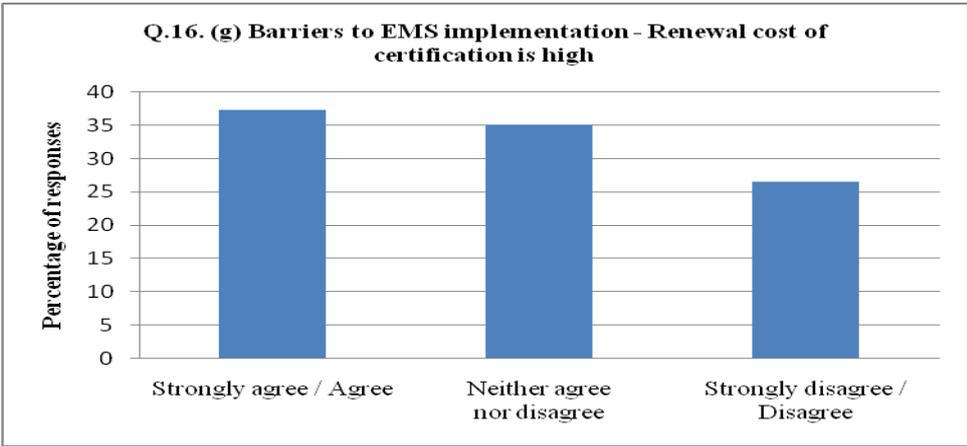
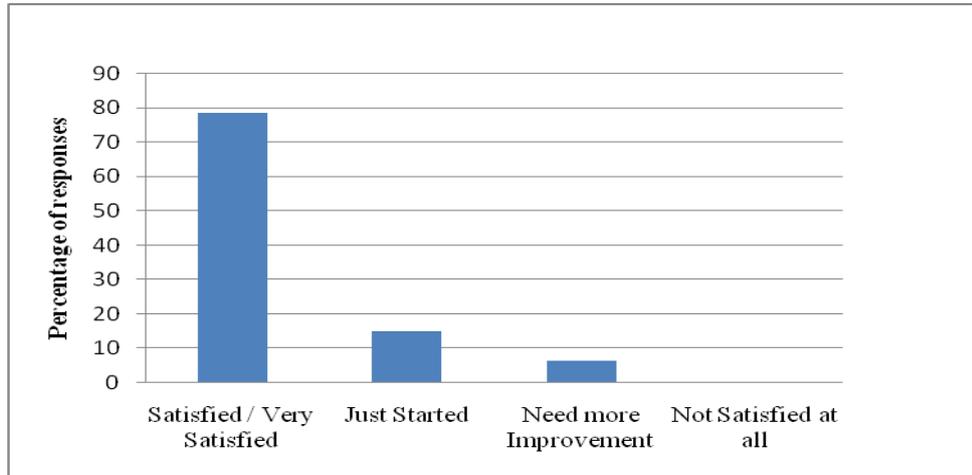


Figure 12: The percentage distribution of New Zealand hotel managers perception of their environmental practices



Appendix -5- Invitation letters to participants



Research Topic:

The adoption and implementation of environmental management systems in New Zealand hotels: The manager's perspective.

Objective:

This research aims to find out the awareness and knowledge about environmental management system (EMS) among hotel managers in New Zealand. It also explores the environmental practices that have been carried out by hotels which will help in analyzing the current situation of the New Zealand hotels operations. Factors that motivate the hotel managers' to adopt EMS and challenges for implementing EMS will also be looked into.

Activities involved:

Before the questionnaire survey, there will be an initial permission taken from the general manager of the hotel from which the names of the other key individuals (head of departments) will be identified. A questionnaire will be posted to the identified individuals. The participation of other individual along with general manager from your hotel will provide a rich set of information for my research. Your anonymity, privacy and confidentiality will be protected. The participants will be given a code number as their identity which will be kept hidden from other people not involved in the research.

Research Output:

The output will be a dissertation report along with a copy of recommendations for the ongoing implementation of EMS related projects. The final copy of my report will be e-mailed to you upon request. Let me know by e-mail at bx5053@aut.ac.nz.

Time Requirement from participation:

It will take approximately 20 – 30 minutes to complete the questionnaire.

Benefits for the hotel:

By participating in this research your organization will gain an insight into the current awareness of EMS among hotels managers in New Zealand and the challenges that hotels may have encountered.



Date: 8th August, 2009

Subject: Invitation letter

Dear Manager,

I am a Postgraduate student studying for my Masters degree at the School of Hospitality and Tourism at AUT University. As part of my studies requirement I am doing a research to explore what New Zealand hotel managers think about the adoption and implementation of environmental management system in hotel operations. My work is funded by AUT University. The objectives of my research are:

1. To determine New Zealand hotel managers awareness of environmental management system (EMS).
2. To identify sustainable programmes that have been implemented in New Zealand hotels.
3. To explore the hotel managers' understanding of the benefits associated with the adoption and implementation of EMS.
4. To identify hotel managers' understanding of the possible barriers associated with the adoption and implementation of EMS.

You are invited to participate in the research by answering the survey questionnaire which will be posted to you. Could you please let me know if you and your colleague (head of departments) are interested in participating in the survey.

I can be reached at the following address:

Phone: - 021-1243755

E-mail: - bx5053@aut.ac.nz

Thank you very much for your time and consideration. I look forward to hearing from you.

Sincerely,

Burzis Ustad

Researcher