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B.Sc., M.Ed.

This thesis is submitted in fulfilment of the requirements for the award of the degree of Doctor of Philosophy

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DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository, subject to the provisions of the Copyright Act 1968.

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Runnapa Lertpatcharapong
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ABSTRACT

Tourism is one of the most important businesses in many countries. It has often led to environmental problems, particularly in developing countries (Alexander, 2002; Kasim, 2007). Environmental impacts from the tourism industry have become a serious issue in developing countries such as Thailand. This is particularly evident in the Thai hotel industry, which consumes a huge amount of natural resources and is a major contributor to such environmental impacts.

Over the past two decades, the Thai hotel industry has begun to implement environmental management practices (EMP) in the form of ‘Green Leaf Certification’ (GLC) - an industry and government driven environmental certification program - as a way to address their environmental impacts. Despite the potential benefits from adopting environmental certification, environmental management practices and the GLC, they are still not popular in the Thai hotel industry, with only 203 out of 5,420 accommodation establishments (National Statistical Office, 2010) which are Green Leaf certified (Green Leaf Foundation, 2013b).

This study recognises that hotel managers in Thailand may play a central role in increasing the uptake of GLC. The purpose of this thesis was to examine the behavioural intentions of the hotel managers in Thailand to adopt the GLC. Specifically, this study considers how the perceived benefits of adopting the GLC, in conjunction with social pressures, the barriers to adoption and general environmental attitudes influence the managers’ behavioural intentions.

The Theory of Planned Behaviour (TPB) was used as the theoretical framework for this study. The data for this study was collected from a sample of hotels registered with the Tourism Authority of Thailand (TAT) through an online survey distributed to
359 hotel managers. The survey investigated hotel managers’ knowledge, attitudes and behavioural intentions (over one or five years) towards the GLC and their general environmental attitudes.

The findings of this thesis can be divided into two categories that relate to the periods of time in which the behavioural intentions were framed. Firstly, the factors that predict an increase in the hotel managers’ behavioural intention to adopt the GLC in the next year were their general environmental attitudes, selected subjective norms and economic barriers. Secondly, the predictors of intention to adopt the GLC in the next five years were external support barriers, knowledge of EMP barriers and the education level of the managers.

The findings of this thesis sheds some light onto strategies for increasing the number of certified hotels in developing countries. For example, most of the hotels in Thailand are small and medium sized, and the culture tends to be collectivistic. In the short term, the Thai government and associated organisations should pay attention to lowering the cost required to become certified, increasing the knowledge of the general environmental attitudes and of the people influencing them. While in the long term, the government and associated organisations should support hotels by creating seminars on knowledge about GLC and environmental problems into the formal education level such as diploma and Bachelor’s degree.

Moreover, this thesis focuses on the differences in the general environmental attitudes of hotel managers who knew about the GLC and those who did not. While both groups were more likely to be more eco-centric than anthropocentric, those who knew of the GLC tended to be less anthropocentric than those who did not know about it. These findings are discussed in the light of previous studies and the findings of the
thesis. The implications for the environmental policies and practices of the hotel industry in Thailand are considered, and the thesis concludes by presenting recommendations for future research.
CHAPTER ONE

Introduction

1.1 Introduction

The environmental impacts created and perpetuated by the tourism industry have become a serious issue in developing countries, such as Thailand. This is particularly evident in the accommodation industry, which consumes a huge amount of natural resources and is a major contributor to such impacts (Canadian Universities Consortium, 1998; Kaosaard, 1994; Sintunawa, 2010; The International Sustainable Development Foundation et al., 2002). Although the tourism industry and successive governments in developing countries such as Thailand have been slow to respond, the past two decades have seen a more concerted effort towards sustainable development in tourism. This is particularly evident in the accommodation sector, a part of the tourism industry in Thailand that has been associated with environmental degradation.

One particular initiative that has received public attention (Green Leaf Foundation, 2013c; Thai Hotels Association, 2013; Tourism Authority of Thailand, 2013), is the development of environmental management practices (EMP) that are formally recognised through ‘Green Leaf Certification’ (GLC) - an industry and government driven environmental certification program - as a way to address environmental impacts.

Despite claims about the potential benefits from adopting environmental certification (Ann, Zailani & Wahid, 2006; Batta, 2009; Ernst & Young, 2008; Font, 2006), environmental management practices and the GLC are still not popular in the Thai accommodation industry, with only 203 out of 5,420 accommodation establishments (National Statistical Office, 2010c) which are Green Leaf Certified
This study recognises that accommodation managers in Thailand may play a central role in increasing the uptake of the GLC. The purpose of this thesis is to examine the behavioural intentions of the accommodation managers in Thailand to adopt the GLC. Before detailing the research questions that are the focus of this study, the following discussion provides background to the development of the GLC, and describes the context in which it developed.

1.2 Tourism and Environmental Impacts in Thailand

Tourism has become a significant worldwide industry that has had a fundamental impact on the environment (Graci, 2006; Höfels, 1991; Mairesse, 2008; Noor & Kumar, 2014; Sunlu, 2003; Tambovceva, 2010). Tourism development has been linked to air, water and noise pollution, energy induced emissions, litter, and high energy consumption (Muhanna, 2006; Sunlu, 2003; Tantisirirak, 2007), especially in developing countries (Coyle, 2005; Gbedemah, 2004; Muhanna, 2006; Phayakvichien, 2005; Sasidharan, Sisakaya & Kerstetter, 2002) such as Thailand.

The tourism industry in Thailand has grown over the past four decades to become the largest and most important foreign exchange earner in the country (Arttachariya, 2012; Canadian Universities Consortium, 1998; Noypayak, 2001, February). In 2000, Thailand had 9,508,600 tourists (National Statistical Office, 2008), however by 2012 the number of tourists increased to 22,303,065 (National Statistical Office, 2013) with this growth trajectory likely to continue into the future (Ping, 2011a). However, the growth of tourism in developing countries, such as Thailand, has been identified as a major cause of environmental degradation (Canadian Universities Consortium, 1998; Utarasakul, 2012).
In Thailand, during the 1960s and 1970s environmental problems clearly began to appear (Yuthavong, 2007). For example, in popular tourist destinations such as Amphawa and Bangkok, located in the central Thailand, and Pattaya, located in eastern Thailand, waste and water pollution have created major environmental problems. This has been attributed to a lack of planning and management by government and the tourism industry itself (Phayakvichien, 2005; Sakornsathien, 1993; Ustrasakul, 2012).

A lack of adequate government treatment facilities, a lack of appropriate building codes, and businesses unaware of their environmental impacts have all caused adverse effects (Phayakvichien, 2005; Shamsub, 2010). For example, in the last 30 years Pattaya Beach has suffered from heavy discharges of untreated waste water. Consequently, tourists swimming in this dirty water have suffered from skin rashes (Tangwisutijit, 2004). Yao Noi Island, in Phang Nga province in southern Thailand, struggled to deal with a lack of garbage disposal sites (Shamsub, 2010). The number of condominiums near the coast of Hua Hin and Cha Am, located in Phetchaburi province, have increased dramatically and they are having a major impact on the environment because the government has no laws governing their construction (Phayakvichien, 2005).

Among various sectors of the tourism industry, the accommodation sector has been identified as a central contributor to the environmental impacts of tourism (Bohdanowicz & Martinac, 2003; Erdogan & Baris, 2007; Ernst & Young, 2008; Sloan, Legrand & Chen, 2003; World Travel and Tourism Organization & International Hotel and Restaurant Association, 1999). In the 1980s, the accommodation in Thailand was increased to support the increasing number of travellers (Office of the National Economic and Social Development Board, 2008a). The accommodation sector has been booming since 1988, and has added around 5,000 rooms in Bangkok alone since that
time (The United Nations, 1991). It can be clearly seen that the accommodation sector is one of the important service sectors to support the demands of tourism (The United Nations, 1991). The hotel industry is a principal consumer of energy and water in some tourist contexts. The hotel industry is also a principal producer of waste products, both solid and liquid (The International Sustainable Development Foundation et al., 2002). Because the accommodation industry offers 24 hour service to customers, it is challenging for accommodation businesses to conserve energy and other resources (Erdogan & Baris, 2007; Mensah, 2004; The International Sustainable Development Foundation et al., 2002; Ustad, 2010).

The accommodation sector of the tourism industry has contributed to five main areas of environmental damage: air pollution, noise pollution, water pollution, solid waste pollution and uncontrolled land use (Office of the National Economic and Social Development Board, 2008b). For example, accommodation facilities consume a lot of water but the value of the water used was dependent on the size of the accommodation. The laundry operations of a large hotel consume considerable amounts of water and energy, and as a result create environmental problems such as air pollution and water pollution because of the chemicals used (Canadian Universities Consortium, 1998).

By 2010, the hotel industry was responsible for much of the waste, air and water pollution in Bangkok, Thailand’s capital (Sintunawa, 2010). Data gathered from research studying tourists visiting Bangkok found the average tourist, staying in a first class hotel, produces nearly four kilograms of solid waste and litter each day, which stresses the city’s waste management collection capacity (Sintunawa, 2010).

Phuket province, located in southern Thailand, also experiences environmental problems due to the hotel industry (Phayakvichien, 2005). Phuket’s waste management
capacity has also not kept pace with demand. For example, the Rawai Cliff Hotel, a five star hotel with a 1000 plus tourist capacity, fills their five medium sized dumpsters to overflowing daily with approximately 600 kilograms of waste (Kaosaard, 1994). In one of the districts in Phuket province, waste management collection capacity is 25,000 kilograms per day, yet the district waste collection requirements are 30,000 kilograms per day (Shamsub, 2010). In addition, Patong and Krata Kraron are two island tourist destinations in Phuket province which need to keep pace with the rapid development of tourist demand by increasing the number of waste treatment and water facilities (Shamsub, 2010).

Included among the main causes of environmental deterioration in Thailand are the irresponsible behaviours of businesses and the lack of enforcement of the existing environmental laws and building codes (Shamsub, 2010). Some hotels install water treatment facilities, but turn them on only when officials from the environmental office visit the hotel. Some businesses avoid regular inspections through graft and/or by bribing corrupt officials (Shamsub, 2010).

1.3 Sustainable Tourism Development in Thailand

As the previous discussion illustrates, the services and operations that underpin Thai tourism have caused significant environmental problems. However, these impacts were not well recognised or understood by the tourism industry or by the Thai government for many decades. As the Canadian Universities Consortium (1998) and Phayakvichien (2005) reported, Thai tourism development caused unplanned and unexpected consequences. Those impacts have had an effect on the quality of human life, such as in the local community and for tourists (Canadian Universities Consortium, 1998; Muhanna, 2006). Neglecting environmental impacts, besides those affecting human
health, affects the number of tourists’ visiting various areas (Höfels, 1991; Tangwisutijit, 2004). For example, in Pattaya, the number of tourist arrivals decreased from 2,447,448 in 1990 to 2,124,202 in 1991 (Sakornsathien, 1993). Sintunawa (2010) and Sakornsathien (1993) argued that Pattaya lost tourists because tourism activities, including transport, hotels, restaurants and related activities, which consumed a huge amount of water, energy and other natural resources.

In addition, human rights issues have globally highlighted the need to address environmental conditions in which people live and work. Global trends toward improving the quality of life in developing countries began emerging in Thailand and had a direct impact on the tourism industry. Central to this was the global drive for a more sustainable tourism. This coincided with a gradual change in the market that saw consumers making decisions that were ‘green’ and ‘sustainability practices’ (Bergin-Seers & Mair, 2008; Lee, Hsu, Han & Kim, 2010). The rise of the ‘green consumer’ became prevalent in the tourism industry, and has led to a corresponding response from both the industry and government to develop and implement more sustainable development and practices (Muhanna, 2006; Stipanuk, 1996).

The concept of sustainable tourism was developed and applied from the principles of sustainable development, and has been recognised as an important concern throughout the world over the past two decades (Horobin & Long, 1996). In 1987, the Brundlandt Committee, in its “Report of the World Commission on Environmental Development”, introduced the first widely recognized definition of sustainable development: “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development (WCED), 1987, p. 43). In 1992, the World Travel and Tourism Council (WTTC), the Earth Council, and the United Nations
World Tourism Organization (UNWTO) created Agenda 21 for travel and tourism (World Travel & Tourism Council, 2010). Agenda 21 has three principal objectives for sustainable tourism development: the need for both the public and private sectors to cooperate and partner together; the desire to sustain quality of life while maintaining the future well-being of the people and the planet; and the need to establish systems which integrate both economic and environmental accountability (Howell, 2010; World Travel & Tourism Council, 2010).

Sustainable development is a subject of vital importance when considering tourism (Inskeep, 1999). Dunphy and Benveniste (2000) and Cater (1991) argue that sustainable tourism should be concerned with three main aspects: environmental, economic and social forms of sustainability. Firstly, the environmental aspect of sustainability is a key element in tourism development. This requires activities which avoid or minimise negative impacts on the environment and which contribute to the improvement of the environment through protection and conservation (Mowforth & Munt, 2009; Tantisirirak, 2007). Secondly, the economic aspect of sustainability is activity which continues to contribute to the economic well-being of the local community over the long term. Sustainable business benefits all its owners, employees and partners. Thirdly, the social-cultural aspect of sustainability refers to the ability of the community to maintain and conserve social structures and the living heritage and traditions of the people, as far as possible, over the long term (Batta, 2009; Mowforth & Munt, 2009). The sustainable development concept is widely discussed as a solution to the environmental impacts caused by the hotel industry (Ayuso, 2006; Butler, 2008; Canadian Universities Consortium, 1998; Choibamroong, 2005).

From a governmental perspective, the beginning of tourism development in Thailand can be traced back to 15 February 1950, when the National Economic and
Social Development Board (NESDB) plan was established. The NESDB was a government organization comprised of 15 members who reported directly to the Thai prime minister’s cabinet. The NESDB was responsible for developing plans to promote economic growth and social development within Thailand. In late 1960, the NESDB began developing long range economic plans (Office of the National Economic and Social Development Board, 2008b). According to the National Economic and Social Development (NESD), Plan 4 (1977-1981) was implemented to support the tourism industry with formal training to improve the quality of the workforce. Because the government was involved, there was strong support, and the main approach contributing to the success of Thai tourism was the cooperation between the public and private sectors.

However, it is interesting to note that this plan marked a transitional period with regard to how the Thai government viewed the tourism industry. For the first time, negative environmental impacts began to weigh in and had to be balanced against the economic prosperity created by the tourism industry. Therefore, it was during this period that the government first showed an interest in sustainable tourism and the need for environmental education programs for the tourism industry (Office of the National Economic and Social Development Board, 2008b). Through the 1980s, the awareness of the negative environmental impacts noted during NESD Plan 4 led to a more focused approach towards environmental conservation programs. The national government supported environmental impact studies on the effects of the tourism industry (Office of the National Economic and Social Development Board, 2008b).

Nevertheless, the Thai government became increasingly concerned about the environment, as well as the hotel industry, which showed an interest in being involved in environmental management (Ayuso, 2006; Noor & Kumar, 2014). Both organizations
recognised and acknowledged the problems. The Thai government, in conjunction with
the Thai hotel industry, introduced Green Leaf Certification (GLC) which is an
accreditation system designed to ensure that the hotel industry manages its
environmental impacts. The GLC is recognised as a step in the right direction for
improving the ‘green’ credentials of the Thai hotel industry. However, its adoption by
hotels in Thailand is relatively low. In 2010, according to the National Statistical Office,
Ministry of Information and Communication Technology, the number of registered
hotels in Thailand was 5,420 (National Statistical Office, 2010c). However, the number
of GLC certified hotels during the same period was only 186. As mentioned earlier,
more recent data in 2013 indicated that the number of GLC certified hotels had slightly
increased to 203 (Green Leaf Foundation, 2013c), which is still only a fraction of the
total number of hotels. It is clear that although the Green Leaf program has been in
existence for over ten years, only a very small number of hotels have obtained Green
Leaf certification. This thesis seeks to examine the reasons for this situation and to
analyse the central role played by hotel managers in adopting the GLC in Thailand.

1.4 Certification for Sustainable Tourism

In the late 1970s, the Thai government took the first step to reduce the environmental
degradation that accompanied the country’s growth trajectory (Office of the National
Economic and Social Development Board, 2008b). Since 1990, the tourism industry has
embraced environmental certification. Its necessity is increasingly realized, and
adoption responds to customer demands to protect the environment. Honey (2008b)
argues that the tourism industry is attempting to minimise its negative impact on the
environment, as evidenced by significant changes to protect the environment.
However, this change took several decades to mobilise, and resulted in the 1992 Environmental Quality Act requirements which applied to all industries in Thailand, including the hotel industry (Pollution Control Department, 2004). Under the Environmental Quality Act, the hotel sector is subject to some constraints on its activities. Under the act, the hotel industry is required to develop environmental management practices (EMPs) designed to minimise its environmental impacts. EMPs have been implemented by the hotel industry, such as in recycling of waste, waste management and energy saving (Chan, 2008; Mensah, 2004, 2006). Environmental management is an approach that helps businesses in making decisions and setting activities to reduce environmental problems (Perron, Côté & Duffy, 2006).

In 1996, the Agenda 21 for the travel and tourism industry led to the development of voluntary systems, such as environmental management systems (EMS) and environmental certification (Ernst & Young, 2008). The GLC is part of a global trajectory toward environmental management practices that emerged from Agenda 21, and adopting environmental certifications can bring benefits to hotel businesses. Many hotels that have engaged in environmental practices that are necessary for certification have reduced their resource consumption (energy, water, products and materials) (Ayuso, 2006; Chan & Ho, 2006; Ustad, Liu & Goodsir, 2010). In addition, the EMPs necessary for certification can reduce running costs and improve the profitability of hotel businesses (Ayuso, 2006; Bohdanowicz, Zanki-Alujević & Martinac, 2004; Chan & Wong, 2006; Kirk, 1998; Tooman, Sloan, Legrand & Fendt, 2009; Ustad et al., 2010), enabling hotels to engage in the green marketing necessary to attract the increasingly environmentally sensitive global tourist market (Benito & Bentio, 2005; Kirk, 1998; Petric & Pranic, 2009; Ustad et al., 2010).
In recent years, a number of sustainable tourism certification programs have been developed around the world. These programs can be used as an important environmental protection tool for the future of the tourism industry (Crabtree, O'Reilly & Worboys, 2002; Rome, 2005). There have been more than 100 sustainable tourism certification programs created around the world (Font & Buckley, 2001; Honey, 2002). Most certification programs are based on Agenda 21, which aims to promote sustainable tourism (Honey, 2002; Howell, 2010) and provide a set of environmental standards and practices through governmental regulation, international agreements, voluntary cooperation and action by environmentalists (Honey, 2008b). Honey (2008b) defined certification as “a voluntary procedure that assesses and monitors and gives written assurance that a business, product, process, service or management system conforms to specific requirements. It awards a marketable logo or seal to those that meet or exceed baseline standards, i.e., those that at a minimum comply with national and regional regulations, and typically fulfil other declared or negotiated standards prescribed by the programme” (Honey, 2008b, p. 235).

There are three environmental certification programs considered in this study. These are the certification programs recognized and applied in Thailand: Green Globe 21, ISO 14001, and Green Leaf Certification. All the programs have similar processes for certifying accommodation establishments. In order to be measured for quality, the accommodation must meet a minimum formulated standard in each area, and businesses can always improve their practices. The three certification programs are recognised internationally.

In Thailand, two accommodation establishments have received ISO 14001, which are the Royal Cliff hotels group in Pattaya and the Shangri-La in Bangkok. Before an ISO 14001 can be given, an organization has to agree to a rigorous
environmental policy. Following the Environmental Management System (EMS), the Royal Cliff hotel group had to clarify their environmental policies, increase the environmental awareness of their staff and develop new environmental programs (Pattaya Exhibition And Convention Hall, 2013). The Shangri-La in Bangkok has been active in sustainability areas, such as installing a solar water heating system for over 800 guests. This system could help to save costs estimated to be nearly 2.7 million baht (US $90,000) (Holden, 2000). Green Globe 21 certified Thai hotels include the Novotel Suvarnabhumi Airport Hotel, Bangkok (Bangkok International Airport, 2010), eight Anantara hotels and resorts (Anantara Hotel Resort & Spa, 2013), and three Centara hotels and resorts (Centara Hotels & Resorts, 2013). They have committed to improve their environmental and social sustainability by developing an international benchmark standard and educating their staff and customers to become more sustainable (Anantara Hotel Resort & Spa, 2013; Centara Hotels & Resorts, 2013). Interestingly, the Green Leaf Foundation (GLF) was established in 1998, and from that time has only 203 hotels registered with them. Details of the three certification programs for sustainable tourism follow.

1.4.1 Green Globe 21

Green Globe 21 (GG21) is an environmental management standard (Pranic & Petric, 2010) which is also one of the most broadly adopted international tourism programs (Buckley, 2002; Coyle, 2005). Green Globe is an industry association awarding agency which focuses on multiple areas, such as accommodation and shops, services such as tourism operators, and locations such as national parks and beaches (Batta, 2009; Green Globe, 2013). GG21 was established in 1994 under the auspices of the World Travel and Tourism Council (WTTC), and is well established in the tourism industry today (World Travel & Tourism Council, 2010). The main office is in Australia and it is in
association with the government-affiliated Sustainable Tourism Cooperative Research Centre (Green Globe, 2013). The certification criterion is based on Agenda 21 and ISO 14001. The Green Globe Standard is available to all Green Globe members and includes a complete set of indicators for sustainability criteria, certification policies and procedures, and auditor guidelines.

GG21 is a global standard specifically designed for a sustainable tourism industry in the products sector of accommodation, tours and attractions (Font, 2006). In 2003, GG21 was introduced to the Asia Pacific (China, Fiji and New Zealand) (Font & Harris, 2004). Only two countries in the Asia Pacific (China and Australia) run GG21 training courses. Other nations are less interested because of a lack of knowledge, lack of consumer demand, or have little need to know about environmental management development (Font, 2006). The environmental audits for sustainable tourism offer training and support from the United States Agency for Sustainable Tourism. The auditor in this program is a third-party independent auditor and is appointed to work with clients on-site. Clients can choose an auditor from the Green Global international network to provide assistance with completing the certification process. The aim is to ensure that all Green Globe members are performing to the highest standards (Green Globe, 2013).

There are four main goals for all Green Globe members, and these criteria are: sustainable management; social and economic; cultural heritage; and environment. Sustainable management refers to whether the business has implemented a sustainable management system that includes documented policies and procedures, as well as plans for implementation. Employees are one of the most important factors for a business that wants success in environmental management. Customer satisfaction is evidenced by their willingness to travel to a destination, and the number of return visits. Land use for
buildings and operations are required to respect local traditions and regulations. Information and education should be provided for visitors in order for them to understand the business’s objectives to be green and to ensure the well-being of all stakeholders.

Green Globe 21 offers marketing advantages for accommodation all over the world. Membership provides several benefits through the Green Globe website on the European Community Network for Environmental Travel and Tourism (ECoNETT). There are network connections with affiliated organizations and promotional campaigns in the annual Green Globe achievement awards, as well as the Environmental Awareness Day at the World Travel Market, London (Howell, 2010).

1.4.2 Environmental Management System (ISO 14001)

The International Organization for Standardization (ISO) is the world’s largest developer of voluntary international standards, and was founded in 1996 to develop international standards which ensure that products and services are safe, reliable and of good quality (International Organization for Standardization, 2011). The ISO 14001 scheme consists of an environmental policy, planning, implementation and operation, checking, corrective action and a management review (Ustad, 2010). The main features are continual improvement in environmental performance, focusing more on the control of a business’s environmental impacts, such as pollution prevention and resource conservation. The ISO 14001 follows the cycle of a PDCA (Plan-Do-Check-Act).

The Environmental Management System (EMS) is the preferred voluntary system adopted by hotels all around the world (Ustad et al., 2010). The ISO 14001 is one of the most recognized EMS in the world, and aims to help and improve organizations manage their activities to protect the environment (Ann et al., 2006;
Pranic & Petric, 2010). Additionally, it has attempted to create an international EMS standard that is verified by an external auditor (Darnall, 2001). To be certified with ISO 14001, organizations are audited by independent external auditors to assess how well their achievements meet ISO standards (International Organization for Standardization, 2011). However, Honey and Stewart (2002) argue that the ISO allows businesses to establish their own environmental policy, designed by its own management system. Businesses can be certified based on weakly defined policy because there is no requirement in ISO 14001.

The benefits of ISO 14001 certification include reducing costs, increasing market share, meeting customer and market expectations and achieving higher productivity (Ann et al., 2006), as well as improving the relationships among regulators, guests and the public (International Organization for Standardization, 2011). The benefits of ISO 14001 in cost savings include recycling, linen and towel reuse. These are examples of the best practices that can bring customers around to being partners in hotel environmental management (Meade & Monaco, 1999). Moreover, ISO 14001 is designed to be flexible enough to be applied to any size of business, in both the public and private sectors. ISO 14001 enables equal access to a growing green market place (Ann et al., 2006), therefore small and medium sized enterprises can also gain benefits (International Organization for Standardization, 2011).

1.4.3 Green Leaf Certification (GLC)

The Green Leaf Foundation (GLF) was founded in 1998 by the Board of Environmental Promotion of Tourism Activities (BEPTA) for the accommodation sector in Thailand. Its prime objective is to help hotels improve their efficiency in saving energy, water and other resources. It focuses on facilitating the efficient use of energy and natural resources under the theme “Save Money, Save Environment” (Green Leaf Foundation,
BEPTA is comprised of five public organizations: the Tourism Authority of Thailand; the United Nations Environment Program; the Demand Side Management Office of the Electricity Generating Authority of Thailand; the Association for the Development of Environmental Quality; and the Metropolitan Water Works Authority. The Thai Hotels Association represent the private sector (Green Leaf Foundation, 2013c). BEPTA is sponsored by a number of public and private entities, such as Mahidol University, the British Embassy, Thai Airways International and the Department of Environmental Quality Promotion (Green Leaf Foundation, 2013c). BEPTA focuses on maintaining environmental quality while simultaneously helping to promote and market the Thai tourism industry (Benno, 2004). A future aim is to set an Association of South East Asian Nations (ASEAN) standard (Font, 2006), and they also plan to expand into other sectors of the tourism industry, such as airports, national parks and restaurants (Green Leaf Foundation, 2013a). BEPTA also promotes environmental awareness and sustainable practices to the hotel industry by conducting seminars and increasing environmental awareness about the impact of the industry through programs like ‘Reduce, Reuse and Recycle’ (Batta, 2009; Sintunawa, 2010).

The Green Leaf Foundation is a Thai organization which works with hotels, hotel associations, suppliers, governments and non-governmental organizations to encourage sustainable tourism and socially responsible business practices, and to help hotels and businesses promote sustainable tourism in Thailand (Green Leaf Foundation, 2013c). For example, the Thai Hotel Association (THA) and the Electricity Generating Authority of Thailand have offered interest free finance to equip buildings with energy saving equipment. The Tourism Authority of Thailand (TAT) also helps in the design of new hotels to minimize adverse environmental impacts (Dowling, 1998). The GLF institutionalizes environmental best practices for all hotels. In addition, the GLF
promotes those who already contribute to protecting the environment through efficient management of energy, water and waste by publicizing certified hotels in a Green Leaf directory and on the Green Leaf website. The GLF provides seminars about environmental practices and has environmental checklists which have been developed for the hotel industry to help achieve sustainability (Green Leaf Foundation, 2013c).

There are three steps involved in the Green Leaf environmental certification process, as mentioned above. Specific details for the checklists are available from Green Leaf, but only after registering your hotel and obtaining a password allowing access to the checklists. The checklists are used to evaluate eleven main criteria: environmental policies; waste management; efficiency in energy and water conservation; procurement of ‘green products’; in-door air quality; air pollution; noise pollution; quality of water; storage and management of fuel, gas, and toxic and hazardous materials; ecological impact; cooperation with community and local government. Green Leaf certification uses the checklists to conduct an on-site audit of each hotel that applies for GLF certification. The auditing is done by a third party auditor and the auditing team is drawn from university faculties and other environmental professionals (Green Leaf Foundation, 2013c).

The Green Leaf environmental standard takes into account all aspects of sustainability: environmental, social and economic (Benno, 2004). Many of the criteria and standards of the Green Leaf certification program were designed to work in parallel with government health and safety regulations, environmental laws and other regulations (Sintunawa, 2010). Therefore, the GLF uses certification as a tool for motivating tourism businesses to improve their environmental practices and rewards them accordingly (Sintunawa, 2010). The GLF has prepared practical environmental assessment checklists for hotels which were audited by BEPTA’s team. The Green Leaf
program awards participating businesses with certificates ranging from one to five green leaf motifs, with five leaves denoting the highest standards of environmental achievement (Green Leaf Foundation, 2013d).

The specific incentives of the GLC are reduced operational costs and business management expenses, marketing advantages, listing the hotel’s name in the hotel directory and receiving a newsletter and magazine (Green Leaf Foundation, 2013c; Rome, 2005). For example, the Dusit Resort in Pattaya, which has received a Five Green Leaf Certificate, has saved about 100,000 baht (US $3,300) per month in electricity and water costs since making a serious effort to go green (Chinmaneevong, 2010). The details of each certification program are provided in Table 1.1 below.
Table 1.1 National and International Sustainable Tourism Certification Program and Criteria

<table>
<thead>
<tr>
<th></th>
<th>Green Globe</th>
<th>ISO 14001</th>
<th>Green Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td>Worldwide</td>
<td>Worldwide</td>
<td>Thailand</td>
</tr>
<tr>
<td><strong>Governing Organization</strong></td>
<td>World Travel &amp; Tourism Council (WTTC)</td>
<td>International Organization for Standardization (ISO)</td>
<td>The Board of Environmental Promotion of Tourism Activities (BEPTA)</td>
</tr>
<tr>
<td><strong>Award/Grading</strong></td>
<td>3 levels</td>
<td>Certification</td>
<td>1-5 Green leaves</td>
</tr>
<tr>
<td></td>
<td>Silver, Gold and Platinum</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Applicable For</strong></td>
<td>Hotels and tourism operations</td>
<td>All businesses</td>
<td>Only hotels</td>
</tr>
<tr>
<td><strong>Criteria</strong></td>
<td>4 main criteria</td>
<td>3 main criteria</td>
<td>11 main criteria:</td>
</tr>
<tr>
<td></td>
<td>-Sustainable</td>
<td>-Energy Conservation</td>
<td>-Environmental Policies</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>-Water Conservation</td>
<td>-Waste Management</td>
</tr>
<tr>
<td></td>
<td>-Socio Economic</td>
<td>-Solid Waste</td>
<td>-Efficiency in Energy and Water Conservation</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>Management</td>
<td>-Procurement of ‘Green Products’</td>
</tr>
<tr>
<td></td>
<td>-Preservation of</td>
<td></td>
<td>-In-door Air Quality</td>
</tr>
<tr>
<td></td>
<td>Cultural Heritage</td>
<td></td>
<td>-Air Pollution</td>
</tr>
<tr>
<td></td>
<td>-Environmental</td>
<td></td>
<td>-Noise Pollution</td>
</tr>
<tr>
<td></td>
<td>Conservation</td>
<td></td>
<td>-Quality of Water</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Third-party</td>
<td>Third-party</td>
<td>Third-party</td>
</tr>
</tbody>
</table>

Source: Chan and Wong (2006); Coyle (2005); Green Globe (2013); Green Leaf Foundation (2013a); International Organization for Standardization (2011); Morrow and Rondinelli (2002)
However, the emergence of environmental certification processes continue to present challenges for hotels (Ayuso, 2006; Benito & Bentio, 2005; Tambovceva, 2010). Despite the benefits from adopting environmental certification and the GLC, environmental management practices is still not popular in the hotel industry, particularly in developing countries such as Thailand (Cernat & Gourdon, 2011).

1.5 The Environmental Attitudes of Hotel Managers

Empirical studies have revealed that hotel managers are the most influential decision makers in adopting environmental management (Chan & Wong, 2006; Park, 2009; Prayag, Ramphul & Maryeven, 2010; Ustad, 2010; Wu, 2010). In previous studies, the environmental attitudes of managers have been identified as an important factor in Environmental Management Practices (EMPs) and environmental certification adoption (Al Muala, Nik Mat & Mohd Isa, 2010; Chen, 2008; Cordano & Frieze, 2000). Not surprisingly, the managers’ environmental attitudes have become a dominant focus in environmental behaviour literature.

The hotel managers’ decision to adopt EMP, and the related certifications, is influenced by the attitude towards the perceived benefits of EMP and certification, such as the economic, marketing and environmental benefits (Bohdanowicz et al., 2004; Kirk, 1998; Park, Kim & McCleary, 2014). In addition to attitudes towards the perceived benefits of GLC, the barriers to adoption are also crucial factors for the managers’ decision making processes. In addition, previous researchers have found government regulation and social pressures (from customers, friends and employees) are also seen as key elements in the hotel managers making decisions regarding the adoption of EMP (Chan & Wong, 2006; Rivera, 2002), and particularly environmental certification (Mori & Welch, 2008).
In addition to examining attitudes towards specific EMPs, such as the GLC, previous research has considered general environmental attitudes as predictors of environmental behaviour (Floyd, Jang & Noe, 1997; Lee & Moscardo, 2005; Luo & Deng, 2008; Luzar, Diagne, Gan & Henning, 1995; Tsai & Tsai, 2008). A central theoretical framework that is useful to examine the hotel managers’ behaviour is the Theory of Planned Behaviour (TPB). TPB was applied by Ajzen (1991) to understand behavioural intentions and/or behaviours based on three key element factors: attitude, subjective norm and perceived behaviour control. The TPB is also widely applied in the tourism industry (Al Muala et al., 2010; Anuwichanont, Mechinda, Serirat, Lertwannawit & Popaijit, 2011; Phetvaroon, 2006), as it is effective in predicting specific behaviour, such as EMP behaviour (Cordano & Frieze, 2000; Cordano, Marshall & Silverman, 2010; Dima, 2010; Zhou, 2010). Chapters 4 and 5 elaborate upon how TPB is operationalised in this thesis.

There is a necessity to understand general environmental attitudes, which are part of an applied TPB model, and behavioural intentions to adopt the GLC in Thailand, in order to understand why the number of Green Leaf certified hotels is so low. This thesis specifically considers the factors that influence the Thai hotel manager’s decisions to obtain Green Leaf certification. The GLC is a form of EMP, which has gained attention in research literature, however, the GLC itself has not.

1.6 The Research Aims and Research Questions of This Study

The aim of this thesis is to examine the behavioural intentions of the hotel managers in Thailand to adopt Green Leaf Certification (GLC). The adoption of the GLC has been recognised as an important mechanism for affecting positive change in relation to the environmental impacts of hotels. Specifically, this study considers how the perceived
benefits of adopting the GLC, in conjunction with social pressures, barriers to adoption and general environmental attitudes influence the managers’ behavioural intentions. Because of the limited acceptance of the GLC in Thai hotels, the second focus of this thesis is upon the general environmental attitudes of the hotel managers. A broader examination of general environmental attitudes was incorporated into a TPB framework to provide a broader understanding of the impacts of general environmental attitudes, and the relationship to the characteristics of the hotel managers. In addressing these research questions, this thesis proposes the following general research questions which inform a set of hypotheses detailed in Chapter 4:

**Research Question 1:** Is there any difference between those accommodation managers who know about the GLC and those that do not?

**Research Question 2:** What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next year?

**Research Question 3:** What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next 5 years?

**1.7 Structure of the Thesis**

The thesis is comprised of eight chapters. This chapter begins by considering the overall environmental impacts of the tourism industry, and then narrows down to focus on the environmental impacts of the hotel industry in developing countries. Because of increasing environmental impacts, the Thai public and private sectors have begun to respond by creating the GLC. However, there are a small number of certified hotels, so this research will explore the factors that shape and influence them. The research objectives, research questions, and significance of this thesis are also described in this chapter.
Chapter 2 reviews the literature about the factors influencing the hotel managers’ attitudes to adopting EMP and environmental certification. It is written in the context of growing interest in the impacts of tourism activities, especially the environmental impacts of the hotel industry in developing countries. The response to the environmental impacts and environmental certification (perceived benefits and barriers) in the literature are also discussed in Chapter 2. Besides the general environmental attitudes that have been investigated in relevant studies, there is also a discussion of the factors that influence the accommodation managers’ behavioural intentions and their final decision to adopt environmental management practices and certification.

Chapter 3, the conceptual framework, provides a review of the literature related to studies of managers’ behavioural intentions to adopt environmental management practices and certification. It focuses on the factors that are included in the theoretical model of the Theory of Planned Behaviour (TPB): attitudes of perceived benefits, subjective norms and perceived behavioural controls. It also refers to a discussion of general environmental attitudes and control variables, such as gender, education level, hotel size, hotel star rating and location, which can all influence managers to adopt the environmental certification.

Chapter 4, the research methodology, discusses the research design, the research questions and the hypotheses of this study that were created from the conceptual framework (TPB). It also presents the population and sampling frame of this study. These reviews include the data analysis techniques employed in this study.

Chapter 5 presents the development of the research variables and instrumentation, and provides a description of how each of the factor constructs and
control variables are measured. It also presents the results of the pilot study. Reliability and validity issues are considered as well.

Chapter 6 presents the consequences of the main study and describes the results generated by using the SPSS program. In order to address the research questions and hypotheses, further interrogation was undertaken by calculating means, standard deviations, correlations, and using Exploratory Factor Analysis (EFA) and multiple regression. A profile of the respondents and a demographic of the hotels are also presented.

Chapter 7 discusses and analyses the results by linking the findings to the theoretical framework. Chapter 8, which is the last chapter, discusses the study’s findings and contains recommendations for further research in this field. The last chapter raises issues that need to be considered when it comes to adopting the GLC in order to protect the environment, and strategies for enlarging the number of hotels adopting the GLC.
CHAPTER TWO

Literature Review

2.1 Introduction

This chapter reviews the literature on the environmental impacts of the tourism industry in developing countries. It begins by reviewing the industry and scholarly literature that considers the environmental impacts of tourism development in developing countries in general, and then focuses more specifically on the hotel industry. Following a review of the literature on environmental impacts, this chapter then critically reviews the research on the importance of the environmental impacts. The tourism industry and the Thai government have recognised that the growing trend in sustainable tourism management requires the development and implementation of a system of certification that provides a credentialing framework for sustainable tourism. The final part of this chapter discusses the research on the managers’ perspectives to adopting environmental certification, and what influences them to decide to adopt environmental certification in their businesses.

2.2 History of the Environmental Impact of Tourism

Several academic books have addressed the perceived impacts which have occurred from the development and expansion of a global tourism industry (Archer, Cooper & Ruhanen, 2012; Gee, 1997; Hall, 1998). The impacts of tourism can be grouped into three main categories: economic, socio-cultural and environmental (Gee, 1997; Hall, 1998). Among these, the economic impacts of tourism played a significant role until the 1960s. For example, in America, Swanson (1969) examined the value of the National Park System to the national economy. The findings revealed that there were huge benefits to the national economy from tourists going to national parks, as follows: travel
expenditures (US $6.35 billion), gross national product (US $5.71 billion) and in federal
taxes (US $952 million).

There is no doubt tourism has resulted in positive economic outcomes for a
number of countries, including increased profitability for the tourism industries, tax
revenues for governments, and job creation and financial gain for the local community
(Hui, Wan & Ho, 2007; United Nations Economic and Social Commission for Asia and
the Pacific, 1999; World Travel & Tourism Council, 2004, 2006). While these
economic effects have been well documented, the other impacts of tourism have
become more central in the research literature in recent decades (Long & Kayat, 2011;
Mairesse, 2008; Mowforth & Munt, 2009).

Tourism is an industry which is reliant on natural resources and the
environment. There are not only benefits, but also adverse impacts, which occur as a
result of tourism (Gee, 1997; Hall, 1998; Tantisirirak, 2007). Socio-cultural and
environmental impacts were almost completely disregarded in the four decades before
the 1960s (Mairesse, 2008). Since the 1960s and 1970s, there has been a growing
recognition of the social and environmental effects in relation to the tourism industry,
such as increasing noise pollution and litter, overcrowding and traffic congestion
(Pizam, 1978; Rothman, 1978). Since the 1980s, researchers have also examined more
critically the relationship between the activities of the tourism industry and the
environment, particularly as it has manifested in developing countries (El Rincon del
Vago, 1998; Floyd et al., 1997; Hunter & Green, 1995; Lindsey & Holmes, 2002; Liu &
Var, 1986; Long & Kayat, 2011; Yuthavong, 2007).
2.3 Environmental Impacts of the Hotel Industry in Developing Countries

The promotion of tourism in developing countries is primarily generated by the abundance of natural resources, the beauty of the landscapes, and the desire to build places of interest in sensitive ecosystems. The results of tourism development affect the environment in many ways, such as the degradation of ecosystems in natural parks and forests, water extraction, waste disposal and soil erosion (Sasidharan et al., 2002; Sunlu, 2003).

In terms of the environmental impacts, numerous developing countries have become concerned about the environmental problems that are created by tourism activities, such as in Vietnam (Lindsey & Holmes, 2002; Long & Kayat, 2011), India (Mayur, 1979) and Ghana (Gbedemah, 2004). Thailand is one of the developing countries which has numerous popular tourist destinations. Several scholars have examined the relationship between the growing tourism industry in Thailand and environmental problems (Kaosaard, 1994; Ping, 2011b; Sakornsathien, 1993; Shamsub, 2010; Sintunawa, 2010; Tangwisutijit, 2004).

The hotel industry is one of the major sectors of the tourism industry and many researchers have investigated the association between environmental impacts and the hotel industry (Bohdanowicz, 2003; Kasim, 2009; Noor & Kumar, 2014; Prayag et al., 2010). They have found that hotel activities have consumed a lot of natural resources (water and energy), and as a result there has been an increase in environmental problems, such as air and water pollution and climate change. This section’s discussion is based on the environmental impacts of the hotel industry in developing countries and is followed by a discussion of the environmental impacts of the hotel industry in Thailand.
Previous studies have revealed that, from the hoteliers’ perspective, hotel generated environmental impacts in developed countries, such as Poland, Croatia and Sweden, had only a moderate effect on the environment. Hoteliers in Poland revealed that the aim of hotel businesses was achieving economic benefits, while the environmental benefits achieved were an extra advantage (Bohdanowicz et al., 2004). Nevertheless, empirical works on the recognition of the environmental impacts created by the hotel industry in developing countries are still relatively rare, with only studies in Malaysia (KamalulAriffin, Abdul Khalid & Abdul Wahid, 2013; Kasim, 2009) and China (Fryxell & Lo, 2003; Min, 2011). Min (2011) and Fryxell and Lo (2003) stated that the hotel industry is primarily interested in the economic area (costs and profits) rather than environmental impacts, which was regarded as the second most significant issue in the hotel industry in China.

The hotel industry, in its everyday operations, consumes large amounts of resources, creating an imbalance in the environment (Manaktola & Jauhari, 2007). The hotel industry causes negative impacts to the environment, with its greenhouse emissions, poor energy efficiency, inefficient management of fresh water resources and ineffective waste water and solid waste management (Bohdanowicz & Martinac, 2003; Ernst & Young, 2008; Sloan et al., 2003; Tambovceva, 2010; World Travel and Tourism Organization & International Hotel and Restaurant Association, 1999). Tourism activities are also associated with environmental impacts, as tourists have to visit the place of production in order to consume the natural environment, and this leads to increases in environmental problems (French, Craig-Smith & Collier, 1995). The hotel sector affects the natural environment because it consumes natural resources, produces large amounts of wastewater and solid waste, pollutes local water systems and causes erosion and soil degradation (Scanlon, 2007).
The hotel industry has been the most critical sector of the tourism industry because it produces negative environmental impacts. For example, the rise in tourism numbers in Costa Rica led to the number of hotels increasing in response. With the growth of tourism, the environment is suffering from the negative impacts of this development (Rivera, 2001). Additionally, in Malaysia, Kasim (2007) found that the major environmental problems generated by hotel activities were wastewater from the release of untreated waste and a high consumption of non-renewable resources. The hotel industry in Vietnam also generated a wastewater problem and created a solid waste problem, especially in large hotels (Haley & Haley, 1997). Further studies in Vietnam, conducted by Le, Hollenhorst, Mclaughlin and Shook (2006), found that tourism development in Vietnam created unpredicted environmental impacts. They argue that several negative environmental impacts from tourism activities have been created because of oversights and ineffective government funding. This indicated that the hotel industry has generated, but never resolved, its environmental impacts.

2.4 Responses to the Environmental Impacts of Tourism

In developing countries, both tourism and the hotel industry specifically, have significantly impacted on the environment. Due to the tourism industry and its environmental impacts, environmental sustainability has become a global issue (Stipanuk, 1996). Cater (1991) argued that the definition of sustainable tourism depends on situations and the environmental impact at that time. The terms ‘ecotourism’ and ‘green tourism’ are commonly used in discussions of sustainable tourism (Mowforth & Munt, 1998).

The concept of environmental sustainability has become a global issue and is an intense topic of discussion in the accommodation sector, especially in the past decade.
(Doody, 2010). Because of the well-publicized encouragement of customers, ‘greenwashing’ is often the first strategy used by the hotel industry to claim to be green (Ross & William Deck, 2011). Greenwashing refers to an organization or product which uses an environmentally friendly image, or claim to be green, but which follows none of the principles and practices of environmental sustainability (Honey, 2008a). For example, one or two green practices have been adopted, while most of the business’s practices or products are not protecting the environment. Some hotels adopt the environmental practice of leaving a card and/or asking customers to continue using their towels and sheets rather than having them laundered daily, but none of their other actions appear to be green. This means that the hotels are actually only considering their economy (cost saving). In terms of public relations, greenwashing is not good for customers who are interested in protecting the environment, as they will be upset and disappointed by poor practices (Pennisi, 2010).

In the twenty-first century, industrial developments have produced negative impacts on the physical environment in and around their areas (Muhanna, 2006), such that air and water pollution and global warming are now global environmental problems (Banerjee, 2001). Environmental issues need to be tackled and people are becoming increasingly aware and demanding immediate solutions (Banerjee, 2001). Environmental management is “the processes and practices introduced by an organization for reducing, eliminating and ideally, preventing negative environmental impacts arising from its undertaking” (Cooper, 1996, p. 112). Environmental management is a systematic approach to figure out practical ways for saving water, energy, and materials, and it also tries to reduce negative impacts on the environment (Tambovceva, 2010).
Environmental management during the 1990s included the Agenda 21 program, which considered all forms of tourism strategy (setting up policy and building partnerships between the public, private and voluntary sectors) (Reeves, 2002), and emphasized the need for tourism businesses to comply with environmental regulations and policies in order to mitigate global environmental problems (Kirk, 1998). These programmes further led to the development of voluntary systems, such as environmental management systems (EMS) and eco-labelling (Kirk, 1998; Tzschentke, Kirk & Lynch, 2004). The objective of an EMS is to set up systematic controls to manage adverse environmental impacts and to ensure that targets to protect the environment are met (Massoud, Fayad, Kamleh & EL-Fadel, 2010).

With the popularity of the idea of promoting conservation, it is also recognised that environmental management practices (EMPs), which are about the use of energy efficient bulbs and the reuse of towels and the four R’s (reduce, reuse, recycle and recover), are important (Samdin, Bakori & Hassan, 2012). Some hotels have begun to adopt environmental management practices (EMP) for minimizing negative environmental impacts (El Dief & Font, 2010; Samdin et al., 2012). Various researchers have examined the use of green practices or EMP, including the three main areas of water conservation, waste management and energy management in the tourism industry, especially in the hotel industry. The findings are clear that using these approaches as drivers can help to minimize environmental problems in the hotel industry (Cater, 1991; Ernst & Young, 2008; Tooman et al., 2009).

Environmental management has become an imperative and a critical issue for business, including the hotel sector (Kim & Yoon, 2010; Mensah, 2004, 2007; Tambovceva, 2010). The concept and practices of environmental management are not only concerned with protecting the environment but also all of the systems and
processes, with a recognition of the open nature of hotel systems and the large amount of human interfaces that hotel systems have (Ustad, 2010). Environmental management systems (EMS) are described as “the organizational structure, responsibilities, practices, procedures, processes, and resources for determining and implementing environmental policy. An environmental management system includes tools such as environmental impact assessment, environmental auditing, and strategic environmental assessment” (Synergy, 2000, p. viii). Middleton and Hawkins (1998) describe EMS as a recommended business operations routine to conduct environmental management processes every day. There are several activities that have been implemented by the hotel industry, such as the recycling of waste, waste management and energy saving (Chan, 2008; Mensah, 2004, 2006), as well as education and training programs for employees and customers (Erdogan & Baris, 2007; Tari, Claver-Cortes, Pereira-Moliner & Molina Azorin, 2009). Thus, EMS is an approach designed to achieve environmental care in all aspects of operations (Meade & Monaco, 1999).

Empirical evidence indicates that the hotel industry around the world prefers using the EMS as a voluntary approach in their hotels, principally because it is a tool that helps the hotel businesses to achieve their targets to protect the environment (Park, 2009; Ustad et al., 2010). Ayuso (2006) recorded the experiences of hotel managers in Spain, and states that the hotel industry there considers EMS certification the most successful practice. Environmental certification is a voluntary procedure which is operated by audits through setting, assessing and monitoring before certification is issued, guaranteeing that a product, process, service or management system is produced or operated under specific requirements and norms (Pennisi, 2010; Totem Tourism, 2013). ISO 14001 and Green Globe 21 are the environmental certifications which have been most widely recognized and accepted in the tourism and hotel industry around the
world (Ustad, 2010). They progress environmental performance and compliance with environmental regulations, leading to their rapid increase among different hotel sectors and a spread across countries and regions. The Green Leaf Certification system is another national certification for the hotel industry in Thailand.

2.5 Influencing Environmental Behaviours

The sophistication of the certification systems throughout the world and which are now emerging in developing countries, such as Thailand, are important. However, these certifications are only of value if they are adopted by those individuals in decision making positions in the accommodation industry. A significant focus of the research literature on environmental certification considers the factors that influence certification adoption behaviours. This research can be broadly categorised into three key areas: the benefits of certification, the barriers to certification and the social influences that shape the decision to seek and adopt certification.

2.5.1 Benefits of Adopting Environmental Management

Several scholars have identified the reasons why hotel managers decide to adopt environmental certification. It has been observed that there are many reasons to adopt EMS due to the different contexts, such as government regulation, environmental concern and the characteristics of the business (Chan & Wong, 2006; Kirk, 1998; Luo & Deng, 2008; Petric & Pranic, 2009; Rivera, 2002). Much research emphasises the perceived benefits as one of the main factors that drives managers to adopt the EMS (Chan & Wong, 2006; Chan & Ho, 2006; Sloan, Legrand & Chen, 2004; Ustad, 2010). The benefits can be categorised into four main groups: economic, environmental, marketing, and customers and local community benefits (see Table 2.1).
Adopting EMP or EMS has been proved to be an efficient and effective way to reduce operational expenses and increase profitability, as evidenced in studies of the accommodation sector in New Zealand (Ustad et al., 2010), Egypt (El Dief & Font, 2010), Spain (Benito & Bentio, 2005), and Sweden, Poland and Croatia (in the European Union) (Bohdanowicz, 2006). There is a strong relationship between economic interests and the adoption of environmental practices (Chan & Ho, 2006). This has been confirmed by El Dief and Font (2010), Ustad et al. (2010) and Benito and Bentio (2005), who reported that hotel managers agree that adopting EMP or EMS was driven by the manager’s personal values and organizational practices, particularly in terms of financial returns, such as cutting operating costs and minimizing resource consumption. Some researchers further specify that the implementation of EMS can increase profitability (Benito & Bentio, 2005; Bohdanowicz, 2006; Chan & Wong, 2006; Stabler & Goodall, 1997). Therefore, it can be reported that businesses are more likely to take on EMS certification if they consider that benefits, such as reduced costs and/or higher revenues and profits, can be gained (Yiridoe, Clark, Marett, Gordon & Duinker, 2003). However, Segarra-Oña, Peiró-Signes, Verma and Miret-Pastor (2012) found that environmental certification is not making a big difference in selling more hotel rooms. Additionally, they found size and location is making big difference in increasing hotel sales value rather than adopting the environmental certification (ISO). This is because big hotels have more employees than small hotels, so big hotels have more rooms available to sell, and therefore they might be able to gain more economic benefits than small hotels. The size and location of the hotel are discussed more detail in section
The perceived benefits of adopting EMS are not only direct economic benefits but also indirect economic benefits, such as marketing and environmental benefits (Kirk, 1998; Mensah, 2006).

Considering the effects of hotels on the environment, it is important that hotels control their operations to minimise the negative impacts. The other mentioned benefit was that of the environmental benefits as a result of the adoption of these schemes. It can be convincingly argued that the environmental benefits are also the main drivers influencing hoteliers and managers to adopt EMP or EMS. For example, an analysis of hotel managers’ views found environmental sustainability and improving the natural environment to be the most important reasons for them to move toward adopting EMP in their hotels (Mensah, 2006; Ustad et al., 2010). These results also agreed with the study by Howell (2010), who reported that for many hoteliers in Croatia, their decision to adopt eco-label certification could bring direct benefits to the environment, such as reducing water use by up to 30 percent, and provided significant savings in energy, solid waste haulage, chemical and maintenance costs. As a result, in less than two years hoteliers have their investment paid off. An analysis of the hoteliers’ perspectives in Germany on the implementation of EMS certification found that environmental benefits, such as improving the natural environment, to be more important than improving profitability (Sloan et al., 2003). Moreover, Chan and Wong (2006) noted that reducing waste and conserving material and energy are the principal environmental benefits from adopting EMS certification.

Adopting EMP or EMS can provide marketing benefits, such as increased market share (Tooman et al., 2009; Ustad et al., 2010); improvement of a hotel’s image (Ann et al., 2006; Chan & Wong, 2006; Kirk, 1995; Mensah, 2006; Rivera, 2002; Ustad et al., 2010); accessing new markets (Petrie & Pranic, 2009); and marketing advantages
(Benito & Bentio, 2005; Kirk, 1998; Petric & Pranic, 2009; Ustad et al., 2010). For example, studies by Bohdanowicz et al. (2004) and Petric and Pranic (2009) found that Croatian hotel managers were more likely to lean toward adopting EMP if they perceived that the related practices assisted them to gain marketing advantages, such as improving the hotel’s image. These results were also found in a New Zealand study conducted by Ustad et al. (2010).

The adoption of EMS certification and green products has become a more powerful force in the marketplace. Adopting ISO certification can enhance a company’s competitive position by presenting a better face for the business (Chan & Wong, 2006). Stabler and Goodall (1997) found that hotel managers in the UK also reported competitive advantages in areas of increasing market share as being the motivation for tourism businesses adopting the EMP. These findings were also the same in the Thai context (Chaisawat & Campos, n.d.), as well as in the German and Estonian context (Tooman et al., 2009). Therefore, marketing benefits are significant factors associated with the best environmental practices, eco-labels and environmental management systems (EMS) (Ayuso, 2006).

Increasing customer satisfaction is another important factor that influences the environmental management of hotel organizations. For example, Kirk (1998) examined the hotel managers’ perspectives on environmental management in Edinburgh. The results show that increasing customer satisfaction is an important factor that influences the environmental management of their organizations. Additionally, adopting EMS improves public relations and fosters better relationships with the local community. Similarly, Petric and Pranic (2009) also found that managers of hotels in the 4-5 star range in Croatia considered that adoption of EMS was more likely to improve community and public relations. In Costa Rica, the hotels under the country’s
certification program reported that it had not only benefits in marketing and for the environment, but it also improved local community relations (Howell, 2010). Furthermore, Zhou (2010) examined the factors in implementing the sustainable waste management programs of members of the National Association of College and University Food Service (NACUFS). Zhou’s (2010) study found that NACUFS members believed such actions worked to strengthen relationships with the local community. Ustad et al. (2010) also reported that New Zealand hotels who adopted the EMS benefited the local community.
Table 2.1 Perceived Benefits of Adopting Environmental Management

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<thead>
<tr>
<th>Perceived Benefits</th>
<th>Issues</th>
<th>References</th>
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<tbody>
<tr>
<td>Economic</td>
<td>Reduced operational costs</td>
<td>Benito &amp; Bentio (2005); Tan (2005); Ustad et al. (2010); Bohdanowicz (2006)</td>
</tr>
<tr>
<td></td>
<td>Cost savings</td>
<td>Ayuso (2006); Bohdanowicz et al. (2004); Chan &amp; Wong (2006); Kirk (1995, 1998); Petric &amp; Pranic (2009); Tooman et al. (2009); Ustad et al. (2010); Howell (2010); Mensah (2007)</td>
</tr>
<tr>
<td>Environment</td>
<td>Protect the environment</td>
<td>Zhou (2010); Ann et al. (2006); Petric &amp; Pranic (2009)</td>
</tr>
<tr>
<td></td>
<td>Improving environmental health &amp; safety</td>
<td>Mensah (2006); Ustad (2010); Mensah (2007)</td>
</tr>
<tr>
<td></td>
<td>Decreased environmental impact</td>
<td>Howell (2010); Bohdanowicz et al. (2004)</td>
</tr>
<tr>
<td>Marketing</td>
<td>Improved the hotel’s image</td>
<td>Chan &amp; Wong (2006); Ustad et al. (2010); Rivera (2002); Kirk (1995); Mensah (2006); Ann et al. (2006); Ayuso (2006); Tan (2005)</td>
</tr>
<tr>
<td></td>
<td>Help with PR</td>
<td>Petric &amp; Pranic (2009)</td>
</tr>
<tr>
<td></td>
<td>Give a marketing advantage over Competitors</td>
<td>Benito &amp; Bentio (2005); Kirk (1998); Petric &amp; Pranic (2009); Ustad et al. (2010); Chaisawat &amp; Campos (n.d.)</td>
</tr>
<tr>
<td></td>
<td>Increased market share</td>
<td>Tooman et al. (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td>Customers</td>
<td>Increase customer satisfaction</td>
<td>Bohdanowicz &amp; Martinac (2003); Bohdanowicz et al. (2004); Kirk (1995, 1998); Petric &amp; Pranic (2009); Tan (2005)</td>
</tr>
<tr>
<td>Local Community</td>
<td>Improve relationships with the local community</td>
<td>Kirk (1998); Petric &amp; Pranic (2009)</td>
</tr>
<tr>
<td></td>
<td>Improve public relations and better Relationships</td>
<td>Kirk (1998)</td>
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</table>

As discussed above, it can be convincingly argued that the perceived benefits of adopting EMP or EMS were the drivers that motivate hotel managers to make a decision to adopt them. However, the hotel industry has been slow to adopt EMP, EMS and environmental certification (Ustad et al., 2010), particularly the hotels in developing countries. For example, only 10.6% of hotels in China and 6% in New Zealand have
adopted these schemes (Ustad et al., 2010). It could be that there are obstacles preventing managers from adopting environmental certification. Therefore, the next section discusses the barriers to adopting EMP or EMS, as identified by several researchers.

2.5.2 Barriers to Adopting Environmental Management

Previous scholars have noted that there are many barriers to hotel businesses adopting EMP or EMS. The barriers can be categorised into economic, process and knowledge barriers (Beeton, Bergin-Seers & Lee, 2007; Chan & Wong, 2006; Tooman et al., 2009; Ustad et al., 2010) (see Table 2.2).

It has also been found that cost barriers occur when adopting EMP or EMS, including the cost of implementation and maintenance costs, which present significant economic barriers to the hotel industry (Chan & Wong, 2006; Ustad et al., 2010). Chan (2008) found costs associated with implementation requirements, such as key card systems, water restrictors, heat exchangers and maintenance, present significant barriers for hoteliers in Hong Kong to implementing the EMS or ISO 14001. These findings were supported by Ustad et al. (2010), who reported that 70% of managers in New Zealand strongly agree that the high implementation costs act as an important factor if their businesses adopt the EMS. Many hotels spent significant amounts of money on the implementation of facilities and requirements. If the hotel does not have the facilities, it is very difficult to achieve the EMS. The same results have been shown in many countries, such as Australia (Beeton et al., 2007), Hong Kong (Chan, 2008), Germany and Estonia (Tooman et al., 2009), Sri Lanka (Coyle, 2005) and the Netherlands (Dinica, 2006).
High implementation costs, the cost of fees and the cost of technology, also appeared to be barriers when deciding to obtain environmental certification. Coyle (2005) found that the hoteliers in Sri Lanka perceived the high cost of fees to obtain Green Globe certification (around US $2,000) to be a significant barrier. For New Zealand hoteliers, it was the high cost of renewing the certification (Ustad et al., 2010), so it is not just the establishment fees, but also the ongoing costs. Moreover, another study conducted by Bohdanowicz and Martinac (2003) argued that the cost barrier is the highest obstacle to European hotels becoming green. Hoteliers strongly believe that if they have to make modifications for green technology it will require high levels of investment (prohibitively expensive), while the profitability will only come in the long term (Bohdanowicz & Martinac, 2003). This was also confirmed from the study that was conducted in Germany and Estonia by Tooman et al. (2009).

Previous research has revealed that the EMS adoption process to be a significant barrier that has made hotel managers have less interest in adopting certification. Ustad et al. (2010) claimed that the process to adopt EMS certification required a lot of paperwork (increased administration), and that the document processing was time-consuming. As stated earlier by Chan and Ho (2006), for the process to be effective, a business needed to continue to keep records supporting adoption of certification (another manifestation of increased administration). Irish hotel managers reported adopting the EMP within their businesses but that their staff had to spend time to keep records of the process (Doody, 2010). This obstacle was also found in other countries, such as Germany and Estonia (Tooman et al., 2009) and New Zealand (Ustad et al., 2010).

In terms of human resources, Ayuso (2006) found that Spanish hotels had a low level of implementing/adopting the EMP because of the difficulty hoteliers had in
understanding and applying the EMP guidelines, citing a lack of technical knowledge about environmental management as a barrier. A lack of the knowledge and training that is required in order to comply with the standards and procedures led to additional barriers to implementation in the Irish hotel industry (Doody, 2010), as well as in Malaysia (Kasim, 2009). In Hong Kong, Chan (2008) claimed that inadequate professional advice was the second main barrier, followed by cost barriers. These hotel managers considered the ISO standards to have requirements and guidelines that require professional expertise and advice in order to implement the system. Wu, Auld and Lloyd (2008) found perceived behavioural controls (lack of knowledge, technology and human resources) influenced the managers’ approaches to corporate social responsibility (CSR) at industry meetings, incentive tourism events, conventions and exhibitions (MICE).

A significant obstacle to hotel managers adopting EMS certification is a lack of knowledge about EMP. For example, Bohdanowicz and Martinac (2003), who studied hotel managers’ attitudes toward EMP in European hotels, found that managers need more education and an increased environmental awareness in the hotel industry, as well as within the general public. Similar results were shown in Kuala Lumpur, where Kasim (2009) found hotel managers in small and medium sized hotels lacked knowledge and understanding, which prevented sustainable environmental development in their hotels. Interestingly, Erdogan and Baris (2007) reported that the majority of hotel managers in Turkey were less concerned with environmental issues, and only approximately 15% of hotels in Turkey provided environmental training for their employees. This finding showed that the lack of knowledge about EMP makes it difficult for staff to effectively implement practices, with similar findings also being found in Sri Lanka (Coyle, 2005).
Table 2.2 Barriers to Adopting Environmental Management

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Issues</th>
<th>References</th>
</tr>
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<tbody>
<tr>
<td>Economic</td>
<td>Implementation cost is too high</td>
<td>Bohdanowicz &amp; Martinac (2003); Chan (2008); Ustad et al. (2010); Dinica (2006); Ustad (2010)</td>
</tr>
<tr>
<td></td>
<td>Certification cost, membership and application fees are too high</td>
<td>Ustad et al. (2010); Coyle (2005); Ustad (2010)</td>
</tr>
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<td></td>
<td>Cost of technology</td>
<td>Bohdanowicz &amp; Martinac (2003); Chan (2008); Tooman et al. (2009);</td>
</tr>
<tr>
<td>Process</td>
<td>Too complicated</td>
<td>Tooman et al. (2009); Ustad (2010)</td>
</tr>
<tr>
<td></td>
<td>The process is too time consuming</td>
<td>Ustad (2010)</td>
</tr>
<tr>
<td></td>
<td>Inadequate professional assistance</td>
<td>Chan (2008)</td>
</tr>
<tr>
<td></td>
<td>High employee turnover rate</td>
<td>Coyle (2005); Tooman et al. (2009)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Lack of knowledge about environmentally sustainable practices</td>
<td>Chan (2008); Ustad et al. (2010) Ustad (2010); Doody (2010)</td>
</tr>
<tr>
<td></td>
<td>The hotel staff's lack of knowledge about environmentally sustainable practices</td>
<td>Ustad et al. (2010) Chaisawat &amp; Campos (n.d.)</td>
</tr>
<tr>
<td></td>
<td>Lack of continuous environmental protection training</td>
<td>Chan &amp; Hawkins (2010)</td>
</tr>
<tr>
<td></td>
<td>Lack of in-depth training</td>
<td>Chan &amp; Hawkins (2010); Chaisawat &amp; Campos (n.d.)</td>
</tr>
<tr>
<td></td>
<td>Lack of government support</td>
<td>Beeton et al. (2007); Chaisawat &amp; Campos (n.d.)</td>
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</table>

Although the perceived benefits and barriers to adopting EMP or EMS, as discussed above, were driven by the hotel managers’ intentions to adopt the environmental certification, much literature reported that social pressures also influence the manager’s decision to adopt EMP or EMS, which are discussed in the following section.

2.5.3 Social Pressures

A number of studies have shown evidence that government regulations are one of the main factors that influence the adoption of EMS in the hotel industry worldwide (Kasim, 2007; Kasim, 2009; Mensah, 2004; Rivera-Camino, 2001; Rivera, 2002; Ustad et al., 2010). Governments have encouraged hotels to adopt EMS certification by offering grants to assist in the process. In the Costa Rican context, Rivera (2002) found
hotels that adopted the Costa Rican Certification for Sustainable Tourism (CST) showed that government monitoring has the most influence on hotel managers’ decision to certify. The government has instruments, such as self-regulatory programs, information provision, subsidies, and pollution taxes, as well as compulsory instruments like mandatory regulations, which can be used to achieve environmental policy goals. As a result, an increase in the number of hotel participants in CST was based on government monitoring, trade association membership and green consumers, the number of which increased. It was shown that CST complements the regulatory environment, the policy network context (government and private sectors) and marketing competitiveness. Therefore, the lack of general environmental regulations affects the number of certifications (Rivera, 2002).

There were similar results in other contexts, such as the study by Darnall (2001), who investigated the drivers and/or motivators that influenced American hotels to adopt certification. Darnall found that around 50% of companies decided to adopt ISO certification because of government regulation. Chan and Wong (2006) investigated the factors that predicted the motivation of hotels to adopt ISO certification in Hong Kong. They found government regulation to be a significant driver and that hoteliers held the position that if the government required it, they would be more likely to adopt certification. However, while government regulation may be a main influencer in some contexts, this is not the case in all contexts. Studies conducted in New Zealand revealed that hotels did not consider government regulations as one of the important motivations for implementing EMS because the majority of hotel managers were more concerned about protecting the environment than being given an incentive by the government to adopt EMS (Ustad et al., 2010).
Meeting EMS criteria has the potential to improve employees’ working environments, increase employee motivation and provide incentives for employees to become more environmentally aware (Alvarez Gil, Burgos Jimenez & Cespedes Lorente, 2001; Bohdanowicz, 2006; To & Tang, 2014). Alvarez Gil et al. (2001) argue that adopting the EMP consumed time and depended on the employees’ abilities, such as their knowledge, experiences and skills with respect to improving hotel quality and services. Ayuso (2006) argues that employees with environmental knowledge and training are more interested in voluntary ‘greening’ activities than employees with no environmental knowledge and training. Additionally, raised job satisfaction and a feeling of responsibility to society were the outcome in regards to management adopting the EMS (Chan & Hawkins, 2010). As stated earlier, Poksinska, Dahlgaard and Eklund (2003) investigated the motives and benefits of implementing ISO 14001, and found that employee morale moderately improved. In contrast, around 13% of New Zealand hotel managers believed that pressure and demand from employees was less likely to motivate them to implement EMS in their hotels (Ustad et al., 2010).

Several studies have found that firms that adopted the EMP were motivated by customer concerns about protecting the environment (Ayuso, 2006; Chan & Wong, 2006; Delmas & Toffel, 2004). In recent years, consumers have increasingly become aware of environmentally sustainable practices, which translates into social pressures that influence hotels to adopt the EMP (Ustad et al., 2010). Consumers are becoming environmentally aware, which has increased customers buying green products in Spanish hotels (Ayuso, 2006) and in New Zealand (Chan & Wong, 2006).

Many researchers found that tourists have become more interested in green hotels. For example, the majority of consumers in Atlanta, Washington and Manassas, in the USA, had a positive attitude toward, and they were likely to stay at, green hotels.
which implemented effective strategies such as recycling bins, installing energy efficient lights, and encouraging the customer to turn off the light when not being used. This finding explains the attitudes’ of customers and the ability to predict customer behavioural intentions to stay in green hotels, and also increase profits (Gustin & Weaver, 1996). The same finding occurred in a study by Lee et al. (2010) who examined how, in the USA, the image of staying in a green hotel is appealing and that image and branding affects tourist’s behavioural intentions toward staying at a green hotel.

Bohdanowicz and Martinac (2003) argued that the European hotels that embraced environmental initiatives might encounter a negative effect from customers, because of a perception of reduced level of comfort and satisfaction. In contrast, the customers became more aware while staying in green hotels, and this motivated the hoteliers to obtain the EMP. Bohdanowicz et al. (2004) noted that customer demands to stay in green hotels and use green products were the most influential factors to enhance acceptance of EMS in Swedish, Polish and Croatian hotels. Chan and Wong (2006) claimed that the demand to adopt ISO certification and environmental products by the hotels in Hong Kong gave them a more powerful influence in the marketplace. If the number of customers consuming green products and services is increased this will motivate hotels to adopt ISO certification.

Currently, environmental issues such as air pollution, water pollution and waste problems are some of the most important problems in our society. Empirical studies have investigated how leadership and organizations meet and take responsibility for our society. Monorathne and Fernando (2010) investigated the environmental attitudes of top management (CEOs) to the environment. They found CEOs are the ones who hold responsibility for the environment in their company and write the company’s
environment policy. Individual environmental awareness becomes one of the company’s core values and the continued support or sharing of knowledge with other people are one of the strategies to adopting EMP. Egri and Frost (1994) argue that co-operation between forces inside and outside the organization will provide an alternative vision for leadership in environmental and social change. Nevertheless, the senior management of hotels have to respond by improving customer services and revenue. They still needed to support their owner operated office by spending money to install the environmental mechanisms and efficient equipment in order to adopt the EMP (Chan & Wong, 2006). Chan and Wong (2006), who studied the US hotel industry, identified corporate governance as a key factor which influenced hotel management’s intentions to obtain ISO 14001.

According to Park (2000), the social pressure that the most important, or closest, person to someone has an influence on individual behaviour. These include business associates, family, partners, parents, close friends and superiors. Family and friends commonly influence behavioural intention in various tourism contexts, such as a person’s behavioural intention to dine at a green restaurant (Schubert, 2008); tourists’ behavioural intention to experience local cuisine at a travel destination (Ryu & Jang, 2006); their behavioural intention to visit green hotels (Han, Hsu & Sheu, 2010); or to support green practices (recycle) (Tih & Zainol, 2012).

However, it is important to note that subjective norms in Thai culture may differ from those in other countries. Phetvaroon (2006), who conducted research on Thai tourists, found friends and family were the main subjective norms that influenced a person’s decision to choose Phuket as a travel destination. Additionally, Piriyawat and Narupiti (2009) used the Theory of Planned Behaviour (TPB) model to study the
behavioural intentions of motorcyclists to participate in Thailand’s Motorcycle-Use Reduction scheme.

2.6 Summary

The tourism industry in developing countries has shown great growth in the past four decades. Tourism activities related to the environment and social and cultural contexts create positive impacts, but they also create negative impacts on the environment, particularly in the hotel industry. The negative impacts on the environment are waste, air and water pollution.

Environmental problems are becoming a global issue and there is a determination to find solutions to protect the environment. Environmental sustainable certification is a tool for helping the tourism industry, including the hotel industry, to protect the environment. There are three organizations (WTTC, the Earth Council and UNWTO) who created the Green Globe certification program. It was based on the Agenda 21 principles of sustainable development that required activities which minimized destruction of the environment. Environmental certification is one of the most successful tools for environmental management, and there are currently more than a hundred environmental certification programs provided globally.

This chapter discussed and provided the background to the environmental impacts of the tourism industry, environmental management and environmentally sustainable certification, especially in the hotel industry. The literature on managers’ attitudes towards adopting environmental certification found that the perceived benefits, as well as the barriers to adopting certification, together with social pressures, were the main factors for managers in making a decision to adopt environmental certification. These factors influenced the manager’s decision to adopt environmental certification in
several countries. Designed to integrate the public and private sectors, the Green Leaf certification program is the only Thai environmental certification scheme focusing on the hotel industry, and was established by five public organizations and one private organization. The Green Leaf Foundation was established in 1998, and since then only 203 of the 5,420 hotels in Thailand are GLC certified, which is less than 5%. From this data, it is clear that although the Green Leaf Program has been in existence for over ten years, only a very small number of hotels have obtained certification. Historically, Thailand has not shown much interest in environmental issues. It would therefore be enlightening to fill the gap in previous studies as to which factors influence Thai hotel managers to adopt the GLC. Therefore, the next chapter will discuss the conceptual framework for this research.
CHAPTER THREE

Conceptual Framework

3.1 Introduction

This chapter provides the theoretical foundations for this study by providing an overview of the conceptual framework employed. This study uses and adapts the Theory of Planned Behaviour (TPB) (Ajzen, 1985) as the conceptual framework that justifies and guides both the methodology and the research design of the thesis. The chapter is comprised of five sections: Section 3.2 outlines the history and background of the Theory of Planned Behaviour (TPB); Section 3.3 reviews elements of the TPB; and Section 3.4 describes and justifies the adaptations to the theory that are necessary for addressing the key objectives of this study.

3.2 History and Background of the Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) was developed by Ajzen (1985). The TPB was created from the Theory of Reasoned Action (TRA), which was developed by Fishbein and Ajzen (1975), and Ajzen and Fishbein (1980). Both theories are extensions of the Expectancy Value Theory (EVT) (Vroom, 1964). The EVT proposed that the level of an individual’s willingness to act in a specific way depends upon whether the act is followed by the desired consequence and its intrinsic value to the individual (Mazis, Ahtola & Klippel, 1975). The EVT throws light on an individuals’ motivations underlying their behaviour (Wigfield & Eccles, 2000). Expectancy itself is defined as “the measurement of the likelihood that positive or negative outcomes will be associated with or follow from a particular act” (Mazis et al, 1975, p.38). As the number of positive outcomes increase, the motivation to engage in the behaviour will increase (Mazis et al., 1975).
The EVT has been used in a variety of contexts to provide an explanation of individuals’ management behaviour. For example, Snead and Harrell (1994) examined the association between managers’ expectations and their motivations to use a decision support system by using expectancy value theory. Their study found that a manager’s decision to use a decision support system depended on their motivation relative to economic values, such as income and administrative costs. Cruz (2005) argued that the more appealing a particular outcome is to an individual, the more likely they will be involved in the behaviour. Han et al. (2010) studied customers’ behavioural intention to visit green hotels by using the expectancy value approach. However, the EVT has not been applied to understanding hotel managers’ behavioural intentions in relation to the greening of hotels.

There are some limitations to the EVT. The EVT has been used to predict behavioural intention but it focused only on a single behaviour and a single expectation (Borders, Mitchell & Huey, 2004). When individuals make a decision, they envisage and expect a range of possible outcomes and the values they ascribe to those diverse expectations shape their behaviour. Therefore, the expectancy value theory may not be an appropriate theory to use in this study because the factors that influence the managers’ behavioural intentions to adopt the Green Leaf Certification (GLC) may have more than one expected outcome.

The Theory of Reasoned Action (TRA) is also an extension of the Expectancy Value Theory (Borders et al., 2004). In 1975, Ajzen and Fishbein created the TRA to predict and understand behavioural intentions and behaviours based on two predictors. The original EVT predictor of on individual’s attitude toward the behaviour is expanded by examining a subjective norm (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The subjective norm is the important referent as to whether individuals or groups
approve or disapprove of acting on a given behaviour (Ajzen, 1991). The TRA is “designed to explain virtually any human behaviour” (Ajzen & Fishbein, 1980, p. 4). The TRA has been applied in a number of studies and has predicted varieties of behaviours in many contexts, such as consumer behaviour (Bagozzi, Baumgetner & Yi, 1992); exercise behaviour (Gladys Rolfsmeyer, 1987); smoking behaviour (Hernandez-Ramos, 1985); and male help-seeking behaviour (Rogers, 2009). The TRA has also been used in the tourism industry, such as in tourism shopping behaviour (Lo, 2007); tourist intentions to try local cuisine (Ryu & Jang, 2006); and tourists climbing the famous Australian rock monolith, Uluru (Brown, 1999).

The conceptual framework of the TRA is a function of the attitudes and subjective norms that link to the behaviour. The TRA model is presented in Figure 3.1.

![Figure 3.1 The Theory of Reasoned Action](source)

**Figure 3.1 The Theory of Reasoned Action**

Source: Ajzen (1988)

Empirical studies show that the TRA is useful in describing the factor attitudes and subjective norms affecting environmental behaviour. For example, in water conservation behaviour in the USA (developed country), Routhe, Jones and Feldman (2005) used the TRA to understand public support or opposition to collective action
against building a dam in Cumberland County, Tennessee. In this context, the TRA was useful in describing the linkages between attitudes and the subjective norms as they influenced behavioural intention. The results showed that the majority of residents’ support for the building of the dam was weak, therefore the policy makers, natural resource professionals and local groups should provide incentives and education to the residents so that they better understand the water supply before building a dam.

In Botswana (developing country), Marandu, Moeti and Joseph (2010) applied the TRA to examine residents water conservation behaviours and found that both the residents’ attitudes toward water conservation behaviour and the subjective norms influenced their water conservation behaviour. However, the researchers explained that this behaviour was not solely the product of attitudes and subjective norms, but policy makers and other factors also played a role in changing residents’ attitudes and subjective norms to water conservation behaviour. In the Thai context, Soonthonsmai (2001) examined the relationship between the attitudes, behavioural intentions and behaviour to purchase green products by applying the TRA.

The TRA continues to be an important model and is successful in predicting both individual’s behavioural intentions and behaviour, and that it is useful in situations where the individual maintains complete volitional control over behaviour (Ajzen, 1991). The TRA is effective for predicting behaviour when that behaviour is under volitional control of the action (Sheppard, Hartwick & Warshaw, 1988). However, a number of researchers argue that TRA predictions are weak, or fail to predict situations, where behaviour was not completely under the individual’s control (Bagozzi, 1992; Bagozzi et al., 1992).
The Theory of Planned Behaviour (TPB) was developed by Ajzen (1985) to address this weakness. The theory of planned behaviour (TPB) is useful to predict specific behaviour. The following sections provide a comprehensive discussion of the TPB, giving an account of its empirical applications and past usages in a wide range of contexts.

### 3.3 Elements of the Theory of Planned Behaviour

According to the TPB, intention to perform a particular behaviour depends on attitudes towards that behaviour, subjective norms in relation to the behaviour and perceived control over the behaviour (Ajzen & Fishbein, 1980).

#### 3.3.1 Behavioural Intention

The TPB focuses on behavioural intentions, rather than on the behaviour itself. Behavioural intention refers to the subjective probability that a person will engage in a particular behaviour. In effect, it is a reflection of how a person intends to act in a specific situation (Ajzen, 1991). The framework of the TPB posits that behaviour is determined by intentions, which are a function of attitudes, subjective norms and the perceived behavioural control that influence a person’s engagement in a particular behaviour. The model is diagrammatically presented in Figure 3.2.
3.3.2 Attitudes towards Behaviour

Attitudes towards behaviour are determined by the salient beliefs about whether the outcome of an individual act will be positively or negatively related to that behaviour (Ajzen & Fishbein, 1980). Ajzen (1991) described attitude as “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question” (Ajzen, 1991, p. 188). Individual’s attitudes represent evaluative statements or judgments about objects, people or events (Robbins, 2003). Ajzen and Fishbein (1980) revealed that behavioural beliefs are formed and generated by previous life experiences and knowledge related to that behaviour. A favourable or unfavourable evaluation of that behaviour is developed that is then applied and shapes the individuals’ intentions related to that behaviour (Al Muala et al., 2010; Chen, 2008; Cordano & Frieze, 2000). An evaluation of outcomes can have a direct effect on an individual’s intentions.
Attitude towards a behaviour (AT) is determined by the summarized set of accessible behaviour beliefs (bb<sub>i</sub>), and these beliefs link the behaviour to various outcome evaluations (ev<sub>i</sub>) (Ajzen, 1991). This can be graphically illustrated as:

$$\text{Attitude (AB)} = \sum_{i=1}^{n} bb_i ev_i$$

Using the TPB, many authors, such as Al Muala et al. (2010), Chen (2008), Cordano and Frieze (2000), Ekuful (2010), Han et al. (2010) and Zhang, Yang and Bi (2011), have found that attitudes are predictive of behavioural intention. These effects have been studied in different contexts. For example, Han et al. (2010) found that the set of behavioural beliefs and outcome evaluations of tourists were associated significantly with attitudes towards visiting green hotels.

In this study, behavioural intention is adopting the GLC, and attitudes are the perceived benefits of adopting the GLC. The decision to adopt EMP or EMS certification is based on the outcomes. The benefits of adopting the EMP or EMS are the main drivers that influence managers to make decisions to adopt them (Park et al., 2014). The attitudes towards the benefits of adopting certification can be categorised into four main groups: economic benefits, environmental benefits, customer benefits and marketing benefits (Bohdanowicz et al., 2004; Cordano et al., 2010; Kirk, 1998; Petric & Pranic, 2009). This is confirmed by Cordano et al. (2010), who found that attitudes towards the benefits of the EMS influenced managers’ behavioural intention to adopt the EMS. Therefore, the overall attitudes of this research can be precisely depicted as weighing the perceived benefits of adopting the GLC by combining the subjective evaluations and expected outcomes together. Attitude was regarded as only one determinant of intention, however, as Armitage and Christian (2004) argued that social pressures (subjective norms) are likely to engage the intention as well.
3.3.3 Subjective Norms

According to Ajzen (1991), a subjective norm is a social pressure, exerted by those who are important to an individual, to either perform or not perform a task. In other words, a subjective norm (SN) is the perceived opinions of other significant persons, such as family, close friends, colleagues and leaders, who have the power to influence the actions of an individual and their behavioural intentions. The subjective norms are the beliefs of other people concerning how the individual should behave in a situation, their normative beliefs \( n_{bi} \), and how motivated the individual is to comply \( mc_i \) (Ajzen, 1991). Therefore, SN can be calculated as:

\[
\text{Subjective norms (SN)} = \sum_{i=1}^{n} n_{bi}mc_i
\]

Numerous studies suggest that a person will feel social pressure to perform a behaviour if they are motivated to comply with individuals or groups among whom the behaviour is believed to be approved (Al Muala et al., 2010; Chen, 2008; Cordano & Frieze, 2000). There are several subjective norms or social pressures that influence managers and decision makers towards adopting the EMS and environmental certification, such as social pressures exerted by government, employees, customers, corporate leadership, family and friends (Ayuso, 2006; Chan & Wong, 2006; Kasim, 2007; Kasim, 2009; Phetvaroon, 2006). Subjective norms are reflected in the perceived social pressures from others, and their level of motivation to comply with those referents. In the context of Thai culture, the perceived pressures are particularly significant (Laohapensang, 2009; Phetvaroon, 2006; Soonthonsmai, 2001). For example, Laohapensang (2009) found that the people around Thai consumers who shop online (family and friends) can influence them to practice that behaviour. Therefore, it is predicted that the subjective norms in relation to adopting the GLC can be significant in explaining the behavioural intentions of the Thai managers to adopt the GLC. In
some behaviour, when an individual has non-volitional behaviour, the perceived behavioural control (PBC) can also influence actual behavioural intention, which is discussed in the next section.

### 3.3.4 Perceived Behavioural Controls

Behavioural intention can also be predicted by the perceived behavioural control (PBC), which refers to the ease, or difficulty, of performing the intended behaviour (Ajzen, 1991). In other words, PBC refers to an individual’s personal control over their behaviour and decision making. Barriers may exist which become a PBC, and which can be influenced by both internal and external factors. The internal factors are based on individual differences, such as knowledge, skills and abilities, while the external factors can consist of financial limitations, time constraints and technological limitations (Ajzen, 1991). Therefore, behavioural intentions decline as individuals perceive more barriers. To estimate the PBC, each control belief ($c_{bi}$) is multiplied by the perceived power of the control factor ($pp_i$). Therefore, the PBC can be illustrated as:

$$\text{Perceived Behavioural Control (PBC)} = \sum_{i=1}^{n} c_{bi}pp_i$$

The TPB can more accurately predict specific behaviour if it is based on the act, target, context and time (Ajzen & Fishbein, 1975). This is not easy to achieve. However, the greatest weakness of the TRA stems from the assumption that behaviour is under volitional control. To overcome this insufficiency in the TRA, Perceived Behavioural Control was added as an additional predictor of non-volitional behaviour. According to the findings of Armitage and Conner (2001), who examined the meta-analysis of TPB, the three constructs of TPB had the predictive power in determining behavioural intention and behaviour. This statement is supported by the finding of meta-analyses covering diverse behavioural domains, reporting mean
intention-behaviour correlations of 0.47 (Armitage & Conner, 2001) and 0.53 (Shepherd, Hartwick & Warshaw, 1988), respectively. TPB has been successful when used in a variety of contexts, such as tourists’ revisiting behaviour (Al Muala et al., 2010), adoption of environmental practices (Dima, 2010) and pollution reduction (Cordano & Frieze, 2000).

The PBC used in this study is developed and operationalised based on the manager’s perceptions of the factors that have impeded the performance of behaviour to adopt the EMS and environmental certification. Prior studies have examined the perspectives of the managers on the obstacles or barriers to adopt the EMP, EMS and environmental certification (Bohdanowicz & Martinac, 2003; Chan, 2008; Chan & Ho, 2006; Ustad et al., 2010). Therefore, the TPB has been selected as a framework for this study in order to answer the research questions, and for the TPB’s applicability in understanding the responses to adopting the GLC.

3.4 Application of TPB

The TPB is one of the most widely applied and accepted models in many contexts, including the tourism industry (Anuwichanont, Mechinda, Serirat, Lertwannawit & Popaijit, 2011; Phetvaroon, 2006), and has been used to determine behaviour concerning environmentally sustainable practices (Cordano & Frieze, 2000; Cordano, Marshall & Silverman, 2010; Dima, 2010; Zhou, 2010). The TPB has been used to explain human behaviour in relation to various environmental issues, such as recycling (Ho, 2002), waste-reduction practices (Chung & Poon, 2001) and pollution reduction (Cordano & Frieze, 2000).

Studies of the applications of the TPB include those by Han, Hsu, and Zhou (2010), Phetvaroon (2006), Ferdous (2010) and Wall, Devine-Wright and Mill (2007),
which applied the TPB to understand an individual’s environmental behaviour in the tourism industry. Han et al. (2010) investigated tourists’ behaviour related to staying in green hotels and concluded that in relation to their attitudes towards green hotels, the subjective norms and perceived behavioural controls are the statistically significant predictors in the TPB. This was similar to the findings of Phetvaroon (2006), who chose to study Phuket, Thailand, as a travel destination after the Indian Ocean tsunami of 26th December 2004. It was found that the tourists’ attitudes to the destination, the subjective norms relating to the destination choices and the tourists’ perceived behavioural control had a positive effect on the tourists’ behavioural intention to visit. The discussion above demonstrates the utility of the TPB in understanding environmental behaviours. Therefore, this study applies the TPB to identify the factors that influence Thai hotel managers’ behavioural intentions to adopt the GLC and their behavioural intentions to adopt the GLC, based on the managers’ attitudes, subjective norms and perceived behavioural controls.

According to Ajzen (1991), there are a number of circumstances that the TRA does not take into account, including behaviour that is not completely under an individuals’ control. For example, an individual may have a positive attitude towards performing a specific behaviour, but they may not actually have the intention to perform it due to perceived barriers. For example, if a person perceives challenges to accomplishing a specific task, then their intentions to perform it may be lower due to a lack of skill, lack of knowledge, or lack of financial resources. Therefore, the TPB postulates three conceptually independent antecedents of behavioural intention (attitude toward the behaviour, subjective norm, and perceived behavioural control) in order to improve the quality of predicting specific behaviour (Ajzen, 1991).
Despite the fact that there are several theories that explain behaviour as it relates to individual attitudes (Ajzen, 1988), the TPB is widely accepted as the best approach to predicting the factors that influence behaviours in social psychology. The TPB is a reliable theoretical model that was developed from the limitations of previous theories related to the study of attitudes, intention and behaviour, such as the Expectancy Value Theory (Vroom, 1964) and the TRA (Fishbein & Ajzen, 1975). Of relevance to this research are studies that applied the TPB to better understand the accommodation managers and organizational decision making processes in adopting the EMP and environmental certification.

### 3.4.1 Expanding TPB Predictors

The TPB has the ability to predict behavioural intention and behaviour, while other theories cannot, as the TPB allows for the addition of other predictors (Ajzen, 1991). Previous studies show that the New Ecological Paradigm scale (NEP) (environmental concerns) is associated with environmental behaviour (Schultz & Oskamp, 1996; Tsai & Tsai, 2008). Additionally, an individual’s characteristics and the social demographic of the business also have an effect on environmental behaviour (Kirk, 1998; Rivera & Leon, 2005; Soonthonsmai, 2001; Stern, Kalof, Dietz & Guagnano, 1995). Therefore, it is assumed that the Thai managers’ behavioural intentions to adopt the GLC may be influenced by their general environmental attitudes (NEP), their characteristics, and the demographic of their accommodation establishments.

The NEP scale has been also used to demonstrate the relationship between general environmental attitudes and environmental behaviour in the tourism industry (Floyd et al., 1997; Lee & Moscardo, 2005; Luo & Deng, 2008; Luzar et al., 1995; Tsai & Tsai, 2008). For example, the NEP scale was used in Louisiana by Luzar et al. (1995) to investigate the relationship between environmental attitudes and nature-based tourism.
The results showed that the environmental attitudes factor influenced participation in NBT and that those who have positive environmental attitudes will be more likely to be involved in NBT. Luo and Deng (2008) confirmed these findings in China.

Moreover, there have been numerous researchers who have investigated the relationship between environmental attitudes and environmental behaviour in the hotel industry by using the NEP scale, such as in green consumer behaviour (Kang, Stein, Heo & Lee, 2012; Tsai & Tsai, 2008). For example, in the USA, Kang et al. (2012) reported that guests who had a high degree of environmental concerns (or NEP), as well as luxury and mid-priced hotel guests, had a higher willingness to pay premiums for a green hotel than economy guests. In developing countries, such as in Taiwan, there was also a positive relationship between the environmental ethics of consumers (NEP) and green consumption behaviours, but that customers were not as keen on choosing green hotels. The reason posited is that the customers had high expectations for the quality of the services of the hotels, but the quality of services is not directly related with their daily life (Tsai & Tsai, 2008). Additionally, there were three reasons that are factors for the customers concerns before they decide to stay in green hotels which were the price of the hotels, comfort and convenience for them (Han and Chan, 2013).

In order to become green hotels, there are three main criteria that they should pay attention to, which are energy conservation, water conservation as well as solid waste management (International Organization for Standardization, 2011). Several studies investigated the relationship between individuals’ environmental attitudes and environmental behaviour. Ajzen and Madden (1986) argued that environmental attitudes were also associated with specific environmental behaviour, such as a willingness to reduce waste behaviour (Barr, 2004) and waste management behaviour (Chung & Poon,
This demonstrated that general environmental attitudes have the ability to predict specific environmental behaviour. For example, Chung and Poon (2001) found that the residents in China and Hong Kong agreed with the 15 statements. This indicated that they tend to have high environmental concerns about their environment. The residents who have a high attitude also generated high waste management behaviour.

Although many previous studies, including those cited above, found strong positive relationships between general environmental concern and environmental behaviour, not all studies found the same relationship between general environmental concern and environmental behaviour (Lee & Paik, 2011; Nooney, Woodrum, Hoban & Clifford, 2003; Poortinga, Steg & Vlek, 2004). For example, the NEP was not able to predict environmental behaviour in USA (Nooney et al., 2003). Lee and Paik (2011), who studied in Korea, found that the NEP could not predict food separation behaviour and recycling behaviour. Van Liere and Dunlap (1980) stated that social-demographic variables were related to general environmental attitudes. Poortinga et al. (2004) argued that the attitudinal factor alone could not explain or predict all kinds of environmental behaviour because there are external factors that affect behaviour (Carmody, 2007; Tarrant & Cordell, 1997). According to Carmody (2007), external factors such as normative behaviour, socio-demographic variables, personal characteristics and situational conditions affect attitude-behaviour correlations. Similarly, Tarrant and Cordell’s (1997) investigation of the relationship between the characteristics of residents of Southern Appalachia, USA, and their environmental behaviour, found that the NEP scale showed a significant attitude-behaviour correlation regarding gender and education. Their results revealed that the environmental attitudes of females was higher than males, and that residents with a degree (college education) generally had a higher attitude rating than residents with no degree.
A significant body of evidence supported the contention that gender was effective in the level of environmental concern. Past studies found females tend to be more eco-centric or have a higher level of environmental concern than males, such as in Australia (Jopp, 2012), and the USA (Kollmuss & Agyeman, 2002; Stern, Dietz & Kalof, 1993). While other studies found that people who had high environmental concerns tend to be male, such as in the USA. Studies by Tarrant and Cordell (1997), Scott and Willits (1994), and numerous other researchers also investigated the link between gender and environmental behaviour (Chung & Poon, 2001; Lee & Paik, 2011; Nooney et al., 2003). Barr (2007) reported that in the UK, females had a positive relationship to waste management behaviour. Some studies found that males were more likely to exhibit environmental behaviours than females.

The general environmental attitude (NEP) has been used to predict the environmental behaviour in many countries. In developed countries, such as USA, Nooney et al. (2003) found individuals had high environmental attitudes and they were more likely to have environmental behaviours. Lee and Paik (2011) also found a high score on the NEP scale correlated with concern about food separation and recycling. While in some other regions, such as Taiwan and mainland China, the NEP was used as a test to predict people’s water-saving intentions and waste-reduction behaviour by Lam (2006) and Chung and Poon (2001), respectively.

Additionally, education was one of the factors that was also related to general environmental attitudes. Previous studies indicated that individuals who were well educated were more likely to be more concerned about environmental issues than the less educated (Van Liere & Dunlap, 1980), which was confirmed by results in developed Western countries, such as the USA (Howell & Laska, 1992; Tarrant & Cordell, 1997). In contrast, Kollmuss and Agyeman (2002) found that education in the
USA was not significantly related to environmental concerns and that this indicated that a higher level of education was not necessary to predict an increase in environmental concerns. Therefore, this indicated that, in the past, education influenced environmental concerns less than in recent years. Numerous studies found a high level of education influenced environmental behaviour in the USA (Nooney et al., 2003), while in developing countries, such as Korea (Lee & Paik, 2011) and China (Lam, 2006), education was not a predictor of environmental behaviour.

### 3.4.2 The New Ecological Paradigm (NEP)

Individual attitudes toward the environment have been used to predict environmental behaviour (Hines, Hungerford & Tomera, 1987; Kaiser, Schultz & Scheuthle, 2007; Kaiser, Wolfgin & Fuhrer, 1999; Barr, 2007; Kaiser et al., 1999; Schultz, Shriver, Tabanico & Khanzian, 2004). Schultz et al. (2004, p.31) defined environmental attitudes as “the collection of beliefs, affects, and behavioural intentions a person holds regarding environmentally related activities or issues”. La Trobe and Acott (2000) also argued that environmental management strategies can be developed or improved by understanding an individual’s attitudes and values concerning the intrinsic value and rights of nature. Such a perspective has been applied to the development of environmental attitude scales such as the New Ecological Paradigm (NEP).

In the 1970s, there was a growing concern in the USA over environmental degradation problems, including air pollution, water pollution and energy conservation (Dunlap, Van Leire, Mertig & Jones, 2000). As a result, Van Liere and Dunlap (1980) developed the New Environmental Paradigm (NEP) to address these concerns. The NEP is a set of general beliefs about the relationship between humans and their environment (Stern, Dietz & Guagnano, 1995). While environmentalists acknowledge that an anthropocentric approach to the environment is not sustainable, Dunlap and Van Leire
developed the NEP scale to provide understanding of the relationship between humans and the natural environment. It consists of 12 statements measured with a 7-point Likert scale (Stern et al., 1995), whereby a high score in all 12 statements on the NEP scale indicates that person has a high valuation of the environment (Roberts & Bacon, 1997).

The NEP scale has been widely used to investigate the relationship between human environmental attitudes and environmental concern. The NEP has been applied to advanced economies in places such as USA, Canada, Sweden, the Baltic states and Japan (Dunlap & Van Leire, 1978; Dunlap et al., 2000), as well as in developing countries such as Turkey and Latin American countries (Dunlap et al., 2000). According to Dunlap et al., “implicit within environmentalism was a challenge to our fundamental views about nature and humans’ relationship to it” (Dunlap et al., 2000, p. 427). In other words, individuals who have a higher level of environmental concern tend to engage in ecological behaviour.

However, the original construct of the NEP scale has been criticised by Dunlap (2008). The author highlights the following weaknesses and limitations in the original 12 item NEP scale, and makes the suggestions for:

- The addition of two new ecological facets to continue the scale’s focus on the ecological domain
- The addition of the item ‘likelihood of eco-crisis’ measures increased awareness of global problems such as climate change
- The addition of these items produced a balance range of 8 pro-NEP items (eco-centric) and 7 anti-NEP items (anthropocentric) to ensure that every facet was measured in more than one direction
• The replacement of environmental terminology such as ‘mankind’ by more egalitarian terms such as ‘human kind’

• Greater importance was placed on the relationship between human beings and the environment to ensure that the revised scale was grounded by appropriate social-psychological theory

Dunlap et al. (2000) revised the original NEP scale, adding 3 items to the original 12-item scale to create a 15-item scale:

1. We are approaching the limit of the number of people the earth can support.
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will ensure that we do not make the earth unliveable.
5. Humans are severely abusing the environment.
6. The earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industries.
9. Despite our special abilities humans are still subject to the laws of nature.
10. The so-called “ecological crisis” facing humankind has been greatly exaggerated.
11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.
The new scale, called the New Ecological Paradigm scale, provides a more comprehensive coverage of an ecological worldview. It is effective in measuring environmental attitudes as well as modern shifts in ecological awareness and achieves a better balance between pro-NEP attitudes (eco-centrism), which believe that the environment exists for human use, and anti-NEP attitude (anthropocentrism), which believe that human beings are part of the ecological system. The association between the NEP and environmental behaviour is explained in the next section.

3.4.3 NEP and Environmental Behaviour in the Tourism Industry

The NEP scale has been applied in social research in various cultures to measure general environmental attitudes, with a focus on protecting the integrity of ecosystems and living in harmony with the environment (Dunlap, 2008). The environmental and social impacts of the tourism industry have become global issues (Stipanuk, 1996). Environmental sustainability has become an important consideration in all industries, including the tourism industry, and people adjust their daily lives by minimizing the negative impacts on the environment (Boo & Park, 2012; Dickson & Arcodia, 2010). Therefore, previous scholars have examined the link between an individuals’ environmental attitudes and their behaviour, and have found that environmental attitudes predicted environmental behaviour (Hines, Hungerford & Tomera, 1987; Kaiser, Schultz & Scheuthle, 2007; Kaiser, Wolfing & Fuhrer, 1999).

Therefore, in this study the 15-item NEP scale was adopted as a factor (predictor) to investigate the hotel managers’ behavioural intentions to adopt the GLC. The pro-environmental (eco-centrism) questions consist of the eight odd-numbered items, while the anti-environmental (anthropocentrism) questions consist of the seven even-numbered items in the scale. There were two main reasons behind this decision to adopt the 15-item NEP scale.
Firstly, the NEP scale has been broadly used in many contexts (Belisle, 1994; Clark, Kotchen & Moore, 2003; Lehman, 2008) and it was designed in a US context. This is relevant as its use has spread from the USA (Dunlap et al., 2000) to Asian nations such as Taiwan (Tsai & Tsai, 2008), China (Chung & Poon, 2001; Luo & Deng, 2008), Korea (Lee & Paik, 2011) and Singapore (Ho, 2002).

Secondly, it was noted by Schultz and Zelezny (1998) and Stern et al. (1995) that the NEP scale can be used to measure general human beliefs about environment issues and is a useful tool to evaluate environmental attitudes. Research that used the NEP scale as a framework found that the NEP measures the correlation between the human and the environmental, a set of beliefs which may influence attitudes and behavioural intentions regarding specific environmental conditions (Stern et al., 1995). Therefore, in this research study about Thai managers’ behavioural intentions to adopt the GLC, the NEP would be one of the predictors to analyse the managers’ intent to adopt the GLC. It would be useful to understand how receptive the Thai accommodation managers were to an ecologically integrated view of humans and the environment. Additionally, previous findings did not clearly indicate a consensus about whether gender and education affect an individual’s environmental concerns and environmental behaviour, particularly in developing countries, as in the Thai context. Therefore, this study examines the existence of the relationship between the NEP and the response profiles (gender and education level) of both groups, which are comprised of people who do and those who do not have a knowledge of the GLC, respectively.

Lastly, Dunlap et al. (2000) advocated that when researchers intend to apply the revised NEP scale, they should make the decision on the basis of their data analyses. For example, decisions include whether the NEP should be treated as a single- or multi-dimensional scale. This is because the revised versions are not uni-dimensional
and always involve more than one factor (Dunlap, 2008; Dunlap et al., 2000). According to Dunlap (2008), the NEP scale should be used with other variables if the aim of the project is to predict environmental behaviours.

In summary, over the past two decades many industries, including the tourism industry, have tackled the fact that environmental problems are really society’s problems. Sustainability is acknowledged as an important goal throughout the world. In the late 1970’s, Dunlap and Van Leire (1978) created the NEP scale, which appeared to well document the link between an individual’s beliefs, attitudes and behaviour (Ajzen & Fishbein, 1980). In the context of analysing environmental behaviour, pro-environmental and anti-environmental attitudes are two effective means provided by the NEP. An individual’s environmental attitude is one of the important factors that influences their environmental behaviour. Therefore, the NEP, together with the characteristics of the hotel managers and their social-demographic were added into the TPB model as the conceptual framework for this thesis.

Therefore, to answer the research question ‘What are the factors that influence the Thai accommodation managers’ behavioural intentions to adopt the GLC in the next year and in the next 5 years’?, the conceptual framework of this study could be introduced by using the model detailed in the section below.

3.4.4 Mapping the Theoretical Framework

The framework model applied to predict the hotel managers’ behavioural intentions to adopt the GLC is comprised of the Theory of Planned Behaviour (attitude, subjective norm and perceived behavioural control); the NEP (general environmental attitude); the social-demographic (hotel size, hotel star rating and location); and the characteristics of
the hotel managers (gender, education level) (Alvarez Gil et al., 2001; Kollmuss & Agyeman, 2002; Smith, 1995; Stern et al., 1995).

As discussed above, environmental behavioural intention is strongly related to environmental behaviour (Hines et al., 1987; Kaiser & Gutscher, 2003; Kaiser et al., 1999). These theories focus on the psychological factors of individual perspectives to better understand behavioural intention. Additionally, these theories are widely accepted in human behaviour studies.

![The TPB Framework for Predicting Hotel Managers’ Behavioural Intentions to Adopt Green Leaf Certification (GLC)](image)

**Figure 3.3** The TPB Framework for Predicting Hotel Managers’ Behavioural Intentions to Adopt Green Leaf Certification (GLC)
3.5 Summary

This chapter discussed the development of environmental behaviour, based on TPB theoretical frameworks, and applied them to the research questions and hypotheses for this research study. The objective of this study is to investigate what factors influence Thai accommodation managers’ behavioural intentions to adopt the GLC in the next year, and in the next five years. Based on the TPB framework, two research questions and eight hypotheses have been postulated.

Based on previous studies, and the TPB framework, three major perspectives in relation to adopting EMP and EMS certification were discussed. TPB theorists argue that in addition to personal attitudes (attitudes toward the benefits of adopting the GLC), subjective norms (social pressure on an individual to perform a behaviour) and perceived behavioural controls (barriers to an individual’s total control) are related to behavioural intentions. The TPB allows the addition of other important factors that may influence behavioural intention (Ajzen, 1991). The discussion above explains that general environmental attitudes measured by the NEP scale are related to environmental behaviour (Dunlap et al., 2000; Schultz & Oskamp, 1996) and that the characteristics of individuals (including gender and the education level of managers), and the accommodation (accommodation sizes, star rating and location) influence behavioural intention to adopt environmental certifications. Therefore, these factors are included in the conceptual framework to examine their impact on the TPB. The providing of a conceptual framework in this chapter will guide the research design and analysis, and are discussed in the next chapter.
CHAPTER FOUR

Research Methodology

4.1 Introduction

This chapter describes the research methodology employed to address the overall aims of this thesis and to answer the three related research questions outlined in Chapter 1. This chapter provides an explanation of the overall research design and the details of the population and sampling. It also explains the details of the data analysis. Additionally, the details of the ethical clearance and safety implications, including a summary of the chapter, are provided in the last section.

4.2 Research Design

This thesis employs a quantitative research method for data collection and analysis that is grounded in a positivist epistemology which uses deductive reasoning (Carvana, Delahaye & Sekaran, 2001, p. 8). The process of deductive reasoning is used to test the hypotheses related to the study’s objectives and research questions. A quantitative method was employed, based on the data collected from questionnaires, and was used to examine the relationships between the dependent variables (DVs) and the independent variables (IVs), which is useful for developing knowledge based on cause and effect thinking (Creswell, 2009). The details of this instrumentation are addressed in the next chapter. Additionally, this approach employs an objective description and explanation in order to interpret the behaviour of individuals and organizations, on the basis of facts and observations that are usually quantitative (Veal, 2005) and, in this case, to understand the predictive nature of the constructs in explaining the accommodation managers’ behaviours and intentions to adopt the GLC. This research followed the quantitative research processes.
4.3 The Research Questions and Hypotheses of this Study

The aim of this thesis is to examine the behavioural intentions of hotel managers in Thailand to adopt the GLC. To achieve this aim, three research questions identified in Chapter 1 have been operationalised as a series of testable hypotheses, as follows:

**Research Question 1**: Is there any difference between those accommodation managers who know about the GLC and those that do not?

**Hypothesis 1**: There is a positive relationship between knowledge of the GLC and general environmental attitude (NEP).

**Research Question 2**: What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next year?

**Hypothesis 2**: There is a positive relationship between the Thai accommodation managers’ attitudes towards the benefits of adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 3**: There is a positive relationship between the Thai accommodation managers’ subjective norms in relation to Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 4**: There is a positive relationship between the Thai accommodation managers’ perceived behavioural controls towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.
**Hypothesis 5:** There is a positive relationship between the Thai accommodation managers’ general environmental attitudes towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 6:** Thai female accommodation managers are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next year than male ones.

**Hypothesis 7:** Thai accommodation managers with higher levels of education are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next year than those with lower levels of education.

**Hypothesis 8:** Thai hotel managers’ working at large hotels are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next year than those working at small hotels.

**Hypothesis 9:** Thai hotel managers’ working at 3-5 star rated hotels are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next year than Thai hotel managers at 1-2 star rated hotels.

**Hypothesis 10:** Thai hotel managers working in Bangkok are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next year than those in other regions.

**Research Question 3:** What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next 5 years?
Hypothesis 11: There is a positive relationship between the Thai accommodation managers’ attitudes towards the benefits of adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

Hypothesis 12: There is a positive relationship between the Thai accommodation managers’ subjective norms related to Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

Hypothesis 13: There is a positive relationship between the Thai accommodation managers’ perceived behavioural controls towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

Hypothesis 14: There is a positive relationship between the Thai accommodation managers’ general environmental attitudes towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

Hypothesis 15: Thai female accommodation managers are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next 5 years than male ones.

Hypothesis 16: Thai accommodation managers with higher levels of education are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next 5 years than those with lower levels of education.
Hypothesis 17: Thai hotel managers’ working at large hotels are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next 5 years than those working at small hotels.

Hypothesis 18: Thai hotel managers’ working at 3-5 star rated hotel are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next 5 years than Thai hotel managers at 1-2 star rated hotels.

Hypothesis 19: Thai hotel managers working in Bangkok are more likely to have positive behavioural intentions towards adopting Green Leaf Certification in the next 5 years than those in other regions.

4.4 Populations and Sampling Frames

4.4.1 Populations

A number of studies, including those of Chan and Wong (2006), Park (2009), Prayag et al. (2010) and Ustad (2010), have found general managers of accommodation to be among the most influential decision makers, in terms of adopting environmentally sustainable practices and environmental certification. Therefore, the target population for this study is the general managers of all accommodation establishments in Thailand, as listed by the Tourism Association of Thailand (TAT).

According to the Thai National Statistical Office, there were 5,420 accommodation establishments in Thailand (National Statistical Office, 2010c) at the time this research was carried out. The accommodation establishments vary according to size and location, and each establishment has been categorised as either: small (less than 60 rooms), medium (60 – 149 rooms) and large (more than 150 rooms) (National Statistical Office, 2010b). At the time of data collection, according to the National
Statistical Office (2010a), there were 3,945 small, 1,034 medium and 441 large accommodation establishments in a range of locations. The distribution and categorisation of the Thai hotels is detailed in Tables 4.1 and 4.2.

4.4.2 Sampling Frames

Because of the number of accommodation establishments in Thailand (5,420), online surveys were used in this research as it was considered to be the most efficient way to reach the entire population. The Tourism Association of Thailand (TAT) list was the most up-to-date and accurate listing of accommodation businesses from which to draw contact information about potential respondents. The TAT listing included all contact details, including postal addresses, email addresses, telephone numbers and web page links for the accommodation establishments. While the aim was to reach the entire population, only 3,005 of the accommodation establishments had provided business email addresses, therefore, the sampling frame for this research was reduced to 3,005, all of whom were sent an email from the researcher inviting them to take part in the study and directing them to a link to the online questionnaire (see Tables 4.1 and 4.2).

Table 4.1 The Populations and Sampling Frames by Size

<table>
<thead>
<tr>
<th>Size</th>
<th>Population</th>
<th>Sampling frame</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Accommodation Establishments Registered with TAT)</td>
<td>(Accommodation Establishments Registered with TAT)</td>
</tr>
<tr>
<td>Small</td>
<td>3,945</td>
<td>1,928</td>
</tr>
<tr>
<td>Medium</td>
<td>1,034</td>
<td>689</td>
</tr>
<tr>
<td>Large</td>
<td>441</td>
<td>388</td>
</tr>
<tr>
<td>Total</td>
<td>5,420</td>
<td>3,005</td>
</tr>
</tbody>
</table>
Table 4.2 The Populations and Sampling Frames by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
<th>Sampling frame</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Accommodation Establishments Registered with TAT)</td>
<td>(Accommodation Establishments Registered with TAT)</td>
</tr>
<tr>
<td>Bangkok</td>
<td>294</td>
<td>247</td>
</tr>
<tr>
<td>Central</td>
<td>1,467</td>
<td>605</td>
</tr>
<tr>
<td>Northern</td>
<td>1,078</td>
<td>741</td>
</tr>
<tr>
<td>North-Eastern</td>
<td>1,091</td>
<td>551</td>
</tr>
<tr>
<td>Southern</td>
<td>1,490</td>
<td>861</td>
</tr>
<tr>
<td>Total</td>
<td>5,420</td>
<td>3,005</td>
</tr>
</tbody>
</table>

4.5 Summarised Description of the Questionnaire

The questionnaire for this study consisted of three sections, which were preceded by an initial filtering question. This filtering question asked ‘Are you aware that the Green Leaf environmental certification program exists?’. This question allowed two choices, ‘Yes’ and ‘No’. If the participant answered ‘Yes’, they were instructed to proceed to the next question which was ‘Indicate your familiarity with and knowledge of the Green Leaf certification program’. The answer was based on a graduated 1 to 7 scale. The participant was then instructed to respond to the rest of the questionnaire. If the participant answered ‘No’, they were instructed to proceed directly to the second and third section of the questionnaire. The details of the questionnaire are discussed in the next chapter.

There are three main reasons why this filtering question was necessary. Firstly, this question would help the respondents who have no knowledge about the GLC to skip forward to further sections to complete the questionnaire. Secondly, the data coming from respondents who knew about the GLC would be used to predict their
behavioural intensions to adopt the GLC. Thirdly, the answer to this question provided an indication of the number of hotel managers that were aware that the GLC existed.

There were two steps of data collection in this study. In the first step (Pilot study), data was collected using the survey questionnaire, where the objective was to verify the survey items’ reliability and validity prior to distribution of the actual research project (Nardi, 2006). The processes of the pilot study and the details of the statistics used to analyse the data are discussed in the next chapter. The second step in the main study aimed to answer the research questions in this study.

4.6 Data Analysis of the Main Study

The data collection was conducted between 31st August 2012 and 30th October 2012. The data collected for this study was analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0 for descriptive statistics, factor analysis, multiple regression, T-test and Chi-square. This study divided the data analysis into three parts, as follows: descriptive statistics; New Ecological Paradigm (NEP) from those who knew the GLC and those who did not know the GLC (all respondents); and hypothesis testing (respondents who knew the GLC).

4.6.1 Profiles of Respondents

Descriptive statistics of each variable, including the respondents’ profile information and the establishments’ profile information, was analysed using frequency, percentage, standard deviation and mean. The findings are presented in table form and were analysed to interpret the results.

4.6.2 Relationship Between the NEP and Knowledge of the GLC

As mentioned in earlier, the first question of the survey asked: ‘Are you aware that the Green Leaf environmental certification program exists?’ This question had two choices
of response, ‘Yes’ and ‘No’. All of the respondent answers can be found in Section B (NEP) and Section C (respondent’s profiles and accommodation profiles). Therefore, ‘Is there any significant difference between the two groups of accommodation managers, including those who knew and those who did not know the GLC, and their general environmental attitude?’ was addressed by using both the T-test, Chi-square and One-Way ANOVA approach.

The T-test was used to compare the mean score of these two groups. Additionally, the Chi-square test compares the proportions of cases that appear in each of the categories so that it can be seen in a crosstabulation table, with cases classified according to the categories in each variable (Field, 2009). The Mann-Whitney U Test (Non-parametric) was also employed to examine the differences between both groups. The One-Way ANOVA approach is appropriate for testing the differences between groups where there are two or more groups to be compared in their mean scores, on a continuous variable. This approach looks at the impact of one dependent variable and one independent variable (Pallant, 2011). Therefore, this approach was used to determine whether there were any differences in the proportion of the respondents who knew about the GLC across a profile of accommodation managers in each category (gender, education level, accommodation size, star rating and location).

### 4.6.3 Description of the Model Components

The independent variables in this study consisted of four main variables, which are attitude, subjective norm, perceived behavioural control and NEP. The descriptive statistics of each variable were analysed using mean and standard deviation. Each variable has several items, therefore Exploratory Factor Analysis (EFA) was used to reduce a large number of items into a small set of variables (Williams, Onsman & Brown, 2010). Every factor from the EFA was tested for reliability by using Cronbach’s
alpha and composite reliability. The findings were analysed to interpret the results and are presented in table form.

4.6.4 Multiple Regression and Hypothesis Testing

In order to answer the research question, ‘What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC?’, a multiple regression approach was employed.

Hair, Black, Babin and Anderson (2010) argued that multiple regression is a useful approach to determining the relationship between a single dependent variable and several independent variables (predictors). Multiple regressions can be used to address which set of independent variables (predictors) are able to predict a proportion of the variance in a dependent variable (outcome) at a significant level, which is a 95% confidence interval (p < 0.05), and which variable in a set of independent variables is the best predictor of an outcome (Pallant, 2011). There are three main types of multiple regression, which are standard, hierarchical and stepwise. The major difference between these three types of regression analysis is the process of how the variables are entered into the regression equation when analysing data. The standard multiple regression is a method which allows entering all predictors into the model simultaneously. In the hierarchical method (sequential regression), the predictors are selected from past studies and the predictors decide in which order the predictors fit into the model. The known predictors enter the model first because they are significant in predicting the outcome. After known predictors have been entered, the hierarchical method allows the addition of any new predictors into the model (Field, 2009). In stepwise regression, the program sets the order of predictors and enters them into the model based on statistical criteria (statistical decision), in which variables are included and excluded from the equation based on the statistic computed (Pallant, 2011; Tabachnick & Fidell, 2007).
Standard regression was chosen to analyze the data for several reasons. Firstly, the purpose is to investigate each independent variable (IV) in terms of what it adds to predictive power, over and above the other independent variables. This approach would also tell the researcher how much unique variance was explained by each independent variable (IV). All 13 predictors (IVs) enter into the regression equation at once and the results indicated to the researcher which IV predicted the behavioural intention to adopt the GLC (DV). Secondly, the researcher made no decision about the order in which variables were entered. The question ‘What are the factors influencing the accommodation managers’ adoption of the GLC?’, did not assume that there existed a hierarchical order among independent variables. Thirdly, the stepwise regression approach was taken as the program sets the order of predictors. However, this can lead to biases in parameters, potential over-fitting of data (Field, 2009; Tabachnick & Fidell, 2007) and under-fitting (Field, 2009). Therefore, standard multiple regression was deemed to be an appropriate approach for the data analysis.

4.6.5 The Ethical Considerations

This study required approval from the University of Newcastle Human Research Ethics Committee (HREC) because it involved human contact. Information statements for the pilot study and research project, reminder letter and questionnaire were approved in both the English and Thai versions (see Appendices 2 to 11). The information statements provided a general description and the purpose of the project, requirement of participation, and information about privacy and confidentiality issues. As for the participants, completion and return of the questionnaire were taken as implied consent.

Each survey took approximately 15 to 30 minutes to complete. 3,005 Thai managers were sourced, based on contact information (business e-mail addresses, business telephone numbers and establishment addresses) contained in the 2011 TAT
hotel reference files. Accommodation managers were contacted by e-mail at their official hotel e-mail address with an invitation to participate in the survey which included a link to a URL using Qualtrics survey software. Through this process the participants received the letter from TAT to encourage them to complete the survey followed by an information statement outlining the research project and explaining that participation was voluntary and responses would remain anonymous. The anonymity of respondents in the survey could increase the response rate (Makkai & Mcallister, 1992) and reduces social desirability bias (Chua, 2002; MacGillivray & Pollard, 2008; Nancarrow & Brace, 2000). If the participants would like to participate, they click on the link to a URL using Qualtrics survey software and consent is implied by survey completion. To ensure their confidentiality and privacy, the respondents would initially be contacted at their business e-mail address and link. The managers would be asked to respond to the questionnaires by online survey.

4.6 Summary

This chapter explains, in detail, the methodological approach used in the research. A positivist epistemology employing quantitative research was selected, since the purpose of this study is to identify the factors that influence the Thai accommodation managers’ behavioural intentions to adopt the Green Leaf Certification (GLC), by testing the hypotheses and analysing the results using a statistical method. Additionally, this approach was useful to cover a potentially large data set, as the sampling frame of this study is quite large (3,005). The hypotheses were generated through literature reviews and tests using quantitative approaches. The next chapter describes the research variables and the instrument of this study. Additionally, the result of the data analysis of the pilot study is presented in the next chapter.
CHAPTER FIVE

Research Instrumentation

5.1 Introduction

This chapter explains the research instrument used for this study. As a foundation for this explanation the chapter commences by providing a detailed description of how the independent and dependent variables examined in this research were operationalized. Macfie and Nufrio (2006) recommended that variables be operationalized before respective measurement scales are developed. An operational definition of a theoretical construct refers to a set of items or questions used to measure the variable in the survey (Gravetter & Orzano, 2012). The operationalization of the research variables in this research are based on the constructs of the Theory of Planned Behaviour (TPB) (Ajzen, 1991). This chapter also provides a description of the structure of the questionnaire. The data collection process is explained, as well as how the reliability and validity of the questionnaire were tested.

The dependent variable to be predicted is the accommodation managers’ behavioural intention to adopt the GLC. According to the TPB, behavioural intention (BI) can be predicted by a combination of the three main factors that form the independent variables in the model: attitudes, subjective norms and perceived behavioural controls. In this study these are operationalized as the attitudes towards the benefits of adopting the GLC (AT); the subjective norms in relation to the GLC (SN); and the perceived behavioural controls towards the GLC (PBC). Additionally, based on the findings of Dunlap et al. (2000), general environmental attitudes were measured by using the New Ecological Paradigm (NEP scale), which is another independent variable that was hypothesised to predict behavioural intention to adopt GLC.
The following section describes the operationalization of the four independent variables: attitudes towards the benefits of adopting the GLC (AT); subjective norms about adopting the GLC (SN); perceived behavioural controls over adopting the GLC (PBC); and general environmental attitudes (NEP) were included with the dependent variables of the intentions towards adopting the GLC (BI).

5.2 Dependent Variables

5.2.1 Behavioural Intention toward Adopting the GLC (BI)

Behavioural intention has been found to be a predictor of behaviour (Ajzen, 1991). The stronger the intention is, the more likely that the behaviour will follow (Armitage & Conner, 2001; Sheppard et al., 1988). Hence, this study tests the behavioural intentions of adopting the GLC. However, this study does not examine the behaviours directly. This is addressed when the limitations of this study are discussed (see Chapter 8).

The individual’s behavioural intentions are based on their attitudes, subjective norms and perceived behaviour controls (Ajzen, 2001). Fishbein and Ajzen (1975) claimed that measures used to predict individual behavioural intentions and behaviour are more accurate when they are measured during the same period of time, focussing upon the same objectives, contexts and actions. In this study, the target was “Green Leaf Certification”, the action was “adopting the GLC”, the context was “in the accommodation industry”, and the time was “in the next year and in the next five year period”. Items from previous research that examined behavioural intentions related to environmental management systems and environmental management practices were adapted to focus upon intention to adopt Green Leaf Certification (Chen, 2008; Wu et al., 2008; Zhou, 2010).
In Chapter 3, it was noted that temporal factors can impact on behavioural intentions (Ajzen & Fishbein, 1973; Cote Jr & Wong, 1985; Fishbein & Ajzen, 1975). In this thesis, the temporal characteristics of GLC adoption focussed on 1 year and 5 year periods. This study examined two periods of time for two principal reasons. Firstly, Fishbein and Ajzen (1975) noted that the measurements to predict individual behavioural intentions and behaviour are stronger when measured over the same period of time. Cote Jr and Wong (1985) further claimed that the period of time affected behavioural intentions. If the time interval between the measurement of behavioural intention and behaviour is longer, it will decrease the consistency of the behaviour. The one year period was included as it has been used to predict environmental behavioural intentions in previous studies, such as environmental management practices behaviour (Chen, Gregoire, Arendt & Shelley, 2011) and waste management behaviour (Pakpour, Zeidi, Emamjomeh, Asefzadeh & Pearson, 2014).

A five year period was included as few studies consider longer periods of time in the TPB framework. In addition, the Thai National Economic and Social Development (NESD) Plan sets regulatory frameworks concerning environmental impact mitigation for industries such as tourism and the accommodation sector. These plans are set on a rotating 5 year period (Office of the National Economic and Social Development Board, 2008b). Given the long term imperatives implied in this plan, it is appropriate to capture a similar time span in this study.

The temporal dimensions of this study were captured by asking respondents to respond to the following statements: 1) There is a strong possibility I will adopt the GLC at my hotel within the next year; 2) There is a strong possibility I will adopt the GLC at my hotel within the next 5 years. These items were measured on the 7-point
Likert scale (7 = strongly agree, 4 = neutral, 1 = strongly disagree) (see Appendices 8 and 9).

5.3 Independent Variables

5.3.1 Attitudes towards the Benefits of Adopting the GLC (AT)

Several tourism studies have argued that attitudes about environmental issues predict behavioural intentions in relation to those issues (Al Muala et al., 2010; Chen, 2008; Han et al., 2010). Numerous attitude scales have been developed and published in the tourism literature that focus upon environmental attitudes. While some earlier studies developed scales that included items which measured beliefs about a behaviour, separate from items that evaluated outcomes related to a behaviour (i.e. attitudes), more recent research has developed items that recognise the covariance in belief and attitude scales. These approaches have created new attitude scales that are a more robust measure and which capture both beliefs and attitudes in a set of evaluative outcome statements (Chen et al., 2011; Cordano et al., 2010; Hall, Dennis, Lopez & Marshall, 2009). A similar approach has been applied in this study.

Scales used in previous research that measured attitudes related to environmental management systems (EMS) and environmental management practices (EMP) were adapted to include evaluative outcome statements related to the perceived benefits of adopting Green Leaf Certification (Bohdanowicz, Zanki-Alujević & Martinac, 2004; Cordano, Marshall & Silverman, 2010; Kirk, 1998; Petric & Pranic, 2009) (see Table 5.1). The scale items used in this study were measured on a 7-point Likert scale (7 = strongly agree, 4 = neutral, 1 = strongly disagree) (see Appendices 8 and 9).
### Table 5.1 Perceived Benefits of Adopting GLC

<table>
<thead>
<tr>
<th>Perceived Benefits</th>
<th>Issues</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Reduce operational expenses</td>
<td>Benito &amp; Bentio (2005); Tan (2005); Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Increase profitability</td>
<td>Ayuso (2006); Bohdanowicz et al. (2004); Chan &amp; Wong (2006); Kirk (1995, 1998); Petric &amp; Pranic (2009); Tooman et al. (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td>Environment</td>
<td>Ensure environmental sustainability</td>
<td>Chan &amp; Wong (2006)</td>
</tr>
<tr>
<td></td>
<td>Improve the natural environment</td>
<td>Mensah (2006); Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Reduce greenhouse gas emissions</td>
<td>Howell (2010)</td>
</tr>
<tr>
<td></td>
<td>Reduce water consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduce waste materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contribute to habitat conservation</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>Improve the hotel’s image</td>
<td>Chan &amp; Wong (2006); Ustad et al. (2010); Rivera (2002); Kirk (1995); Mensah (2006); Ann et al. (2006); Ayuso (2006); Tan (2005)</td>
</tr>
<tr>
<td></td>
<td>Help access new markets</td>
<td>Petric &amp; Pranic (2009)</td>
</tr>
<tr>
<td></td>
<td>Provide marketing advantages</td>
<td>Benito &amp; Bentio (2005); Kirk (1998); Petric &amp; Pranic (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Increased market share</td>
<td>Tooman et al. (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td>Customers</td>
<td>Improve customer satisfaction</td>
<td>Bohdanowicz &amp; Martinac (2003); Bohdanowicz et al. (2004); Kirk (1995, 1998); Petric &amp; Pranic (2009); Tan (2005)</td>
</tr>
<tr>
<td></td>
<td>Demand green hotel</td>
<td></td>
</tr>
<tr>
<td>Local Community</td>
<td>Improve the hotel’s relationship with the local community</td>
<td>Kirk (1998); Petric &amp; Pranic (2009)</td>
</tr>
<tr>
<td></td>
<td>Improve public relations</td>
<td>Kirk (1998)</td>
</tr>
</tbody>
</table>

### 5.3.2 Subjective Norms in Relation to Adopting the GLC (SN)

Previous studies have found that social pressures supported environmental behavioural intentions to adopt EMP, EMS and environmental certification (Chan & Wong, 2006; Kasim, 2009; Kirk, 1998; Mensah, 2004; Phetvaroon, 2006; Piriyawat & Narupiti, 2009; Wu et al., 2008).
As discussed in Chapter 2, for example, regulation was the main factor that influenced hotel managers in Kuala Lumpur (Kasim, 2009). Additionally, customers are becoming more environmentally aware, and they are also one of the social pressures that influences and motivates accommodation businesses to adopt EMP (Ayuso, 2006; Chan & Wong, 2006). In the context of this research, this variable was measured by the respondents’ perceptions towards adopting the GLC. The scales to measure normative beliefs and subjective norms were adapted from Chan and Wong (2006), Kasim (2009), Kirk (1998), Mensah (2004), Phetvaroon (2006), Piriyawat and Narupiti (2009) and Wu et al. (2008).

Previous researchers reported that government tourism regulations, employees, customers, corporate leadership, and family and friends have a considerable influence on individual and manager’s decision making to adopt EMS in their accommodation. These items were measured on the 7-point Likert scale (7 = strongly agree, 4 = neutral, 1 = strongly disagree) (see Appendices 8 and 9). The perception of a strong or weak social pressure is assumed to depend on the importance given by the managers to their social references. Therefore, in the same way as is in previous work, the subjective norm scales of this study were combined with the individuals’ beliefs that their actions were acceptable to the people in their life (Chen et al., 2011; Cordano et al., 2010; Zhang et al., 2011).

5.3.3 Perceived Behavioural Control Towards Adopting the GLC (PBC)

As discussed in Chapter 3, perceived behavioural control (PBC) reflects the ease or difficulty of performing an action (Ajzen, 1991). It refers to an individual’s beliefs of how easy or difficult that action is likely to be due to the barriers faced by an individual (skills and abilities), and the limiting effects of external factors (costs and technology) (Ajzen, 1991). Perceived barriers can have power over an individual and can stymie
their intended behaviours. Kollmuss and Agyeman (2002) noted that perceived barriers can impact on a manager's capacity to adopt environmental behaviour.

The PBC items used in this study were adapted from previous studies and focus on the individual barriers related to a lack of knowledge and skills, economic barriers and process barriers to adopting EMP and EMS, and are identified in Table 5.2. Perceived behavioural control to adopting the GLC was measured by including items in the questionnaire that focussed on a respondents’ estimation of the barriers to adopting the GLC. These items were measured on the 7-point Likert scale (7 = strongly agree, 4 = neutral, 1 = strongly disagree) (see Appendices 8 and 9).
Table 5.2 Barriers to Adopting GLC

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Issues</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>High implementation cost</td>
<td>Bohdanowicz &amp; Martinac (2003); Chan (2008); Ustad et al. (2010); Dinica (2006)</td>
</tr>
<tr>
<td></td>
<td>High certification cost, including membership and application fees</td>
<td>Ustad et al. (2010); Coyle (2005)</td>
</tr>
<tr>
<td></td>
<td>Cost of technology to implement environmentally sustainable practices</td>
<td>Bohdanowicz &amp; Martinac (2003); Tooman et al. (2009)</td>
</tr>
<tr>
<td>Process</td>
<td>Complicated GLC requirements</td>
<td>Tooman et al. (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Lengthy time required for GLC</td>
<td>Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Inadequate professional assistance</td>
<td>Chan (2008)</td>
</tr>
<tr>
<td></td>
<td>High turnover rate of environmentally trained personnel makes it difficult to adopt the GLC</td>
<td>Coyle (2005); Tooman et al. (2009)</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>Chan (2008); Laohapensang (2009); Tooman et al. (2009); Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>The hotel staff’s lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>Ustad et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>Lack of GLC training programs makes it difficult to implement practices needed to obtain the GLC</td>
<td>Chan &amp; Hawkins (2010)</td>
</tr>
<tr>
<td></td>
<td>Lack of training programs makes it difficult for staff to implement practices needed to obtain the GLC</td>
<td>Chan &amp; Hawkins (2010)</td>
</tr>
<tr>
<td></td>
<td>Inadequate professional advice makes it difficult for the hotel to obtain the GLC</td>
<td>Chan (2008)</td>
</tr>
<tr>
<td></td>
<td>Lack of government support makes it difficult to adopt the GLC</td>
<td>Beeton et al. (2007); Chaisawat &amp; Campos (n.d.)</td>
</tr>
</tbody>
</table>

5.3.4 New Ecological Paradigm (NEP)

The purpose of the NEP is to measure an individual’s perspectives in relation to the environment. The 15 items in the revised version of the NEP scale developed by Dunlap et al. (2000) was used in this study to measure the accommodation managers’ general attitudes to the environment (see Appendices 8 and 9), as discussed in Chapter 3. Previous scholars have found that general environmental concern (NEP) associated with environmental behaviour (Luzar et al., 1995; Schultz & Oskamp, 1996; Tsai & Tsai,
The NEP scale (15 statements) were measured on the 7-point Likert scale (7 = strongly agree, 4 = neutral, 1 = strongly disagree) (see Appendices 8 and 9).

5.3.5 Control Variables

The characteristics of the accommodation managers (gender and education level) and the characteristics of the accommodation (establishment size, star rating and location) were identified as control variables (as based on the literature discussed in Chapter 3). The TPB allows for additional factors if they are deemed to be important in behavioural intention or behaviour (Ajzen, 1991). Because the control variables enable predictions to be made about behavioural intentions to adopt the GLC, the following are operationalized for this study:

1. Gender: previous studies stated that females are more concerned about environmental issues. For example, females are more likely to pay more for environmental products (Soomthonsmai, 2001), and to be involved in recycling behaviours (Barr, 2007). The accommodation managers’ gender was operationalized by asking them to indicate their gender (male or female).

2. Education level: previous studies demonstrated that an individual who has a higher level of formal education is more concerned with the environment and has a greater participation in environmental protection behaviour (Kollmuss & Agyeman, 2002; Rivera & Leon, 2005; Smith, 1995). The accommodation managers were asked to indicate their education level by selecting one of the following: Primary school; Lower Secondary school; Upper Secondary school; Vocational Certification; Vocational Diploma; Bachelor’s degree; Master’s degree; and Ph.D.
3. Accommodation size: according to Park, Kim and McCleary (2012) and Petric and Pranic (2009), the managers of large hotels were more likely to implement EMS than the hotel managers of small hotels. As discussed in Chapter 4, in the Thai context the accommodation size is based on the number of rooms, and uses the classifications provided by the National Statistical Office (2010a): less than 60 rooms (small), 60-149 rooms (medium) and 150 rooms or more (large). Therefore, accommodation size was operationalized by asking the respondents to indicate their accommodation size.

4. Star rating: previous literature found that establishments with a higher star rating (4-5 stars) were more likely to have an environmental policy compared to 2-3 star establishments (Petric & Pranic, 2009). Managers of hotels with a classification of 3, 4 and 5 stars are more likely to have a positive attitude towards adopting the EMP and improving the relationship between the public and the hotels, rather than those with a 1 or 2 star classification (Kirk, 1998). Therefore, the accommodation managers were required to indicate the star rating on a scale of one to five.

5. Location: it has been shown that tourists based their decision to choose to stay at a hotel facility based on price, service and location. Research has found that there was a difference in the managers’ attitude, depending on location. Chung and Poon (2001) demonstrated that an individual staying in a rural area had more environmental concerns than one staying in an urban environment. Accommodation location was operationalized by asking the respondents to indicate their location.

5.4 Description of the Questionnaire

According to Ajzen (1991), the TPB model will be a good predictor of behaviour in specific situations, and for particular individuals with whom a person might interact.
The factual knowledge is the potential predictor for any attitude (Stutzman & Green, 1982). Stern (1992) reported that the person who has a specific knowledge (environmental issues) will perform according to that behaviour. These statements are also supported by Kaiser and Fuhrer (2003). Therefore, this study examines the behavioural intentions to adopt the GLC (a specific behaviour) and recognises that these behavioural intentions require an understanding or knowledge of what the behaviour is, before having a behavioural intention to act.

As mentioned in the previous chapter about the questionnaire used in this study, the questionnaire consisted of three sections. To answer the questionnaire, the respondents will follow the steps of the flowchart diagram detailed below.
Figure 5.1 Flowchart Diagram of Questionnaire

Section A
Are you aware that the Green Leaf environmental certification program exists?

Yes

Section A
Please indicate your familiarity and knowledge about the Green Leaf certification program based on a graduated 1 to 7 scale

Section A1 (16 items)
Attitude towards the Benefits of Adopting the GLC

Section A2 (6 items)
Subjective Norm in Relation to Adopting the GLC

Section A3 (13 items)
Barriers towards Adopting the GLC

Section A4 (2 items)
Behavioural Intention to Adopting the GLC

Section B (15 items)
General Environmental Attitudes (NEP Scale)

Section C (6 items)
Respondents’ Characteristics and Accommodation Establishment Profiles
The first section of the questionnaire, as detailed in Figure 5.1 (Section A), consisted of 38 statements designed to: collect data about attitudes towards the benefits of adopting the GLC (16 items); determine the subjective norms towards obtaining the GLC (6 items); determine the perceived behavioural controls towards obtaining the GLC (13 items); and determine the behavioural intentions towards obtaining the GLC (2 items). The respondents had to decide to what extent they agreed or disagreed with each of the statements. Additionally, one open-ended question asking for any other comments or suggestions the participants may want to contribute in relation to their knowledge about the Green Leaf Certification program was encouraged. The purpose of this question was to give the respondents an opportunity to air their thoughts, and for those who may have any suggestions about the GLC that extended beyond the prescribed statements in the questionnaire.

Section B consisted of items measuring general environmental attitudes, using a 7-point Likert scale. Section C gathered information about the participants' profiles and information about their establishment through a multiple-choice checklist. This checklist included six items used to evaluate the participants' profile information (gender, education level and the decision making authority to adopt the GLC) as well as establishment sizes, star ratings and locations.

After developing the questionnaire in English, this questionnaire was translated into the Thai language by the Deputy Director, Institute of Language Art and Culture, Suan Dusit Rajabhat University. He is a recognized bilingual person who is fluent in Thai and English and he provided a letter to confirm that the translation is an accurate reflection of the English version (see Appendix 1). The respondents could select the language by clicking on an icon for either the Thai or English language version. The reasons for both languages being available was, firstly, that general managers may be
either a foreigner or a Thai national, and secondly, the need to read and understand the questionnaire clearly in a familiar language.

5.5 Pilot Study

5.5.1 Data Collection of Pilot Study

A pilot study refers to a survey used on a small scale prior to and done in preparation for the full scale survey, such as for a research questionnaire (Teijlingen & Hundley, 2001). The purpose of the pilot study was to check the practicality, reliability and validity of the survey instrument (Pallant, 2011). In terms of checking its practicality, the questionnaire was assessed for the flow and time taken to do the survey (De Vaus, 2002).

The pilot study was conducted by using a convenient sample of 30 accommodation managers located in Bangkok. Previous research confirms that using a sampling size of 30 to complete a pilot study is effective for testing the reliability of the questionnaire (Gilaninia, Ganjinia & Mohammadi Karkaragh, 2012; Mehboob, Arif & Jalal, 2011; Panurat, Aungsuroch & Chaiyawat, 2010).

The hotel managers were contacted via email at their business email address with an invitation to participate in the survey. This invitation included the information statement document for the pilot study and a link to a URL supporting the Qualtrics survey software, where the survey was located. If the business wanted to participate, they clicked on the link to a URL and consent was implied by survey completion. In addition, the respondents were also asked to give feedback and comment specifically on the clarity and comprehensibility (validity) of the items and instructions.
The data collected for the pilot study was analysed by using the SPSS program version 20.0 in order to test the reliability and validity of the instrument. Factor analysis, employing Cronbach’s alpha and composite reliability, were used. Before checking the reliability of the questionnaire, the factor analysis was used to test how many factors were in each variable. The process of factor analysis is described in the next section.

5.5.2 Factor Analysis of the Pilot Study

A commonly used approach in social science research is factor analysis, a multivariate statistical method (Hair et al., 2010; Williams et al., 2010). Factor analysis (FA) was used to check the interrelationships among a large number of variables. The factor analysis can be used for two main purposes. Firstly, to reduce a large number of variables to a smaller set of variables. It can help the researcher to group them and to describe and interpret a large number of variables. Secondly, to understand the structure of a set of variables. As the variables become correlated, the researcher needs to group highly interrelated variables together, naming the groups, and represent each of the groups of variables (factors) (Field, 2009; Hair et al., 2010; Williams et al., 2010).

Exploratory Factor Analysis (EFA) is a helpful approach for analysing items that consist of a factor in a multifactor structure. Hair et al. (2010, p. 93) stated that EFA “takes what the data gives you" and does not set any priority constraints on the estimation of components or the number of components to be extracted. EFA was used in this study as the aim is not to develop or prove a scale. The items in the questionnaire were composed using items, or parts of items, drawn from previous research. This process is exploratory in nature, as the researcher does not know in advance how many items or groups will be included in the final analysis.
The aim of using confirmatory factor analysis (CFA) is to test a proposed theory or specific hypotheses about the structure, and to ensure that the relationships between latent variables that underlie the data are tested. CFA was used when the researcher had expectations, based on theory, regarding the number of factors, and which factors best fit the theory. Therefore, the EFA approach was the best option in this study as this approach can assist in demonstrating a large number of items and can also transpose them into a smaller set of items. Additionally, since this was the first version of the survey, it was too early in the scale development process to go to the extra effort of confirmatory factor analysis (CFA).

Pallant (2011) contends that to verify that the data set is appropriate for an exploratory factor analysis approach, there are three main assumptions involved. Firstly, Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure can be employed to determine whether a sample size is sufficient (Williams et al., 2010). In Bartlett’s test of sphericity, if the test is statistically significant (P < 0.05), then it provides a support for a sufficient sample size for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy also should be suitable (Pallant, 2011). Tabachnick and Fidell (2007) suggests that the KMO should be more than 0.6.

Secondly, “PCA is a multivariate technique that analyses a data table in which observations are described by several inter-correlated quantitative dependent variables” (Abdi & Williams, 2010, p. 1). The objectives of PCA are to extract the most important information or group the relationships between variables which are shown to have a correlation matrix, and to express this information as a set of new orthogonal variables called principal components which are uncorrelated (Abdi & Williams, 2010; Manning & Munro, 2007).
For EFA, Kaiser’s criterion (the eigenvalue rule) and Catell’s scree test are the techniques that can be used to make a decision concerning the number of factors to retain. Each dimension has an eigenvalue which shows the amount of variance accounted for by the dimension. Only dimensions with eigenvalues of greater than 1.0 should be considered, because if an eigenvalue is less than 1.0 then this means that the dimension accounts for less variance than any single item (Netemeyer, Bearden & Sharma, 2003). The scree plot is another approach that is used to determine the number of retained factors (Ledesma & Valero-Mora, 2007). Costello and Osborne (2005) argue that the scree test is one of the necessary approaches when conducting an EFA, which is a plot of the eigenvalues of the factors. This process involves finding “a point at which the shape of the curve changes direction and becomes horizontal” (Pallant, 2011, p. 184).

Thirdly, factor rotation and an interpretation of the variables should be performed by comparing the item loading tables. The loading table with the ‘cleanest’ factor structure looks at the high item loadings on one dimension and the smaller item loadings on the remaining factor solutions (Williams et al., 2010). Hair, Andersson, Tatham and Black (1998) suggested that factor loadings of 0.40 or higher should be retained to obtain greater correlations between the items and the factors. Additionally, one factor should have more than three items loaded on each factor as a lower number of items produces a weak and unstable result (Costello & Osborne, 2005). If factors meet the above concerns, they are signified the best fit to the data. If loading tables look messy, this is problematic as there can be no resolution from the data by manipulating the numbers of factors retained. With a large data set it may be possible to reduce the item number to create a stronger dimension. It is suggested that a factor with five or more items is necessary for one dimension (Costello & Osborne, 2005). The varimax
Rotation method is a common method of factor rotation, and it was selected to provide a new frame of reference focused on simplifying the columns in a factor matrix. This method is useful as it provides a simple structure where the results are easy to interpret (Manning & Munro, 2007; Pallant, 2011). Each factor that is named or labelling can then be allotted. Nevertheless, factor analysis does not always produce apparent and interpretable results, and researchers should justify and interpret factors that suit the objectives of their study (Allen & Bennett, 2010; Tabachnick & Fidell, 2007). This process was undertaken to check the reliability and validity of the questionnaire, and will be the focus of the next section.

5.5.3 Reliability of the Pilot Study

For an instrument to be valid, it also has to be reliable (Field, 2009). Reliability relates to the consistency of the measurements when the same measure is applied repeatedly (Hair et al., 2010). Therefore, two reliability measures were applied to the data, which were Cronbach’s alpha and composite reliability. Cronbach’s alpha is widely used to measure the reliability of scales. Composite reliability estimates items measuring each of the factors derived from the Exploratory Factor Analysis (EFA). Both were tested for reliability (Field, 2009; Peterson & Kim, 2013).

A 7-point Likert scale with a midpoint that enables respondents to express a neutral opinion was used in the questionnaire because this has been known to improve the construct reliability of the study (Veal, 2005). McMillan (2008) recommends that when the instrument contains a range of possible answers for each item (e.g., such as agree-disagree), the scaling technique improves the reliability of the measurement, in terms of the internal consistency of the constructs being measured. The coefficient alpha method is typically calculated as a measure of internal consistency. This means that the items composing a scale should present a high level of internal consistency.
The reliability coefficient can range from -1.0 to +1.0, and the closer the result is to 1.0 indicates perfect reliability, and the better the constructs’ internal consistency (Francis, 2007; Wanous & Hudy, 2001). However, researchers have suggested that the minimum value of 0.70 is an acceptable lower boundary for alpha (De Vaus, 2002; Robinson, Shaver & Wrightsman, 1991; Wanous & Hudy, 2001). For instruments in which there are factors, a separate measure of internal consistency should be reported for each factor. It is necessary that each factor is reliable. Composite reliability is used to test the construct reliability measure, which evaluates to what extent the items in the construct measures the latent concept. Following Hatcher (1994), the composite reliability can be calculated as follows:

$$\text{Composite reliability} = \frac{(\sum Li)^2}{(\sum Li)^2 + \sum \text{var} (Ei)}$$

where $Li$ = the completely standardized factor loadings for the factor and $\text{Var} (Ei)$ = the error variance associated with the individual items

The method employed here recognises that the commonly acceptable value for composite reliability is 0.7 or more (Hair et al., 1998).

There are four variables which are AT, SN, PBC and NEP. Some of the variables showed, after running factor analysis, that they have more than one factor. Because of this, it was necessary to report on the reliability of all factors. For the questionnaires used in this study, the internal consistency coefficient (Cronbach’s alpha) for each section of the instrument was over 0.7.

Additionally, this research tested the reliability of each construct’s factors by using the composite reliability (CR) method, which refers to the measure of the internal consistency of items in a scale, with each scale based on the proportion of items. The number of items in the scale must be considered (Netemeyer et al., 2003; Starkweather,
2012), and construct loadings used to check, whereas the loadings for coefficient alpha are constrained to be equal (Peterson & Kim, 2013). As mentioned above, the commonly acceptable value for composite reliability is 0.7 or more (Hair et al., 1998). Therefore, in relation to the purpose of the pilot study, the results showed that this questionnaire had reliability. The reliability was proven by the Cronbach’s alpha and composite reliability values, which mean that the pilot questionnaire had an acceptable level of reliability.

5.5.4 Validity of the Pilot Study

Validity refers to the extent of accuracy to which the collected data reflects the set of indicators representing the idea of interest (constructs) being studied (Hair et al., 1998; Tharenou, Donohue & Cooper, 2007). Content validity refers to whether the items designed for measuring the construct adequately cover its different components. A measure’s items are screened by reference to content experts who have the expertise and experience in both developing and analysing survey data to make judgements on samples from relevant populations. The content validity of the questionnaire items needs to be tested on proper samples from relevant populations (Cohen, Manion & Morrison, 2011; Netemeyer, Bearden & Sharma, 2003). Existing research and literature on the construct provides an excellent source that helps identify the key components that together define the construct (Tharenou et al., 2007), including wording, formats and instruction (Netemeyer et al., 2003). Therefore, to address content validity, the questionnaire was checked by three experts. The questionnaire content was checked for correct grammar and clarity of expression. The questionnaire was developed in an English version and later translated into a Thai version. The wording of the items was carefully reviewed because the comprehensibility of an item is the most important
element that contributes to the success of the research (Cohen, Manion & Morrison, 2011).

Face validity is a subjective measurement of a test at face value, and it measures what is obvious from the perspective of the respondents from the relevant populations (Netemeyer et al., 2003; Tharenou et al., 2007). This study collected the data from Thai hotel managers because they have a knowledge of the GLC and have the authority to decide to adopt the GLC, as discussed in Chapter 4. For the validity of the pilot study, participants were asked to make suggestions and provide feedback on questions, such as ‘Are the questions clear and understandable?’ (Nardi, 2006; Ustad, 2010). Therefore, by making the instrument easy to use, readable, and written with clarity, they would be user friendly in the Thai and English versions (Netemeyer et al., 2003).

Therefore, after the participants completed the survey, there were three questions requesting feedback, as follows: ‘Were the questions clear and understandable and did you feel comfortable answering the questions?’; ‘Was 15 to 20 minutes sufficient time to complete the survey?’; and ‘Do you have any suggestions about how the survey could be improved?’. The respondents indicated that the questions were easy to read and comprehend. Most of the respondents (76.7%) understood the questions, and the rest of respondents reported that although the words the questionnaire used were academic, they were able to understand them. The time required to answer the questions ranged between 10 and 15 minutes. The results showed that the sequence of the survey posed no problems for the respondents to answer the questionnaire.

The researcher was confident that the sample represented the population of the study, however to check that the sample represented the population, the size and location of the accommodation were used to compare the proportion of population with
the proportion of the sample. To ensure reliability the question “Where is your accommodation located?” was added into the questionnaire and was also approved by the ethics committee for checking generalizability.

In conclusion, in relation to the purpose of the pilot study, the results showed that this questionnaire had reliability and validity. The reliability can be seen from the Cronbach’s alpha and composite reliability values, in which all variable interests were over 0.7, which means that this questionnaire had an acceptable level of reliability. Additionally, the respondents indicated that the questions were easy to read and that they understood the questions, an indication of face and content validity. The time required to answer the questions ranged between 10 and 15 minutes. Therefore, this questionnaire was used in the main study.

5.6 Results of Pilot Study

In the pilot study, factor analysis was performed using SPSS 20.0. A principal component analysis (PCA), followed by a varimax rotation, was conducted on all four main variables that each measure AT, SN and PBC in relation to adopting the GLC and the NEP, respectively. The results from the factor analysis, Cronbach’s alpha and composite reliability are demonstrated in the section below.

5.6.1 Underlying Factors of Attitude to Adopted the GLC in the Pilot Study

The scale of attitude, comprising 16 items, measured the beliefs about costs and benefits incurred from adopting GLC. The Kaiser-Meyer-Olkin (KMO), a measure of sampling adequacy, was higher than 0.6 (KMO = 0.770) and Bartlett’s Test of Sphericity was significant ($\chi^2 = 366.352, p < 0.05$). Therefore, these two criteria items were also judged to be appropriate in order to apply the PCA to the dataset. Results derived from PCA revealed that three factors could be identified that explained 70.4% of the overall
variance in the entire scale. The factor loading of each item ranged from 0.41 (Item 6) to 0.89 (Item 10) (see Table 5.3). All items that have factor loading above 0.4 are acceptable.

The scree plot is an alternative method for deciding how many factors should be considered. The scree plot shows the slope of the line begins to flatten out at about the fourth factor (see Figure 5.2). Therefore, the attitude to adopting the GLC variable should account for three factors.

**Figure 5.2 The Scree Plot of Attitude Towards the Benefits of Adopting the GLC in the Pilot Study**

As can be seen in Table 5.3, on the basis of the PCA, three new component variables were generated. The first factor consists of six items, which are Items 10, 11, 12, 13, 9 and 16. The level of the factors relate to marketing. The five items (10, 11, 12, 13 and 9) clearly relate to the market, while Item 16 ‘Improve public relations’, is loaded with the same factor as the other five items. It was not directly related to marketing, but may have been by the respondents as having a direct link to marketing. In this case, it would appear that the underlying factor is the concept ‘Marketing Benefits’.
The second factor consists of 6 items (4, 3, 5, 8, 15 and 6) and all have loading factors on environment issues, while ‘Improve the hotel’s relationship with the local community’ (Item 15) is loaded with the same factor as the other five items. This may be because respondent perspectives have a direct link to the environment. These items measured respondent concerns about natural resources. This factor was, therefore, labelled as ‘Environmental Benefits’ (see Table 5.3).

The third factor named ‘Economic Benefits’ consisted of four items which were: reduce operational expenses (Item 1); increase profitability (Item 2); upgrade quality of services (Item 14); and reduce greenhouse gas emissions (Item 5). This factor related to the cost of environmental practices. Items 1, 2 and 14 were associated with economic areas, while Item 5 appears to be directly related to the environment but it was loaded with the economic factor. Respondents may have perceived that reduced greenhouse gas emission was related to economic benefits (see Table 5.3).

The Cronbach’s alpha value and composite reliability values used to measure ‘Marketing Benefits’, ‘Environment Benefits’ and ‘Economic Benefits’ met the criterion of 0.70 suggested by Hair et al. (1998). The Cronbach’s alpha was calculated to be 0.92, 0.85 and 0.76, respectively. The composite reliability for these three factors was 0.91, 0.86 and 0.76, respectively. These three new variables are used in the analyses presented in Table 5.3.
Table 5.3 Attitude Towards the Benefits of Adopting the GLC in the Pilot Study

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing benefits (6 items)</td>
<td></td>
<td>7.87</td>
<td>49.19</td>
<td>0.92</td>
<td>0.91</td>
</tr>
<tr>
<td>10 Help access new markets</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Provide marketing advantages</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Increased market share</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Improve customer satisfaction</td>
<td>0.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Improve the hotel’s image</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Improve public relations</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental benefits (6 items)</td>
<td>1.813</td>
<td>11.33</td>
<td>0.85</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>4 Improve the natural environment</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Ensure environmental sustainability</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Reduce waste materials</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Contribute to habitat conservation</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Improve the hotel’s relationship with the local community</td>
<td>0.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Reduce water consumption</td>
<td>0.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic benefits (4 items)</td>
<td></td>
<td>1.58</td>
<td>9.872</td>
<td>0.76</td>
<td>0.76</td>
</tr>
<tr>
<td>1 Reduce operational expenses</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Increase profitability</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Upgrade quality of services</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Reduce greenhouse gas emissions</td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total variance</td>
<td></td>
<td></td>
<td>70.40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kaiser-Meyer-Olkin = 0.770
Bartlett’s Test of Sphericity (Sig.) = .000*

5.6.2 Underlying Factors of the Subjective Norm to Adopt the GLC in the Pilot Study

Section A3 consists of six items which represented the individuals (i.e., cooperate leadership, friends) and entities (i.e., regulation) that were significant in respondents’ intention to adopt the GLC. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.885 was higher than 0.6 and the Bartlett’s Test of Sphericity was
significant (χ2 = 117.601, p < .05). Therefore, the assumption is that they are suitable for PCA on this dataset. The results showed only one dimension in this section, with factor loading scores ranging from 0.79 (Item 4) to 0.90 (Item 6) (see Table 5.4). The scree plot in Figure 5.3, showed only one factor. The line starts to elbow at about the second factor.

Figure 5.3 The Scree Plot of the Subjective Norms to Adopting the GLC in the Pilot Study

In this case, only one variable was generated. The heaviest loading was on one factor measuring persons who influenced respondents to adopt the GLC. Respondents’ friends, customers, government, employees, family and corporate leadership influenced respondents to make a decision to adopt the GLC. Therefore, this factor was named as the subjective norm. The Cronbach’s alpha was 0.92 and the composite reliability was 0.94. Both values met the criterion of 0.7 to measure ‘Subjective Norms’. This result is presented in Table 5.4.
## Table 5.4 Subjective Norms in Relation to Adopting the GLC in the Pilot Study

<table>
<thead>
<tr>
<th>Statements</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Norms (6 items)</td>
<td>3.43</td>
<td>72.42</td>
<td>0.92</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>6 My friends influence my decision to adopt the GLC</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 My customers influence my decision to adopt the GLC</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Government tourism regulations influence my decision to adopt the GLC</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 My employees influence my decision to adopt the GLC</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 My family influences my decision to adopt the GLC</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 My corporate leadership influences my decision to adopt the GLC</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total variance</td>
<td></td>
<td></td>
<td>72.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiser-Meyer-Olkin = 0.885</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity (Sig.) = .000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5.6.3 Underlying Factors of Perceived Behavioural Control to Adopting the GLC in the Pilot Study

The scale of behavioural control contained 13 items, which represented respondents’ perceived barriers to adopting the GLC. The result of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy value was 0.666, which was higher than 0.6, and Bartlett’s Test of Sphericity was significant ($\chi^2 = 382.569$, $p < .05$). Therefore, these indicated that the data was suitable for factor analysis. The PCA revealed that two factors together explained 74.12% of the total variance in the scale (see Table 5.5).
Factor 1 was labelled ‘Knowledge and Personal Barriers’ and contained 7 items (Item 7 – Item 13). Items 7 – 11 were related to knowledge, while Items 12 and 13 were related to personnel. The loading of each item ranged from 0.73 (Item 7) to 0.91 (Item 11). Overall, 52.49% of variance was explained by this factor.

The second factor consisted of six items, which were Items 1 - 6. Items 1 - 3 were related to economic areas because all three items have the word ‘cost’ in them, and Items 4 - 6 were related to the process to adopt certification. Therefore, these pointed to the areas of ‘Financial and Process Barriers’. Factor 2 had 21.63% of variance explained by six items whose loading on this dimension ranged between 0.71 (Item 1) and 0.87 (Item 5) (see Table 5.5). These two factors were found to have an eigenvalue of more than 1.0 (6.82 and 2.18) (see Figure 5.4). The scree plot in Figure 5.4 shows the slope of this line begins to fatten out at about the fourth factor. Therefore, this variable contained three factors.

**Figure 5.4 The Scree Plot of PBC to Adopt the GLC in the Pilot Study**

The Cronbach’s alpha was calculated to be 0.95 and 0.90, and the composite reliability estimated for these two factors were 0.95 and 0.91, representatively. Both values were close to 1.0, which indicated good reliability (Francis, 2007). The factor analysis of the PBC to adopting GLC generated two new factors, which are illustrated in Table 5.5 below.
Table 5.5 PBC to Adopting the GLC in the Pilot Study

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge and Personal Barriers (7 items)</strong></td>
<td></td>
<td>6.82</td>
<td>52.49</td>
<td>0.95</td>
<td>0.95</td>
</tr>
<tr>
<td>11 Inadequate professional advice makes it difficult for my hotel to obtain the GLC</td>
<td>0.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Lack of GLC training programs makes it difficult for me to implement the practices needed to obtain the GLC</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 The hotel staff's lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Lack of training programs makes it difficult for my staff to implement practices needed to obtain the GLC</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 High employee turnover rate of environmentally trained personnel makes it difficult to adopt the GLC</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Lack of government support makes it difficult to adopt the GLC</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financial and Process Barriers (6 items)</strong></td>
<td>2.81</td>
<td>21.63</td>
<td>0.90</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>5 Lengthy time required for GLC</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Cost of technology to implement environmentally sustainable practices</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Complicated GLC requirements</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 High certification cost, including membership and application fees</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Inadequate professional assistance</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 High implementation cost</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total variance</td>
<td>74.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kaiser-Meyer-Olkin = 0.666
Bartlett's Test of Sphericity (Sig.) = .000*
5.6.4 Underlying Factors of the NEP in the Pilot Study

The remaining 15 items formed the scale of the NEP that measured the respondents’ general attitudes towards the environment. As discussed in the section above, one factor should be more than three items as a lower number of items produces a weak and unstable result (Costello & Osborne, 2005). Three factors contained lower than three items and as that could be problematic the researchers reran the analysis to solve the problem. Therefore, the factors were decreased to two factors to solve this problem by rerunning factor analysis with a fixed number of factors (2 factors extracted).

This section showed the KMO value was 0.6, which was acceptable for the KMO value, and Bartlett’s Test of Sphericity was a significant value of \( \chi^2 = 226.479, p < .05 \). Therefore, these indicated that the data is appropriate for factor analysis. The final factor analysis generated two dimensions, which accounted for 50.34% of the total variance. The scree plot in Figure 4.4 shows that the eigenvalue of two factors was more than 1.0 (4.80 and 2.75). Factor 1, ‘Eco-centric’, had 31.99% of variance and was comprised of seven items whose loading on this dimension ranged between 0.46 (Item 6) and 0.89 (Item 5). Factor 2, ‘Anthropocentrism’, had 18.36% of variance and consisted of six items retained in this factor, each with a factor loading score ranging from 0.46 (Item 1) to 0.79 (Item 12) (see Table 5.6). The scree plot demonstrated that it was suitable to retain five factors because the line elbows at the sixth factor. However, for designing how many factors it should have, it should be considered parallel with the eigenvalues of the variables. As discussed above, each factor should have an eigenvalues greater than 1.0 and contain at least three items in each factor. Therefore, it was appropriate to retain this variable in two factors.
As seen in Table 5.6, the factor analysis generated two new factors. Factor 1, ‘Eco-centric’, consisted of seven items, Items 5, 6, 7, 9, 11, 13 and 15, all of which focus on the ecological. These factors yield a Cronbach’s alpha of 0.82 and a composite reliability of 0.87, and have an acceptable reliability. The second factor, representing the concept of ‘Anthropocentrism’, was represented by eight items (Items 1, 2, 3, 4, 8, 10, 12 and 14) which deal with human beings. The Cronbach’s alpha was calculated to be 0.82 and 0.79, respectively. The composite reliability was 0.87 (Factor 1) and 0.84 (Factor 2). The Conbach’s alpha and composite reliability scores for both factors show the values are higher than 0.7 and had an acceptable level of reliability. The factor analysis of the NEP to adopting the GLC generated two new factors, which are illustrated in Table 5.6 below.
Table 5.6 The NEP Scale in the Pilot Study

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-centrism (7 items)</td>
<td></td>
<td>4.80</td>
<td>31.99</td>
<td>18.36</td>
<td></td>
</tr>
<tr>
<td>5 Human beings severely abusing the environment</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 If things continue on their present course, we will soon experience a major ecological Catastrophe</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Plants and animals have as much right as humans to exist</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 The earth is like a spaceship with very limited room and resources</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 The balance of nature is very delicate and easily upset</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Despite our special abilities humans are still subject to the laws of nature</td>
<td>0.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 The earth has plenty of natural resources if we just learn how to develop them</td>
<td>0.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthropocentrism (8 items)</td>
<td></td>
<td>2.75</td>
<td>18.36</td>
<td>0.79</td>
<td>0.84</td>
</tr>
<tr>
<td>12 Humans were meant to rule over the rest of nature</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Humans will eventually learn enough about how nature works to be able to control it</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Humans have the right to modify the natural environment to suit their needs</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 When humans interfere with nature it often produces disastrous consequences</td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>0.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Human ingenuity will ensure that we do not make the earth unliveable</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 We are approaching the population limit which the earth can support</td>
<td>0.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total variance 50.34

Kaiser-Meyer-Olkin = 0.600

Bartlett’s Test of Sphericity (Sig.) = .000*
5.7 Summary

The research instrument was in the form of a survey, which provided an insight into the accommodation managers’ behavioural intentions towards adopting the GLC. The questionnaire development was based on the constructs of the TPB from previous studies. This chapter explained in detail the results and the methods adopted to analyse the reliability and validity of the pilot study. The results of the main study will be presented in Chapter 6.
CHAPTER SIX

Research Results

6.1 Introduction

This chapter presents the findings of this study, and focuses primarily on the results of a series of hypothesis tests, described in Chapter 4, that were developed to address the research questions that underpin this thesis. This chapter begins by describing the characteristics of the sample (gender and education), including the demographic profiles of the organizations in the sample (size, star rating, and location). The chapter then presents the findings of the exploratory factor analysis (EFA). The EFA collapsed a large number of variables into a smaller set of variables that were subsequently used as part of the multiple regression modelling. The results of the multiple regression models are presented later in this chapter.

6.2 Description of the Sample

Out of 3,005 accommodation managers invited to participate in the survey, 359 (11.9%) responded (Please note: the low response rate, and how it was managed, are discussed later in this chapter). This sample was further divided into two sub-samples: those who knew about the GLC (n = 202), and those who did not know about the GLC (n = 157). The 202 accommodation managers who knew of the GLC were asked to rate their level of knowledge about the GLC and their level of decision making authority to adopt the GLC (see Table 6.1).
The mean score of the respondents’ knowledge about the program demonstrated that the respondents were generally familiar with this program. The mean score of the decision making authority of the respondents showed that they had a generally high degree of decision making authority to adopt the program. Therefore, the response from this sub-sample provides valid data regarding the intentions of hotel managers to adopt the GLC.

It was not appropriate to ask those without knowledge about the GLC any further questions about their intentions regarding GLC adoption. However, all respondents were asked to complete the New Ecological Paradigm (NEP) scale which assesses respondents’ general environmental attitudes (the results of the NEP are discussed later in this chapter). All respondents were also asked to provide personal and demographic profile information. Table 6.2 describes the profiles of the accommodations managers and differentiates between those with knowledge of the GLC and those without knowledge of the GLC.

6.3 Respondent’s Profiles and Knowledge of the GLC

To answer Research Question 1, Is there any difference between those accommodation managers who know about the GLC and those that do not?, a Chi-square analysis was conducted to test the relationship between the respondent’s profile and their knowledge of the GLC, and is detailed in Table 6.2 See Appendix 12 for a table that presents the
results of the cross-tabulation analysis related to the Chi-Square Test. The following briefly highlights the findings from the Chi-square analysis.

Gender: This study found that there was no significant statistical relationship between gender and knowledge about the GLC, $\chi^2 (DF = 2, n = 359) = 1.32, P > 0.05$, with 59.7% of males who knew about the GLC, compared with 40.3% of males who did not know about the GLC.

Education level: This study also found no significant statistical relationship between the education level of the accommodation managers and their knowledge about the GLC, $\chi^2 (DF = 2, n = 359) = 1.49, P > 0.05$, with 55.30% of the respondents who knew about the GLC and held less than a bachelor’s degree, compared with 44.70% of respondents who did not know about the GLC and held a bachelor’s degree.

Hotel sizes: The analysis showed a significant statistical relationship between knowledge about the GLC and accommodation sizes, $\chi^2 (DF = 2, n = 359) = 27.56, P < 0.05$, with 79.30% of managers who knew about the GLC in large establishments, compared with only 20.70% of managers in large establishments who did not know the GLC.

Hotel Star Rating: A significant statistical relationship was also found between knowledge about the GLC and the star rating, $\chi^2 (DF = 2, n = 359) = 29.29, P < 0.05$, with 75.20% of managers who knew about the GLC in 4-5 star rating accommodation, compared with only 24.80% of managers in 4-5 star rating accommodation who did not know the GLC.

Location: There was a significant difference between knowledge about the GLC and accommodation locations. A significant statistical relationship was found between these two variables, $\chi^2 (DF = 4, n = 359) = 17.77, P < 0.05$, with 78.70% of managers who knew about the GLC in Bangkok, compared with only 21.30% of managers who
did not know the GLC in Bangkok. 61.10% of managers knew of the GLC in southern Thailand, compared with 38.89% of managers who did not know the GLC in southern Thailand (Table 6.2).

Table 6.2 Respondent’s Profiles and Knowledge of the GLC

<table>
<thead>
<tr>
<th></th>
<th>All Respondents</th>
<th>Know the GLC</th>
<th>Not know the GLC</th>
<th>Total</th>
<th>χ²</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>154</td>
<td>42.9</td>
<td>92</td>
<td>59.70</td>
<td>62</td>
<td>40.30</td>
</tr>
<tr>
<td>Female</td>
<td>205</td>
<td>57.1</td>
<td>110</td>
<td>53.70</td>
<td>95</td>
<td>46.30</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than Bachelor’s degree</td>
<td>38</td>
<td>10.6</td>
<td>21</td>
<td>55.30</td>
<td>17</td>
<td>44.70</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>213</td>
<td>59.3</td>
<td>115</td>
<td>54.00</td>
<td>98</td>
<td>46.00</td>
</tr>
<tr>
<td>Higher than Bachelor’s degree</td>
<td>108</td>
<td>30.1</td>
<td>66</td>
<td>61.10</td>
<td>42</td>
<td>38.90</td>
</tr>
<tr>
<td><strong>Accommodation Size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>196</td>
<td>54.6</td>
<td>87</td>
<td>44.40</td>
<td>109</td>
<td>55.60</td>
</tr>
<tr>
<td>Medium</td>
<td>105</td>
<td>29.2</td>
<td>69</td>
<td>65.70</td>
<td>36</td>
<td>34.30</td>
</tr>
<tr>
<td>Large</td>
<td>58</td>
<td>16.2</td>
<td>46</td>
<td>79.30</td>
<td>12</td>
<td>20.70</td>
</tr>
<tr>
<td><strong>Star rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 star rating</td>
<td>78</td>
<td>21.7</td>
<td>29</td>
<td>37.20</td>
<td>49</td>
<td>62.80</td>
</tr>
<tr>
<td>3 star rating</td>
<td>164</td>
<td>45.7</td>
<td>85</td>
<td>51.80</td>
<td>79</td>
<td>48.20</td>
</tr>
<tr>
<td>4-5 star rating</td>
<td>117</td>
<td>32.6</td>
<td>88</td>
<td>75.20</td>
<td>29</td>
<td>24.80</td>
</tr>
<tr>
<td><strong>Accommodation Located</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangkok</td>
<td>47</td>
<td>13.1</td>
<td>37</td>
<td>78.70</td>
<td>10</td>
<td>21.30</td>
</tr>
<tr>
<td>Central</td>
<td>63</td>
<td>17.5</td>
<td>30</td>
<td>47.60</td>
<td>33</td>
<td>52.40</td>
</tr>
<tr>
<td>Northern</td>
<td>84</td>
<td>23.4</td>
<td>42</td>
<td>50.00</td>
<td>42</td>
<td>50.00</td>
</tr>
<tr>
<td>North-Eastern</td>
<td>39</td>
<td>10.9</td>
<td>16</td>
<td>41.00</td>
<td>23</td>
<td>59.00</td>
</tr>
<tr>
<td>Southern</td>
<td>126</td>
<td>35.1</td>
<td>77</td>
<td>61.10</td>
<td>49</td>
<td>38.90</td>
</tr>
</tbody>
</table>

6.3.1 Description of General Environmental Attitudes

General environmental attitudes were determined using the NEP scale, which was administered to all respondents in the study, regardless of their knowledge of Green Leaf Certification (GLC). Table 6.3 presents the mean scores and standard deviations of each of the 15 items in the NEP. The mean score for each item is out of a possible 7 – based on a 7 item Likert scale. While it may be possible to identify broad patterns in
the grouping of items around the mean scores, this is not a rigorous approach. Instead, an Exploratory Factor Analysis (EFA) was employed to identify such groupings.

Table 6.3 Mean and Standard Deviations of NEP Scale Items

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We are approaching the population limit which the earth can support</td>
<td>5.45</td>
<td>1.39</td>
</tr>
<tr>
<td>2</td>
<td>Humans have the right to modify the natural environment to suit their needs</td>
<td>3.41</td>
<td>1.94</td>
</tr>
<tr>
<td>3</td>
<td>When humans interfere with nature it often produces disastrous consequences</td>
<td>6.18</td>
<td>1.22</td>
</tr>
<tr>
<td>4</td>
<td>Human ingenuity will ensure that we do not make the earth unliveable</td>
<td>3.12</td>
<td>1.56</td>
</tr>
<tr>
<td>5</td>
<td>Human beings are severely abusing the environment</td>
<td>6.19</td>
<td>1.28</td>
</tr>
<tr>
<td>6</td>
<td>The earth has plenty of natural resources if we just learn how to develop them</td>
<td>2.13</td>
<td>1.44</td>
</tr>
<tr>
<td>7</td>
<td>Plants and animals have as much right as humans to exist</td>
<td>5.91</td>
<td>1.38</td>
</tr>
<tr>
<td>8</td>
<td>The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>4.49</td>
<td>2.01</td>
</tr>
<tr>
<td>9</td>
<td>Despite our special abilities humans are still subject to the laws of nature</td>
<td>6.14</td>
<td>1.1</td>
</tr>
<tr>
<td>10</td>
<td>The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>4.72</td>
<td>1.91</td>
</tr>
<tr>
<td>11</td>
<td>The earth is like a spaceship with very limited room and resources</td>
<td>5.7</td>
<td>1.33</td>
</tr>
<tr>
<td>12</td>
<td>Humans were meant to rule over the rest of nature</td>
<td>4.61</td>
<td>1.97</td>
</tr>
<tr>
<td>13</td>
<td>The balance of nature is very delicate and easily upset</td>
<td>5.93</td>
<td>1.12</td>
</tr>
<tr>
<td>14</td>
<td>Humans will eventually learn enough about how nature works to be able to control it</td>
<td>3.26</td>
<td>1.77</td>
</tr>
<tr>
<td>15</td>
<td>If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>6.06</td>
<td>1.29</td>
</tr>
</tbody>
</table>
6.4 Exploratory Factor Analysis (EFA) of the New Ecological Paradigm (NEP)

6.4.1 Factor Development Process

An Exploratory Factor Analysis was conducted in order to contextualise the NEP to Thailand. It is also a rigorous technique for reducing the number of NEP variables so that they can be more effectively operationalised as a part of further analysis and modelling. The results from the factor analysis revealed an initial 5 factor model. However, one of these factors (Factor 5) was comprised of only two items. Costello and Osborne (2005) recommend that the loading items factor should have more than three items as a lower number of loading items produces a weak and unstable loading item factor. More critically, the reliability of this factor was low (Cronbach’s alpha: 0.108). To address the unreliability of this factor, the two items that constituted this factor were dropped and the factor analysis was then rerun without Items 1 and 6.

The results from rerunning the factor analysis showed 4 tentative factors, as follows:

- Factor 1 (consisted of Items 2, 4, 8 and 10),
- Factor 2 (consisted of Items 3, 5, 7 and 13),
- Factor 3 (consisted of Items 9, 11 and 15),
- Factor 4 (consisted of Items 12 and 14)

The Cronbach’s alpha for all of these four tentative factors demonstrated reliability, with at least 0.7 across all factors (Robinson et al., 1991; Wanous & Hudy, 2001). Factor 4 contained only two items. Once again, this contravenes the recommended minimum number of items in factors (Costello and Osborne (2005). Given the strong Cronbach’s alpha of the factors, it was inappropriate to drop any items. Instead, the factor analysis was re-run, with all the remaining items forced into a two factor structure.
6.4.2 Final Factor Structure

The two factors derived from the principal component analysis are presented in Table 6.4. Factor 1 (consisting of Items 2, 4, 8, 10, 12 and 14), was labelled ‘Anthropocentrism’ as it contained items that emphasised human well-being derived from environmental resources. Factor 2 (consisting of Items 3, 5, 7, 9, 11, 13 and 15), was labelled ‘Eco-centrism’, and contained items that emphasised the protection of the environment without any instrumental connection to human well-being.

Bartlett’s test also showed significant results (p < 0.05) and the Kaiser-Meyer-Olkin (KMO) was 0.725, which was more than 0.6, indicating that the factor analysis in this study was appropriate.

The next procedure was testing the reliability by using Cronbach’s alpha and composite reliability. The results showed that both factors revealed acceptable internal consistency. Eco-centrism explained 23.02% of the overall variance and was comprised of the seven items retained in this factor loading, with mean scores ranging between 0.46 and 0.73. Anthropocentrism had 19.69% of the variance and consisted of six items retained in this factor loading, with mean scores ranging between 0.60 and 0.73. The total variance was 45.08% and both factors were found to have an eigenvalue of more than 1.0 (i.e., Eco-centrism: 2.99; Anthropocentrism: 2.56).
Table 6.4 Factor Analysis of General Environmental Attitudes (NEP)

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eco-centrism (7 items)</strong></td>
<td></td>
<td>2.99</td>
<td>23.02</td>
<td>0.71</td>
<td>0.80</td>
</tr>
<tr>
<td>13 The balance of nature is very delicate and easily upset</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 When humans interfere with nature it often produces disastrous consequences</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Human beings are severely abusing the environment</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Plants and animals have as much right as humans to exist</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 The earth is like a spaceship with very limited room and resources</td>
<td>0.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Despite our special abilities humans are still subject to the laws of nature</td>
<td>0.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anthropocentrism (6 items)</strong></td>
<td></td>
<td>2.56</td>
<td>19.69</td>
<td>0.80</td>
<td>0.86</td>
</tr>
<tr>
<td>4 Human ingenuity will ensure that we do not make the earth unliveable</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Humans were meant to rule over the rest of nature</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Humans have the right to modify the natural environment to suit their needs</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>0.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Humans will eventually learn enough about how nature works to be able to control it</td>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total variance 45.08

Kaiser-Meyer-Olkin = 0.725
Bartlett’s Test of Sphericity (Sig.) = .000*
A scree plot was applied to double check how many factors should be retained, and is presented in Figure 6.1. The scree plot suggests that it was appropriate to retain two factors as the line starts to flatten out at the third factor and the eigenvalues of the remaining factors were < 1.0

**Figure 6.1 The Scree Plot of the NEP of the Respondents**

To test the differences in the NEP between the GLC knowledge of respondents, a T-test was employed in this study. Padgett (2011) pointed out that a parametric test (such as a T-test and a One-way ANOVA) was generally more powerful than non-parametric tests. It has also been suggested that parametric tests require a normal distribution in the samples (Howell, 1989). Field (2009) evoked ‘Central Limit Theorem’ to argue that sample distribution normality is likely in large samples (>30 approx.). Because both sample sizes of this study were greater than 30 (GLC knowledge: n = 202; No GLC knowledge: n = 157) parametric tests, including a T-Test and a One-way ANOVA, were appropriate to employ. Additionally, normal parametric testing was the most appropriate when the data was either an interval or a ratio (Clark-Carter, 2009). All items of the NEP scale provided interval data as they were measured on the 7-point Likert scale.
Table 6.5 presents an independent sample T-test which was performed to compare whether both groups differed in their eco-centrism and anthropocentrism. In relation to anthropocentrism, a significant difference was obtained (F = 2.889, p < 0.05). This finding partially supports Hypothesis 1, There is a positive relationship between knowledge of the GLC and general environmental attitude (NEP), insofar as it suggests that the accommodation managers who knew about the GLC have a mean score of attitude that was less anthropocentric than those who did not know the GLC. However, the hypothesis was not supported, in terms of eco-centrism, as there was no significant difference between the accommodation managers who knew of the GLC and those who did not, with F = 0.064, p > 0.05.

### Table 6.5 Differences in NEP Between Knowledge of the GLC

<table>
<thead>
<tr>
<th></th>
<th>Know the GLC</th>
<th>Not know the GLC</th>
<th>T test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropocentrism</td>
<td>3.79</td>
<td>4.13</td>
<td>0.01*</td>
</tr>
<tr>
<td>Eco-centrism</td>
<td>6.04</td>
<td>5.99</td>
<td>0.60</td>
</tr>
</tbody>
</table>

### 6.4.3 One-Way ANOVA Analysis

To further explore the differences between those with and those without GLC knowledge, this study used the One-Way ANOVA method to test the differences between general environmental attitudes (NEP) (the anthropocentrism and eco-centrism variables) across the respondent’s profile variables of gender and education level.

In Table 6.6, in the group of respondents who knew about the GLC, a One-Way ANOVA analysis revealed that the gender of the respondents did make a significant difference in eco-centric attitude, F (202) = 5.297, P > 0.05. The findings revealed that the mean score of the females who had an eco-centric attitude (M = 6.19) was higher than the males who had an eco-centric attitude (M = 5.97). This means that females,
compared to males, were more likely to protect rather than take advantage of the environment. However, there was no significant difference in the NEP based on education. The results of the One-Way Anova analysis supported Hypothesis 1.

Table 6.6 Differences Between Respondent’s Profiles and Knowledge of the GLC

<table>
<thead>
<tr>
<th></th>
<th>Know the GLC (202)</th>
<th>Not know the GLC (157)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Sig</td>
</tr>
<tr>
<td>Anthropocentrism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.92</td>
<td>0.62</td>
</tr>
<tr>
<td>Female</td>
<td>3.82</td>
<td></td>
</tr>
<tr>
<td>Eco-centricism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5.97</td>
<td>0.02</td>
</tr>
<tr>
<td>Female</td>
<td>6.19</td>
<td></td>
</tr>
</tbody>
</table>

* denotes significance p<0.05

6.5 Non-Response Bias

As noted earlier, there was a response rate of 11.9% from those invited to participate in this study. The potential effect of this non-response bias is a factor that needs to be addressed in survey based studies (Vase, 2008). Every effort should be made to avoid such bias. However, in this study multiple efforts to increase the response rate were only partially successful. Additionally, this study is also concerned about self-selection bias (non-representativeness) and social desirability bias. Braver and Bay (1992) and Särndal, and Lundström (2005) argued that weighting strategy is one of the most useful
methods for these issues’ into this section. Therefore, a weighting strategy was employed to address potential non-response bias.

After data screening, the first step was to examine whether the respondents were representative of the entire population. The same set of information about the population and sample that was available to the researcher, including size and location, was used for the comparison.

The one-sample Z-test method was used to compare a sample proportion to a population proportion. The population, in terms of the establishment size and location, were used. The analysis revealed that the proportion of small accommodation establishments in the sample was less than the proportion in the population. However, the proportion of the medium and large accommodation establishments in the sample was more than the proportion in the population. Additionally, the proportion of accommodation establishments located in the north of Thailand in the sample was similar to the proportion in the population. The proportion of accommodation establishments in Bangkok and the south of Thailand in the sample were larger than the proportion in the population. The proportion of the central and north-eastern accommodation establishments in the sample is smaller than the proportion in the population. Because population data was unavailable for gender, education level and hotel star ratings, it was not possible to test the differences between the sample and the population. Details of the differences are provided in Appendix 13.

6.5.1 Weighting Data

Brick and Kalton (1996) and Vaske (2008) argue that the purpose of weighting data is to increase the weights of the respondent’s case to adjust for over-representation and under-representation in the sample, relative to the population. In Table 6.6, the study
employed the following procedures to address the problem of over-representation and under-representation. In this study, the population proportion that is known is the accommodation sizes and location. The accommodation establishments are divided into three sizes: small, medium and large. The accommodation establishments are also divided into five regions. Therefore, the combination of these two variables (accommodation size and location), and their associated levels, resulted in 15 cells (3 accommodation sizes * 5 accommodation located). The information below lists the weighting formula (Vaske, 2008):

Formula: \[ \text{Weight} = \frac{\text{Population \%}}{\text{Sample \%}} \]

Where: 
- Population \% = \frac{\text{Number of population in stratum}}{\text{Number of accommodation strata}}
- Sample \% = \frac{\text{Number of sample in stratum}}{\text{Number of sample strata}}

The weight derived from the weighting formula was used to adjust the sample to be representative of the population, and to give a higher weight to the underrepresented and a lower weight to the overrepresented. This step adjusted the sample data after data collection. For example, if the respondents worked in small sized accommodation, and were located in Bangkok, they were weighted by 0.31, and each cell was weighted (see Table 6.7).
Table 6.7 Weight Data by Size and Location

<table>
<thead>
<tr>
<th>Size/Location</th>
<th>Population</th>
<th>Sample</th>
<th>% of Population</th>
<th>% of Sample</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small-Bangkok</td>
<td>58</td>
<td>7</td>
<td>0.01</td>
<td>0.03</td>
<td>0.31</td>
</tr>
<tr>
<td>Small-Central</td>
<td>1013</td>
<td>15</td>
<td>0.19</td>
<td>0.07</td>
<td>2.52</td>
</tr>
<tr>
<td>Small-Northern</td>
<td>864</td>
<td>27</td>
<td>0.16</td>
<td>0.13</td>
<td>1.19</td>
</tr>
<tr>
<td>Small-North-eastern</td>
<td>930</td>
<td>7</td>
<td>0.17</td>
<td>0.03</td>
<td>4.95</td>
</tr>
<tr>
<td>Small-Southern</td>
<td>1080</td>
<td>32</td>
<td>0.20</td>
<td>0.16</td>
<td>1.26</td>
</tr>
<tr>
<td>Medium-Bangkok</td>
<td>92</td>
<td>14</td>
<td>0.02</td>
<td>0.07</td>
<td>0.24</td>
</tr>
<tr>
<td>Medium-Central</td>
<td>336</td>
<td>11</td>
<td>0.06</td>
<td>0.05</td>
<td>1.14</td>
</tr>
<tr>
<td>Medium-Northern</td>
<td>167</td>
<td>13</td>
<td>0.03</td>
<td>0.06</td>
<td>0.48</td>
</tr>
<tr>
<td>Medium-North-eastern</td>
<td>130</td>
<td>4</td>
<td>0.02</td>
<td>0.02</td>
<td>1.21</td>
</tr>
<tr>
<td>Medium-Southern</td>
<td>309</td>
<td>26</td>
<td>0.06</td>
<td>0.13</td>
<td>0.44</td>
</tr>
<tr>
<td>Large-Bangkok</td>
<td>144</td>
<td>16</td>
<td>0.03</td>
<td>0.08</td>
<td>0.34</td>
</tr>
<tr>
<td>Large-Central</td>
<td>118</td>
<td>3</td>
<td>0.02</td>
<td>0.01</td>
<td>1.47</td>
</tr>
<tr>
<td>Large-Northern</td>
<td>47</td>
<td>3</td>
<td>0.01</td>
<td>0.01</td>
<td>0.58</td>
</tr>
<tr>
<td>Large-North-eastern</td>
<td>31</td>
<td>5</td>
<td>0.01</td>
<td>0.02</td>
<td>0.23</td>
</tr>
<tr>
<td>Large-Southern</td>
<td>101</td>
<td>19</td>
<td>0.02</td>
<td>0.09</td>
<td>0.20</td>
</tr>
<tr>
<td>Total</td>
<td>5,420</td>
<td>202</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before predictive modelling could take place, the raw data was weighted using the weighting identified in Table 6.7.

6.6 Description of Predictor Variables

6.6.1 Attitudes to Adopting GLC

The mean scores of the accommodation managers’ attitudes to adopting the GLC ranged from 4.95 to 5.74. These scores demonstrated that the respondents broadly agreed that there were benefits to adopting the GLC. Details of the hotel managers’ attitudes to adopting the GLC are presented in Table 6.8.
Table 6.8 Mean and Standard Deviations of Attitudes to Adopting GLC

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Adopting the GLC can…</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reduce operational expenses</td>
<td>4.95</td>
<td>1.73</td>
</tr>
<tr>
<td>2</td>
<td>Increase profitability</td>
<td>4.99</td>
<td>1.59</td>
</tr>
<tr>
<td>3</td>
<td>Ensure environmental sustainability</td>
<td>5.62</td>
<td>1.80</td>
</tr>
<tr>
<td>4</td>
<td>Improve the natural environment</td>
<td>5.62</td>
<td>1.82</td>
</tr>
<tr>
<td>5</td>
<td>Reduce greenhouse gas emissions</td>
<td>5.54</td>
<td>1.84</td>
</tr>
<tr>
<td>6</td>
<td>Reduce water consumption</td>
<td>5.32</td>
<td>1.70</td>
</tr>
<tr>
<td>7</td>
<td>Reduce waste materials</td>
<td>5.45</td>
<td>1.75</td>
</tr>
<tr>
<td>8</td>
<td>Contribute to habitat conservation</td>
<td>5.50</td>
<td>1.83</td>
</tr>
<tr>
<td>9</td>
<td>Improve the hotel’s image</td>
<td>5.74</td>
<td>1.80</td>
</tr>
<tr>
<td>10</td>
<td>Help access new markets</td>
<td>5.26</td>
<td>1.65</td>
</tr>
<tr>
<td>11</td>
<td>Provide marketing advantages</td>
<td>5.33</td>
<td>1.55</td>
</tr>
<tr>
<td>12</td>
<td>Increase market share</td>
<td>5.05</td>
<td>1.55</td>
</tr>
<tr>
<td>13</td>
<td>Improve customer satisfaction</td>
<td>5.24</td>
<td>1.72</td>
</tr>
<tr>
<td>14</td>
<td>Upgrade quality of services</td>
<td>5.13</td>
<td>1.69</td>
</tr>
<tr>
<td>15</td>
<td>Improve the hotel’s relationship with the local community</td>
<td>5.24</td>
<td>1.72</td>
</tr>
<tr>
<td>16</td>
<td>Improve public relations</td>
<td>5.35</td>
<td>1.71</td>
</tr>
</tbody>
</table>

6.6.2 Subjective Norms in Relation to Adopting the GLC

The mean scores of the accommodation managers’ rating of the people influencing them to make the decision to adopt the GLC ranged between 4.64 and 5.81. Among the six questions, ‘corporate leaders’ was rated highest ($M = 5.81; SD = 1.24$); followed by ‘customers’; ‘employees’; ‘Government tourism regulations’; ‘family’; and ‘friends’. It clearly showed that corporate leadership was the most likely factor to influence Thai accommodation managers to make a decision to adopt the GLC. The subjective norms influencing accommodation managers to make a decision to adopt the GLC is presented in Table 6.9.
Table 6.9 Mean and Standard Deviations of SN in Relation to Adopting GLC

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Statement</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Government tourism regulations influenced my decision to adopt the GLC</td>
<td>4.84</td>
<td>1.53</td>
</tr>
<tr>
<td>2</td>
<td>My employees influenced my decision to adopt the GLC</td>
<td>4.90</td>
<td>1.38</td>
</tr>
<tr>
<td>3</td>
<td>My customers influenced my decision to adopt the GLC</td>
<td>5.35</td>
<td>1.38</td>
</tr>
<tr>
<td>4</td>
<td>My corporate leadership influenced my decision to adopt the GLC</td>
<td>5.81</td>
<td>1.24</td>
</tr>
<tr>
<td>5</td>
<td>My family influenced my decision to adopt the GLC</td>
<td>4.64</td>
<td>1.54</td>
</tr>
<tr>
<td>6</td>
<td>My friends influenced my decision to adopt the GLC</td>
<td>4.64</td>
<td>1.61</td>
</tr>
</tbody>
</table>

6.6.3 Perceived Behavioural Control to Adopting the GLC

Respondents were asked to rate their perceptions regarding the barriers (perceived behavioural controls) to adopting the GLC, as seen in Table 6.10. The mean scores of the responses ranged between 4.46 and 5.57.
Table 6.10 Mean and Standard Deviations of PBC to Adopting GLC

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Statements</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High implementation cost</td>
<td>4.72</td>
<td>1.38</td>
</tr>
<tr>
<td>2</td>
<td>High certification cost, including membership and application fees</td>
<td>4.46</td>
<td>1.44</td>
</tr>
<tr>
<td>3</td>
<td>Cost of technology to implement environmentally sustainable practices</td>
<td>4.96</td>
<td>1.43</td>
</tr>
<tr>
<td>4</td>
<td>Complicated GLC requirements</td>
<td>4.57</td>
<td>1.45</td>
</tr>
<tr>
<td>5</td>
<td>Lengthy time required for GLC</td>
<td>4.50</td>
<td>1.36</td>
</tr>
<tr>
<td>6</td>
<td>Inadequate professional assistance</td>
<td>4.71</td>
<td>1.45</td>
</tr>
<tr>
<td>7</td>
<td>Lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>5.09</td>
<td>1.36</td>
</tr>
<tr>
<td>8</td>
<td>The hotel staff's lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>5.31</td>
<td>1.34</td>
</tr>
<tr>
<td>9</td>
<td>Lack of GLC training programs makes it difficult for me to implement practices needed to obtain the GLC</td>
<td>5.34</td>
<td>1.32</td>
</tr>
<tr>
<td>10</td>
<td>Lack of training programs makes it difficult for my staff to implement practices needed to obtain the GLC</td>
<td>5.38</td>
<td>1.33</td>
</tr>
<tr>
<td>11</td>
<td>Inadequate professional advice makes it difficult for my hotel to obtain the GLC</td>
<td>5.31</td>
<td>1.37</td>
</tr>
<tr>
<td>12</td>
<td>Lack of government support makes it difficult to adopt the GLC</td>
<td>5.57</td>
<td>1.41</td>
</tr>
<tr>
<td>13</td>
<td>High employee turnover rate of environmentally trained personnel makes it difficult to adopt the GLC</td>
<td>5.20</td>
<td>1.62</td>
</tr>
</tbody>
</table>

6.6.4 NEP

Table 6.11 presents the mean scores and standard deviations of the NEP scale, and is comprised of 15 items. It can be seen that the Thai accommodation managers tended to hold an expressed environmental concern about the environment and were less concerned about receiving benefits from the environment.
Table 6.11 Mean and Standard Deviations of NEP

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Statement</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We are approaching the population limit which the earth can support</td>
<td>5.60</td>
<td>1.30</td>
</tr>
<tr>
<td>2</td>
<td>Humans have the right to modify the natural environment to suit their needs</td>
<td>3.31</td>
<td>1.90</td>
</tr>
<tr>
<td>3</td>
<td>When humans interfere with nature it often produces disastrous consequences</td>
<td>6.19</td>
<td>1.16</td>
</tr>
<tr>
<td>4</td>
<td>Human ingenuity will ensure that we do not make the earth unliveable</td>
<td>2.90</td>
<td>1.51</td>
</tr>
<tr>
<td>5</td>
<td>Human beings are severely abusing the environment</td>
<td>6.22</td>
<td>1.10</td>
</tr>
<tr>
<td>6</td>
<td>The earth has plenty of natural resources if we just learn how to develop them</td>
<td>2.12</td>
<td>1.37</td>
</tr>
<tr>
<td>7</td>
<td>Plants and animals have as much right as humans to exist</td>
<td>5.97</td>
<td>1.30</td>
</tr>
<tr>
<td>8</td>
<td>The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>4.29</td>
<td>2.09</td>
</tr>
<tr>
<td>9</td>
<td>Despite our special abilities humans are still subject to the laws of nature</td>
<td>6.15</td>
<td>0.97</td>
</tr>
<tr>
<td>10</td>
<td>The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>4.56</td>
<td>1.99</td>
</tr>
<tr>
<td>11</td>
<td>The earth is like a spaceship with very limited room and resources</td>
<td>5.72</td>
<td>1.36</td>
</tr>
<tr>
<td>12</td>
<td>Humans were meant to rule over the rest of nature</td>
<td>4.44</td>
<td>2.08</td>
</tr>
<tr>
<td>13</td>
<td>The balance of nature is very delicate and easily upset</td>
<td>5.98</td>
<td>1.00</td>
</tr>
<tr>
<td>14</td>
<td>Humans will eventually learn enough about how nature works to be able to control it</td>
<td>3.22</td>
<td>1.76</td>
</tr>
<tr>
<td>15</td>
<td>If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>6.04</td>
<td>1.21</td>
</tr>
</tbody>
</table>

6.7 Multiple Regression Model Development

A multiple regression model was developed to address Hypotheses 2 to 19, which focussed on predicting the behavioural intentions to adopt Green Leaf Certification (GLC). For this reason, the model only drew on the weighted data from respondents who knew about the GLC (n = 202). Before presenting the model later in this chapter, a detailed account is presented below of how the components that constituted the
6.7.1 Independent Variables

This study consisted of four principal variables, which were attitudes (16 items); subjective norms (6 items); perceived behavioural controls (13 items); and general environmental attitudes (New Ecological Paradigm - NEP scale) (15 items). Each variable consisted of many items. A Principal Component Analysis (PCA) with a varimax rotation approach was used to reduce a large number of items in each variable into a smaller set of variables. It was necessary to do this because some items may have highly interrelated variables, and they can be grouped together and represent each of the groups of variables. The results of the PCA showed eight factors, as follows:

- Attitude (consisted of two factors)
- Subjective norms (only one factor)
- Perceived behavioural control (consisted of three factors)
- General environmental attitude (consisted of two factors)

After EFA, all the factors retained from factor analysis were examined for reliability using two measures: the Cronbach’s alpha and composite reliability. The commonly held acceptable value for Cronbach’s alpha is 0.7 or more (Robinson et al., 1991; Wanous & Hudy, 2001). The composite reliability value of 0.7 is widely used and is considered acceptable (Hair et al., 2010).

6.7.1.1 Attitude Factors

The ‘attitude toward adopting the GLC’ scale consisted of 16 items. The KMO estimate was 0.9 and the Bartlett test was statistically significant at a 1% level (p ≤ 0.01),
suggesting that the sample size was sufficient for performing an exploratory factor analysis (see Table 6.12).

The findings indicated that the scale items loaded primarily on two factors, with each having an eigenvalue of more than 1.0 (12.59 and 6.40). These two factors explain a total of 85.08% of the variance. The scree plot in Figure 6.2 shows that the slope of the line begins to flatten out at about the third factor. Therefore, the attitudes to adopting the GLC variable should account for two factors.

**Figure 6.2 The Scree Plot of Attitudes to Adopting the GLC**

According to Hair et al. (2010), a sample size of 200, with a factor loading of 0.40, is a minimum requirement for significantly explaining its measurement items. Therefore, items with at least a factor loading of 0.40 were retained in the final analysis.

As shown in Table 6.12, Factor 1 consisted of 13 items, which were relating to indirect economic benefits, such as customer satisfaction and marketing advantages. Therefore, it would appear that the underlying factor is the concept of ‘Indirect Economic Benefits’. These factors had 78.68% of variance for each item, with a factor loading ranging between 0.72 and 0.90. It had a Cronbach’s alpha value of 0.99 and the composite reliability was 0.71 (see Table 6.12).
Factor 2 consisted of three items (Items 1, 2 and 6), which were ‘reduced operational expenses’ (Item 1), ‘increased profitability’ (Item 2) and ‘reduced water consumption’ (Item 6). Items 1 and 2 in this factor appear to be associated with an economic focus, while Item 6 appears indirectly related to economic considerations, but it is loaded in such a way that the respondents may have understood that this item was associated with economic considerations. The researcher treated this factor as pointing to the ‘Direct Economic Benefits’ that could potentially be generated if the GLC was adopted. The direct economic benefits factor had 6.40% of variance and consisted of three items whose loading on this factor was from 0.66 to 0.88, and a composite reliability is 0.84 (see Table 6.12).

The Cronbach’s alpha and composite reliability estimates of both reliability measures for indirect economic benefits and direct economic benefits indicated that the items measuring each of the two factors were internally consistent.
Table 6.12 Factor Analysis of Attitudes to Adopting the GLC

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indirect Economic Benefits (13 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13  Improve customer satisfaction</td>
<td>0.90</td>
<td>12.59</td>
<td>78.68</td>
<td>0.99</td>
<td>0.71</td>
</tr>
<tr>
<td>11  Provide marketing advantages</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16  Improve public relations</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9   Improve the hotel’s image</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10  Help access new markets</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15  Improve the hotel’s relationship with the local community</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12  Increased market share</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4   Improve the natural environment</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3   Ensure environmental sustainability</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5   Reduce greenhouse gas emissions</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8   Contribute to habitat conservation</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14  Upgrade quality of services</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7   Reduce waste materials</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Direct Economic Benefits (3 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1   Reduce operational expenses</td>
<td>0.88</td>
<td>1.02</td>
<td>6.40</td>
<td>0.87</td>
<td>0.84</td>
</tr>
<tr>
<td>2   Increase profitability</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6   Reduce water consumption</td>
<td>0.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total variance</strong></td>
<td></td>
<td></td>
<td>85.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiser-Meyer-Olkin = 0.957</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity (Sig.) = .000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.7.1.2 Subjective Norm Factors

Six items were used to measure the subjective norms in relation to adopting the GLC. The KMO estimate (KMO = 0.75), and the significant result of the Bartlett’s test of sphericity (p ≤ 0.01), indicated a sufficient sample size for factor analysis.

The scree plot in Figure 6.3 showed only one factor. The line starts to elbow at about the second factor. This variable shows that only one factor was found with an eigenvalue of greater than 1.0 (Eigenvalue = 3.43). This factor alone accounted for 57.19% of the overall variance and a Cronbach’s alpha of 0.85, with a composite
reliability of 0.89 (see Table 6.13). All the items had a factor loading ≥ 0.40 and were, therefore, retained in the final analysis (Hair et al, 2010). After examining the reliability, it was found that the Cronbach’s alpha and the composite reliability were higher than 0.7, which indicated the acceptable reliability of the scale (Hair et al., 1998; Manning & Munro, 2007).

Figure 6.3 The Scree Plot of the Subjective Norms

Table 6.13 Factor Analysis of the Subjective Norms

<table>
<thead>
<tr>
<th>Statements</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subjective norms (6 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 My friends influence my decision to adopt the GLC</td>
<td>0.84</td>
<td>3.43</td>
<td>57.19</td>
<td>0.85</td>
<td>0.89</td>
</tr>
<tr>
<td>2 My employees influence my decision to adopt the GLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 My customers influence my decision to adopt the GLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 My family influences my decision to adopt the GLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Government tourism regulations influence to adopt the GLC</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 My corporate leadership influences my decision to adopt the GLC</td>
<td>0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total variance</strong></td>
<td></td>
<td></td>
<td>57.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiser-Meyer-Olkin = .752</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity (Sig.) = .000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.7.1.3 Perceived Behavioural Control (PBC) Factors

The Perceived Behavioural Control to adopt the GLC consisted of 13 items, representing possible obstacles related to adopting the GLC. The KMO estimate (KMO = 0.845) and the significant finding of the Bartlett’s test of sphericity (p < 0.01) demonstrated a sufficient sample size for factor analysis.

The scree plot in Figure 6.4 illustrates that the slope of this line begins to flatten out at about the fourth factor. Therefore, this variable contained three factors. These three factors recorded eigenvalues of above 1.0, derived from the principal components analysis, which explains 75.32% of the overall variance.

Figure 6.4 The Scree Plot of PBC to Adopting the GLC

The final factor analysis generated three factors, which accounted for 75.32% of the total variance. All of the items had a factor loading ≥ 0.40 and were, therefore, retained in the final analysis. Factor 1 consisted of five items (Items 1 - 5) retained in this factor loading with scores of between 0.78 and 0.85. All items have a loading factor on economic issues, while Item 4 ‘Complicated GLC requirements’ and Item 5 ‘Lengthy time required for GLC’ were not clearly related to economic considerations. These two items were loaded with the same factor as the other three items. This may have been perceived by respondents as having a direct link to economic considerations.
as well. This factor was, therefore, labelled as ‘Economic Barriers’ (see Table 6.14). This factor had 46.49% of variance, and had a Cronbach’s alpha of 0.90 and a composite reliability of 0.91.

Factor 2 was labelled ‘External Support Barriers’ and had 20.04% of variance, and consisted of five items (Items 6, 9, 10, 11 and 12) retained in this factor loading, with mean scores ranging across 0.69 to 0.88. All of the five items were related to support from external organizations, such as government and professional bodies. It has an alpha coefficient of 0.90 and a composite reliability of 0.88.

The third factor, named ‘Knowledge of EMP Barriers’, consisted of three items (Items 8, 7 and 13). This factor had 8.79% of variance and with scores ranging across 0.74 to 0.89. All three items were related to the knowledge of EMP that impact on adopting the GLC. Alpha coefficients and composite reliability were found to be 0.84 and 0.86, respectively (see Table 6.14).
<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic Barriers (5 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Cost of technology to implement environmentally sustainable practices</td>
<td>0.85</td>
<td>6.04</td>
<td>46.49</td>
<td>0.90</td>
<td>0.91</td>
</tr>
<tr>
<td>2 High certification cost, including membership and application fees</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Complicated GLC requirements</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 High implementation cost</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Lengthy time required for GLC</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>External Supporting Barriers (5 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Inadequate professional advice makes it difficult for my hotel to obtain the GLC</td>
<td>0.88</td>
<td>2.60</td>
<td>20.04</td>
<td>0.90</td>
<td>0.88</td>
</tr>
<tr>
<td>6 Inadequate professional assistance</td>
<td>0.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Lack of training programs makes it difficult for my staff to implement the practices needed to obtain the GLC</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Lack of GLC training programs makes it difficult for me to implement the practices needed to obtain the GLC</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Lack of government support makes it difficult to adopt the GLC</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge of EMP Barriers (3 items)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 The hotel staff's lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>0.89</td>
<td>1.14</td>
<td>8.79</td>
<td>0.84</td>
<td>0.86</td>
</tr>
<tr>
<td>7 Lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 High employee turnover rate of environmentally trained personnel makes it difficult to adopt the GLC</td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total variance</strong></td>
<td></td>
<td></td>
<td>75.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiser-Meyer-Olkin = .845</td>
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<tr>
<td>Bartlett’s Test of Sphericity (Sig.) = .000*</td>
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</tbody>
</table>
6.7.1.4 NEP Factors

The 15 items of the NEP scale (Dunlap, Van Leire, Mertig & Jones, 2000) were used to measure the managers’ environmental concerns. The KMO estimate (KMO = 0.68), which was higher than 0.60, and the significant result of the Bartlett’s test of sphericity (p ≤ 0.01), demonstrated a sufficient sample size for performing factor analysis. The results showed four factors with eigenvalues of greater than 1.0. However, one factor consists of ‘We are approaching the population limit which the earth can support’ (Item 1) and ‘The earth has plenty of natural resources if we just learn how to develop them’ (Item 6), which showed a low Cronbach’s alpha value (0.170), indicating a poor reliability scale. Costello and Osborne (2005) suggest that if an item factor loading is difficult to interpret (e.g., low-loading, cross loading or freestanding items), problematic items should be dropped and the analysis rerun to solve the problem. Therefore, these two items were dropped and the factor analysis was rerun.

The results from rerunning the factor analysis show 4 factors were retained. However, one factor has only 2 items, which were Items 2 and 4. Costello and Osborne (2005) recommend that a small set of items in one factor may produce weak and unstable loading items, therefore factor loading items should have more than three items, and preferably five or more items. Therefore, to solve this problem the factors are reduced to two by rerunning the factor analysis with a fixed number of factors (2 factors extracted).

The final factor analysis generated two factors, consisting of 13 items, which accounted for 45.08% of the total variance and with an eigenvalue of more than 1.0 (3.37 and 2.49). The NEP consisted of 13 items and showed a KMO estimate (KMO = 0.72) which was higher than 0.60, and the significant result of the Bartlett’s test of
sphericity ($p \leq 0.01$), indicated a sufficient sample size for factor analysis (see Table 6.15).

It is worth noting here that the EFA of the NEP reported earlier in this chapter, focussed on the entire sample ($n = 359$). The factors relevant to the Multiple Regression Model, presented below, were drawn from the data collected only from those managers who knew of the GLC ($n = 202$). The results of the EFA of the NEP presented the same results. The NEP scale of both groups had two factors, which were the anthropocentrism and eco-centrism factors. Factor 1 was labelled as ‘Anthropocentrism’ because the majority of items loaded in this factor appear to be concerned with using the environment to benefit human beings. It explained 25.93% of the overall extracted variance, and consisted of six items (Items 2, 4, 8, 10, 12 and 14), with factor loadings ranging from 0.64 to 0.78. The factor exhibited acceptable reliability with a Cronbach’s alpha of 0.80 and a composite reliability of 0.86. Factor 2 was ‘Eco-centrism’, and was related to the attitudes towards the environment, and consisted of seven items (Items 3, 5, 7, 9, 11, 13 and 15). All items retained in this factor loading had mean scores ranging across 0.48 to 0.69, and had 19.15% of variance. It had a Cronbach’s alpha value of 0.71 and a composite reliability of 0.80 (see Table 6.15).

In this case, the scree plot demonstrated that it was suitable to retain two factors because the line elbows at the third factor. As discussed above, each factor should have eigenvalues of greater than 1.0, and contain at least three items in each factor. Therefore, it was appropriate to retain this variable with two factors.
Figure 6.5 The Scree Plot of the NEP
Table 6.15 Factor Analysis of the NEP

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Factor Loadings</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Cronbach alpha</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anthropocentrism (6 items)</strong></td>
<td></td>
<td>3.37</td>
<td>25.93</td>
<td>0.80</td>
<td>0.86</td>
</tr>
<tr>
<td>12 Humans were meant to rule over the rest of nature</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Humans have the right to modify the natural environment to suit their needs</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Humans will eventually learn enough about how nature works to be able to control it</td>
<td>0.67</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Human ingenuity will ensure that we do not make the earth unliveable</td>
<td>0.64</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Eco-centrism (7 items)</strong></td>
<td></td>
<td>2.49</td>
<td>19.15</td>
<td>0.71</td>
<td>0.80</td>
</tr>
<tr>
<td>13 The balance of nature is very delicate and easily upset</td>
<td>0.69</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15 If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>0.68</td>
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<tr>
<td>9 Despite our special abilities humans are still subject to the laws of nature</td>
<td>0.62</td>
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<tr>
<td>5 Human beings are severely abusing the environment</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 When humans interfere with nature it often produces disastrous consequences</td>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Plants and animals have as much right as humans to exist</td>
<td>0.56</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11 The earth is like a spaceship with very limited room and resources</td>
<td>0.48</td>
<td></td>
<td></td>
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</tbody>
</table>

Total variance 45.08
Kaiser-Meyer-Olkin = 0.723
Bartlett's Test of Sphericity (Sig.) = .000*
Table 6.16 presents the mean value and standard deviation of the eight factors from the factor analysis. The respondents had an attitude towards adopting the GLC in the areas of indirect economic benefits, rather than direct economic benefits. They believed that if they adopted the GLC they could get benefits, such as increased market share, protecting the environment and raising customer satisfaction, rather than increasing profits for their hotels. The subjective norm was only one factor. This means that the respondents agreed that subjective norms or social pressures, such as corporate leadership and customers, influence their desire to adopt the GLC. The perceived behavioural controls consist of three factors: ‘External Supporting Barriers’ was rated highest, followed by ‘Knowledge of EMP Barriers’ and ‘Economic Barriers’. This showed that the respondents need support from the GLC organization and government, for example professional advice or guidance on how to get the certification and the GLC training programs to make it easier to adopt the GLC. While the cost of technology and implementation costs for adopting the GLC were still barriers, they were lesser barriers than the external supporting barriers and knowledge of the GLC barriers. The general environmental attitudes (NEP) consisted of two factors: ‘Eco-centrism’ and ‘Anthropocentrism’. This indicated that respondents were concerned about environmental rather than human factors (see Table 6.16).
Table 6.16 Variables of Interest

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
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<td><strong>Attitude</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Direct Economic Benefits</td>
<td>202</td>
<td>4.95</td>
<td>1.57</td>
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<tr>
<td>Indirect Economic Benefits</td>
<td>202</td>
<td>5.30</td>
<td>1.67</td>
</tr>
<tr>
<td><strong>Subjective Norms</strong></td>
<td>202</td>
<td>5.02</td>
<td>1.11</td>
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<tr>
<td><strong>Perceived Behavioural Control</strong></td>
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<td></td>
</tr>
<tr>
<td>Economic Barriers</td>
<td>202</td>
<td>4.48</td>
<td>1.25</td>
</tr>
<tr>
<td>External Support Barriers</td>
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<td>5.39</td>
<td>1.10</td>
</tr>
<tr>
<td>Knowledge of EMP Barriers</td>
<td>202</td>
<td>5.23</td>
<td>1.23</td>
</tr>
<tr>
<td><strong>NEP</strong></td>
<td>202</td>
<td>5.30</td>
<td>1.10</td>
</tr>
<tr>
<td>Anthropocentrism</td>
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<td></td>
</tr>
<tr>
<td>Eco-centrism</td>
<td>202</td>
<td>6.09</td>
<td>0.70</td>
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6.7.2 Dependent Variables

The aim of this study is to examine the behavioural intentions of the hotel managers in Thailand to adopting the GLC. In this thesis the temporal characteristics of GLC adoption focussed on 1 year and 5 year periods. Because of the environmental management system’s requirement on investments in technology, it would take around five years or even longer to see the perceived benefits (as cited in Tooman et al., 2009, p. 4). Take energy savings as an example, replacing light fittings, insulating the roof, and fitting closing devices on doors, would take the hotels between one to five years to reap a payback (Webster, 2000). Additionally, the Thai government has a National Economic and Social Development (NESD) five year plan. As seen in Table 6.17, the mean score of intention in the next year was 4.70 and the intention in the next five years was 5.45. This finding indicated that the respondents were more likely to adopt the GLC in the next five years than in the next year.
In order to check whether there were differences between the behavioural intentions to adopt the GLC in one year and in five years, a paired sample T-test and a McNemar’s test were used. A paired sample t-test, that compares the two mean scores reported by the same group (Pallant, 2011), was conducted to evaluate the difference between the behavioural intentions to adopt the GLC in the next year and in the next five years. The results in Table 6.17 show that there was a statistically significant difference between responses to both variables: intention in the next year and intention in the next 5 years, t (201) = 6.927, p < 0.05. This analysis indicated that the respondents’ intentions to adopt the GLC in the next five years was significantly higher than their intention to do so in the next year (see Appendix 14).

McNemar’s test was also performed to examine the differences between the mean values of the two dependent variables. McNemar’s test is “looking for changes in people’s scores and it compares the number of people who changed their response in one direction (i.e., scores increased) to those who changed in the opposite direction (scores decreased)” (Field, 2009, p. 555). This study used this approach to test the differences between the respondents’ intentions to adopt the GLC in the next year and in the next five years. The results showed that there was a significant change in the proportion of participants’ decision making to adopt the GLC in the next five years.
(49.5%) when compared with the proportion of participants’ decision making to adopt the GLC in 1 year (9%) (p < 0.01) (see Appendix 15).

In conclusion, the analysis showed that there were differences between the respondents’ intentions in the next year and in the next 5 years. More specifically, respondents were more likely to adopt the GLC in the next 5 years than in the next year.

6.7.3 Control Variables
To address hypotheses that recognise the potential influence of the profiles of the hotel managers, and the hotels they represent, on the managers intention to adopt the GLC, five control variables were included in the model. They were gender, education level, hotel size, star rating and location.

6.8 Multiple Regression Analysis
Multiple regression analysis was applied to examine to what extent attitude, subjective norms, perceived behavioural controls, general environmental attitudes (NEP), as well as control variables, explained behavioural intention in the context of adopting the GLC for Thai hotel managers. There are several important issues in data screening prior to interpretation of the output from the multiple regression which are: sample size; types of all variables (continuous or dichotomous); correlation and multicollinearity; linearity; outliers; homoscedasticity; and normality.

6.8.1 Sample Size
Tabachnick and Fidell (2007, p. 123) provide guidance for calculating sample size, that it should be more than 50 + 8m (where m = number of independent variables or predictors). As this study has 13 independent variables, the minimum sample size should be 154. Since the sample size in this study was 202, therefore, it was acceptable to employ multiple regression.
6.8.2 Types of Variables (Transforming Categorical Variables)

Multiple regression analysis assumes continuous measurement (interval level), such as a Likert scale or categories for both independent and dependent variables (Hair et al., 1998; Tabachnick & Fidell, 2007). This means that the values of all variables change smoothly within the range of the scale (Tabachnick & Fidell, 2007). In the current study, all variables were measured using a 7-point Likert scale. However, Tabachnick and Fidell (2007) argue that it is possible to have discrete variables where the variables are not continuous and the transition is not smooth, from one value or category to the next, such as the type of community (rural and urban). This study had only one discrete variable, which was the ‘location variable’.

Further statistical analysis was performed to gain insight into the characteristics of the dichotomous variables. Tabachnick and Fidell (2007) suggest that in multiple regression, independent variables can be either continuous or dichotomous. A dichotomous variable is a variable that is introduced to limit the relationship between only two categories. If discrete variables have more than two categories, the relationships that they form with other variables can be any shape and change arbitrarily, with the changing of numbers assigned to categories (Tabachnick & Fidell, 2007). Therefore, categorical independent variables with three or more categories must be coded or change into a series of dichotomous variables which are usually coded as 0 or 1, called dummy variables (Tharenou et al., 2007), as categorical predictor variables cannot be entered directly into a regression model and be meaningfully interpreted. With this method, the number of dummy variables used in the regression is one less than the number of categories of that variable (Stockburger, 1997; Tabachnick & Fidell, 2007). In this study, the only categorical variable, location, has five categories, so there will be four dummy variables.
Gender is a binary variable whose value is either 0 or 1, so it can be put into the model. In terms of education level, hotel size and hotel star rating, they are continuous variables whose values change continuously within the range of the scale. All the above variables were in the multiple regression assumptions. Therefore, accommodation location is coded into dichotomous before using multiple regression analysis.

6.8.3 Correlations and Multicollinearity

Prior to multiple regression analysis, the bivariate correlations (the correlation between two variables) between all the predictor variables and the dependent variables were examined. The Pearson correlation coefficients had two main objectives: to test the relationship between the independent variables and to check the multicollinearity. Multicollinearity occurs when two or more independent variables are strongly correlated (Pallant, 2011). High levels of multicollinearity may produce greater standard errors. Consequently, the regression coefficients need to be larger to be statistically significant (Field, 2009). Multicollinearity appears when one independent variable has high correlation coefficients with a number of other variables/factors/dimensions at the same time. It is more difficult to assess the individual importance of a predictor. If the predictors are highly correlated, and each accounts for similar variance in the outcome, it is difficult to interpret which of the two variables is important (Field, 2009; Hair et al., 2010).

Pallant (2011) provides guidelines for interpreting the correlation coefficient as small ($r = 0.10$ to $0.29$), medium ($r = 0.30$ to $0.49$) and large ($r = 0.50$ to $1.0$). Manning and Munro (2007) recommend that to avoid multicollinearity, the correlations between the independent variables should be less than 0.90. The correlation coefficients for the 13 independent variables with two dependent variables are presented in Table 6.18. There were strong correlations between the direct economic benefits variable and the
indirect economic benefits variable \((r = 0.775)\), and between the external supporting barriers and the knowledge of EMP barriers \((r = 0.625)\). The correlations also show a moderate relationship between the economic barriers and the external supporting mechanisms \((r = 0.390)\), and the economic barriers and the knowledge of the EMP barriers \((r = 0.319)\). The rest of the variables hold minimal correlations, with no correlation exceeding 0.9.
### Table 6.18 Pearson Correlation Coefficients Among Variables

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<th></th>
<th>Next yr</th>
<th>5 yrs</th>
<th>Indirect</th>
<th>Direct</th>
<th>SN</th>
<th>Eco.</th>
<th>External</th>
<th>Know</th>
<th>Anthrop</th>
<th>Eco-cent</th>
<th>Gender</th>
<th>Size</th>
<th>Edu</th>
<th>Star</th>
<th>Central</th>
<th>North</th>
<th>North E</th>
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<td>0.045</td>
<td>-0.142</td>
<td>-0.264</td>
<td>0.078</td>
<td>-0.093</td>
<td>0.145</td>
<td>0.008</td>
<td>0.004</td>
<td>-0.142</td>
<td>0.299</td>
<td>0.287</td>
<td>-0.306</td>
<td>-0.250</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>0.011</td>
<td>-0.059</td>
<td>-0.128</td>
<td>-0.152</td>
<td>0.036</td>
<td>0.283</td>
<td>-0.032</td>
<td>0.065</td>
<td>-0.206</td>
<td>-0.021</td>
<td>0.093</td>
<td>-0.083</td>
<td>-0.238</td>
<td>-0.107</td>
<td>-0.578</td>
<td>0.526</td>
<td>-0.476</td>
<td>1.000</td>
</tr>
</tbody>
</table>
A commonly used cut-off point for determining the presence of multicollinearity is a tolerance value of less than 0.10, or a VIF (Variance Inflation Factor) value of above 10, that indicates a serious multicollinearity problem (Field, 2009; Hair et al., 2010; Pallant, 2011). Thus, both the VIF and the tolerance represent the unique variance remaining for each variable. The VIF is the inverse of the tolerance value. If the VIF is over 10, this suggests that collinearity may be a problem. Table 6.19 shows all variables have VIF values below 7 and a tolerance of over 0.10. The results from the correlation analysis and the VIF measures suggest that multicollinearity is not a concern for this study.

**Table 6.19 Test of Multicollinearity**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Constant)</strong></td>
<td><strong>Variables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Economic Benefits</td>
<td>0.312</td>
<td>3.205</td>
</tr>
<tr>
<td>Indirect Economic Benefits</td>
<td>0.285</td>
<td>3.505</td>
</tr>
<tr>
<td><strong>Subjective Norms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.683</td>
<td>1.465</td>
</tr>
<tr>
<td><strong>Perceived Behavioural Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Barriers</td>
<td>0.631</td>
<td>1.584</td>
</tr>
<tr>
<td>External Support Barriers</td>
<td>0.403</td>
<td>2.483</td>
</tr>
<tr>
<td>Knowledge of EMP Barriers</td>
<td>0.440</td>
<td>2.272</td>
</tr>
<tr>
<td><strong>NEP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthropocentrism</td>
<td>0.795</td>
<td>1.258</td>
</tr>
<tr>
<td>Eco-centrism</td>
<td>0.797</td>
<td>1.255</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.861</td>
<td>1.161</td>
</tr>
<tr>
<td>Size</td>
<td>0.771</td>
<td>1.296</td>
</tr>
<tr>
<td>Education</td>
<td>0.758</td>
<td>1.319</td>
</tr>
<tr>
<td>Star rating</td>
<td>0.736</td>
<td>1.358</td>
</tr>
<tr>
<td>Central</td>
<td>0.196</td>
<td>5.090</td>
</tr>
<tr>
<td>Northern</td>
<td>0.668</td>
<td>1.496</td>
</tr>
<tr>
<td>North-Eastern</td>
<td>0.208</td>
<td>4.809</td>
</tr>
<tr>
<td>Southern</td>
<td>0.157</td>
<td>6.350</td>
</tr>
</tbody>
</table>
6.9 Multiple Regression Model: Intention to Adopt the GLC in the Next Year

6.9.1 Linearity, Outliers and Homoscedasticity

Additional testing was performed to check for linearity, outliers and homoscedasticity. Linearity is the mean value of the predictor which lies along a straight line in relationship with predicted dependent variable scores (Field, 2009; Hair et al., 2010). Tabachnick and Fidell (2007) define outliers as cases that have a standardised residual of more than 3.3 or less than –3.3, and can also be detected from the scatterplot. It is recommended that outliers (extreme responses) be removed from the data analysis to avoid heteroscedasticity, which is the opposite to homoscedasticity. Homoscedasticity is the constancy of the residuals of the dependent variable. Tests on homoscedasticity were performed and the residuals of the two dependent variables plotted. The results showed that the residuals fell within a generally random pattern and within the range of 3.3 and –3.3, with no pattern of increasing or decreasing residuals (Figures 6.6 and 6.9). This finding indicated no significant pattern of increasing or decreasing residuals and indicated that the homoscedasticity assumption is acceptable.

The Normal Probability Plot (P-P) of the regression standardised residual was applied to test the normality of residuals (Hair et al., 2010). Normal distribution makes a straight diagonal line, and the plotted residuals of a variable are compared with the diagonal (Hair et al., 1998). If the plot shows a straight line that aligns well with the diagonal, this means that the residuals of the variable are normally distributed (Field, 2009; Hair et al., 1998). The same procedure can be applied to both dependent and independent variables (Hair et al., 1998). Tabachnick and Fidell (2007) suggest that in the normality check each variable and all linear combinations of variables are normally distributed in a visual examination of the normal probability plots of the residuals.
The scatterplot of the residuals in Figures 6.6 shows that the residuals fall within a generally random pattern with no pattern of increasing or decreasing residual. Moreover, this figure suggests that the homoscedasticity assumption is acceptable. The pattern of the residuals also shows no evidence of the nonlinearity assumption being violated. Additionally, there are no outliers in the data from the plot below. If there was an extreme value in the standardized predicted values or standardized residuals (say greater/less than +/- 3) it would be excluded (Pallant, 2007).

**Figure 6.6 The Scatterplot of the Residuals of the Respondents’ Behavioral Intentions to Adopting the GLC in the Next Year**

To ensure that the outliers problem was free, the diagnostic statistics from Table 6.20 showed only one case of an outlier (number 76) which had a standardised residual value of -3.752, which was less than –3.3. Thus, the researcher deleted case 76.
Table 6.20 The Diagnostic Statistics Table of the Respondents’ Behavioral Intentions to Adopting the GLC in the Next Year

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Std. Residual</th>
<th>Next year</th>
<th>Predicted Value</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>-3.752</td>
<td>1</td>
<td>6.00</td>
<td>-4.997</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Next year

Figure 6.7 shows the normal P-P plot of the standardized residual. This plot registered in a diagonal straight line, therefore the residuals are considered to represent a normal distribution. The regression variate was found to meet the assumption of normality.

6.9.2 Multiple Regression of Adopting the GLC in the Next Year (Model 1)

Research Question 2: What are the factors influencing accommodation managers’ behavioural intentions to adopt the GLC in the next year?. All possible predictor variables in the regression model are presented in Table 6.21 and Figure 6.8.
Table 6.21 Multiple Regression Analysis of Behavioural Intentions to Adopting the GLC in the Next Year (N = 201)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variables</th>
<th>B</th>
<th>beta</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to adopt GLC in the next year</td>
<td>(Constant)</td>
<td>5.567</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>Direct Economic Benefits</td>
<td>-0.077</td>
<td>-0.085</td>
<td>0.461</td>
</tr>
<tr>
<td></td>
<td>Indirect Economic Benefits</td>
<td>0.150</td>
<td>0.175</td>
<td>0.147</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td></td>
<td>0.333</td>
<td>0.260</td>
<td>0.001*</td>
</tr>
<tr>
<td>Perceived Behaviour</td>
<td>Economic Barriers</td>
<td>-0.269</td>
<td>-0.235</td>
<td>0.004*</td>
</tr>
<tr>
<td>Controls</td>
<td>External Support Barriers</td>
<td>-0.049</td>
<td>-0.038</td>
<td>0.708</td>
</tr>
<tr>
<td></td>
<td>Knowledge Barriers</td>
<td>-0.091</td>
<td>-0.078</td>
<td>0.421</td>
</tr>
<tr>
<td>Environmental concern</td>
<td>Anthropocentrism</td>
<td>-0.272</td>
<td>-0.263</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>Eco-centrism</td>
<td>-0.073</td>
<td>-0.036</td>
<td>0.619</td>
</tr>
<tr>
<td>Control Variables</td>
<td>Gender</td>
<td>-0.160</td>
<td>-0.056</td>
<td>0.420</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>-0.269</td>
<td>-0.117</td>
<td>0.112</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td>0.196</td>
<td>0.090</td>
<td>0.221</td>
</tr>
<tr>
<td></td>
<td>Star rating</td>
<td>0.259</td>
<td>0.133</td>
<td>0.076</td>
</tr>
<tr>
<td></td>
<td>Central</td>
<td>0.028</td>
<td>0.009</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td>Northern</td>
<td>0.331</td>
<td>0.092</td>
<td>0.241</td>
</tr>
<tr>
<td></td>
<td>North-Eastern</td>
<td>0.203</td>
<td>0.057</td>
<td>0.684</td>
</tr>
<tr>
<td></td>
<td>Southern</td>
<td>0.169</td>
<td>0.059</td>
<td>0.715</td>
</tr>
</tbody>
</table>

$R = 0.49, R^2 = 0.24, \text{adjusted } R^2 = 0.18, *p < 0.05$

The multiple correlation coefficient ($R = 0.49$) was significantly different from zero, $F (18, 183) = 2.950, p < 0.05$, and 24% of the variation in the dependent variable was explained primarily by subjective norms, economic barriers and anthropocentrism after the five variables (gender, accommodation size, education level, accommodation star rating and location) were controlled ($R^2 = 0.24$, adjusted $R^2 = 0.18$).

A Beta Coefficient (beta) for a particular independent variable represents the change in the dependent variable associated with a one-unit change in that independent variable, holding all other independent variables constant (Tabachnick & Fidell, 2007).
For this study’s aim to predict behavioural intention to adopt the GLC in the next year, it was found that there were three predictors that influence the respondents to make a decision to adopt the GLC. The subjective norm was positively related to adopting the GLC, suggesting that for each one-unit increase in subjective norm in relation to adopting the GLC, there was a 0.260 increase in behavioural intention scores. This means that if the respondents perceived a high social pressure from corporate leadership, customers, friends, government regulations, family and friends, they were more likely to adopt the GLC in the next year. Every unit increase in economic barriers and anthropocentrism contributed to the respondents’ behavioural intention to adopt the GLC in the next year, by -0.235 and -0.263, respectively. The finding indicated that if the economic barriers were reduced or the cost decreased, the respondents would adopt the GLC. Additionally, a lower level of anthropocentrism appeared to increase the likelihood of adopting the GLC. That is, the respondents’ behavioural intentions to adopt the GLC in the next year increase. The results of the multiple regression analysis supported Hypotheses 3, 4 and 5.
Figure 6.8 Model 1 (Intention to Adopt the GLC in the Next Year)

H2 Attitude
- Direct Economic Benefits
- Indirect Economic Benefits

H3 Subjective Norms

H4 PBC
- Economic Barriers
- External Supporting Barriers
- Knowledge Barriers

H5 NEP
- Anthropocentrism
- Eco-centricism

Intentions to adopt the GLC in the next year

β = 0.260*

β = -0.263*

β = -0.235*

Control variables
- Gender H6
- Size H8
- Location H10
- Edu H7
- Star H9

Significant (*p <0.05) →
Not significant ←
H = Hypothesis
6.10 Multiple Regression Model: Intention to Adopt the GLC in the Next 5 Years

6.10.1 Linearity, Outliers and Homoscedasticity

The scatterplot of the residuals in Figure 6.9 shows that the residuals fell within a generally random pattern. There was no evidence of either homoscedasticity or linearity over which to be concerned.

Figure 6.9 The Scatterplot of the Residuals of Intentions to Adopting the GLC in the Next 5 years

The results from the standard multiple regression analysis for factors predicting the accommodation managers’ behavioural intentions to adopt the GLC in the next 5 years had four case numbers (35, 76, 89 and 101) which were outliers (see Table 6.22). They had standardized residuals which were -3.626, -3.195, -3.669 and -3.182, respectively, which had a standardized residual value of over ± 3.0. Thus, the researcher was aware of the outliers and deleted them from the model.
Table 6.22 The Diagnostic Statistics Table of the Respondents’ Behavioral Intentions to Adopt the GLC in the Next 5 Years

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Std. Residual</th>
<th>Next 5 years</th>
<th>Predicted Value</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>-3.626</td>
<td>1</td>
<td>4.77</td>
<td>-3.773</td>
</tr>
<tr>
<td>76</td>
<td>-3.195</td>
<td>1</td>
<td>4.32</td>
<td>-3.324</td>
</tr>
<tr>
<td>89</td>
<td>-3.669</td>
<td>1</td>
<td>4.82</td>
<td>-3.818</td>
</tr>
<tr>
<td>101</td>
<td>-3.182</td>
<td>1</td>
<td>4.31</td>
<td>-3.311</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Next 5 years

Figure 6.10 shows a normal P-P plot of standardized residual. This plot shows a diagonal straight line which means that the residuals represent a normal distribution. The variables meet the assumption of normality.

Figure 6.10 The Normal P-P Plot of Standardized Residual of the Respondents’ Behavioural Intentions to Adopt the GLC in the Next 5 Years
6.10.2 Multiple Regression of Adopting the GLC in the Next 5 Years (Model 2)

Research Question 3: What are the factors influencing accommodation managers’ behavioural intentions to adopting the GLC in the next 5 years? All possible predictor variables in the regression model are presented in Table 6.23 and Figure 6.11.

Table 6.23 Multiple Regression Analysis of Intentions to Adopt the GLC in the Next 5 Years (N = 198)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variables</th>
<th>B</th>
<th>beta</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to adopt GLC in the next 5 years</td>
<td>(Constant)</td>
<td>2.587</td>
<td>0.006</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>Direct Economic Benefits</td>
<td>0.031</td>
<td>0.046</td>
<td>0.691</td>
</tr>
<tr>
<td></td>
<td>Indirect Economic Benefits</td>
<td>0.024</td>
<td>0.038</td>
<td>0.754</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Behavioural Controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic Barriers</td>
<td>-0.028</td>
<td>-0.034</td>
<td>0.677</td>
</tr>
<tr>
<td></td>
<td>External Supporting Barriers</td>
<td>-0.241</td>
<td>-0.241</td>
<td>0.015*</td>
</tr>
<tr>
<td></td>
<td>Knowledge Barriers</td>
<td>0.271</td>
<td>0.304</td>
<td>0.002*</td>
</tr>
<tr>
<td>Environmental concern</td>
<td>Anthropocentric</td>
<td>-0.071</td>
<td>-0.093</td>
<td>0.200</td>
</tr>
<tr>
<td></td>
<td>Eco-centric</td>
<td>0.187</td>
<td>0.124</td>
<td>0.090</td>
</tr>
<tr>
<td>Control Variables</td>
<td>Gender</td>
<td>0.007</td>
<td>0.004</td>
<td>0.960</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>-0.138</td>
<td>-0.082</td>
<td>0.271</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td>0.619</td>
<td>0.388</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>Star rating</td>
<td>0.174</td>
<td>0.122</td>
<td>0.105</td>
</tr>
<tr>
<td></td>
<td>Central</td>
<td>0.181</td>
<td>0.077</td>
<td>0.601</td>
</tr>
<tr>
<td></td>
<td>Northern</td>
<td>-0.114</td>
<td>-0.044</td>
<td>0.583</td>
</tr>
<tr>
<td></td>
<td>North-Eastern</td>
<td>-0.531</td>
<td>-0.205</td>
<td>0.155</td>
</tr>
<tr>
<td></td>
<td>Southern</td>
<td>0.037</td>
<td>0.018</td>
<td>0.915</td>
</tr>
</tbody>
</table>

$R = 0.48, R^2 = 0.23$, adjusted $R^2 = 0.17$, $p < 0.05$

The multiple correlation coefficient ($R = 0.48$) was significantly different from zero, $F (18, 183) = 3.402, p < 0.05$, and 23% of the variation in the dependent variable was explained by the external supporting barriers and the knowledge barriers after five
variables (gender, accommodation size, education level, accommodation star rating and location) were controlled ($R^2 = 0.23$, adjusted $R^2 = 0.17$). The education level was the only control variable that significantly and uniquely contributed to the prediction of the accommodation managers’ attitudes to adopting the GLC in the next 5 years. The other variables were found not to provide any significant or unique contribution to prediction (Table 6.23 and Figure 6.10).

Model 2 aims to predict the behavioural intentions to adopt the GLC in the next 5 years. There were three independent variables, which were external supporting barriers, knowledge barriers and education level. Every unit rise in the knowledge barriers and the education level factor related to the respondents’ behavioural intention to adopt the GLC in the next 5 years, by 0.304 and 0.388, respectively. The external supporting barrier was negatively related to adopting the GLC, suggesting that for each one-unit increase in the external supporting barrier in relation to adopting the GLC, there was a -0.241 increase in the behavioural intention score. This means that lower levels of external supporting barriers appeared to raise the likelihood of adopting the GLC in the next 5 years. The results of the multiple regression analysis supported Hypotheses 13 and 16.
Figure 6.11 Model 2 (Intention to Adopt the GLC in the Next 5 Years)

H11 Attitude
- Direct Economic benefits
- Indirect Economic benefits

H12 Subjective norms

H13 PBC
- Economic barriers
- External Supporting barriers
- Knowledge barriers

H14 NEP
- Anthro-procentricism
- Eco-centricism

Intentions to adopt the GLC in the next 5 years

\[ \beta = -0.241^* \]
\[ \beta = -0.034^* \]
\[ \beta = 0.388^* \]

Gender H15
Size H17
Location H19
Edu H16
Star H18

Control variables

Significant (*p < 0.05)
Not significant
H = Hypothesis
6.11 Summary

This chapter presented the results of data obtained from an online survey of 359 accommodation managers in Thailand. Overall, there were more male managers than female, and generally the level of education was at least a Bachelor’s or Master’s degree or PhD. Most of the respondents worked in 3, 4 or 5 star hotels of small size, located in southern Thailand.

All of the 359 accommodation managers in Thailand were asked to rate their general environmental attitudes (NEP). The results showed that the respondents had attitudes to supporting natural resources for their own sake (Eco-centrism), rather than protecting the environment to provide benefits for human beings (Anthropocentrism). Of the 359 respondents, 202 (56.3%) respondents knew about the GLC and 157 (43.7%) of the respondents did not know about the GLC. This indicated that more respondents knew about, or were familiar with, the GLC than those who had no knowledge about the GLC. In relation to accommodation sizes, star rating and location, the general environmental attitudes of the managers who knew the GLC are significantly different from the managers who did not know the GLC. In terms of the managers who knew about the GLC, females had more eco-centric attitudes (likely to protect the environment) than males.

The objective of this study was to investigate what factors influenced the Thai accommodation managers’ behavioural intentions to adopt the GLC (in the next year and in the next 5 years). The data analysis, based on the online survey of 202 accommodation managers in Thailand, showed that subjective norms were positively associated with the accommodation managers’ behavioral intentions to adopt the GLC in the next year. The results also found that the managers’ behavioral intentions to adopt the GLC in the next year increased when economic barriers and anthropocentric factors
decreased. In other words, the intention of accommodation managers to adopt the GLC increased in the following year. When they have increased social pressures, both the costs of adopting the GLC and the level of anthropocentrism descended, meaning a higher probability of adopting the GLC.

However, with respect to the accommodation managers’ behavioral intentions to adopt the GLC in the next 5 years, three factors were found to be significant predictors. While external supporting barriers showed a negative relationship with the managers’ attitude to adopting the GLC in the next 5 years, the knowledge barriers showed a positive association. This indicated that the managers who have a high level of formal education desired to adopt the GLC in the next 5 years. Additionally, although their staff still lacked knowledge, external organizations (the government and professionals in the GLC organization) who support them by training and giving advice, increased the manager’s intentions to adopt the GLC in the next 5 years. The following chapter provides a comprehensive discussion of the study’s findings.
CHAPTER SEVEN

Discussion

7.1 Introduction

This chapter discusses the findings presented in Chapter 6. It commences with a brief summary of the results and then examines each of the hypotheses that underpin this study, in the light of previous research.

7.1.1 Relationship Between Knowledge of Green Leaf Certification

The gender and education of the Thai hotel managers was found to have no bearing on those who had knowledge and those who had no knowledge of Green Leaf Certification (GLC), while their establishment variables (sizes, star ratings and locations) showed that there was a difference between those who knew and those who did not know about the GLC. This indicated that the respondents’ knowledge of the GLC was in part, a function of the three establishment variables. It can be seen that the respondents who managed a large (more than 150 rooms), 4 - 5 star hotel located in Southern Thailand tended to know about the GLC.

The general environmental attitudes of the hotel managers were measured by using the New Ecological Paradigm (NEP) scale. The NEP variable of this study contained two factors, which were anthropocentrism and eco-centrism. The findings revealed that both groups of respondents, who either knew or did not know about the GLC, had a higher score of eco-centrism than anthropocentrism. This indicated that the Thai hotel managers were concerned about protecting the environment rather than using the environment for human benefits. Further analysis in this study found a significant difference in the NEP between respondents who knew and those who did not know
about the GLC, in terms of anthropocentrism. The respondents who did not know about the GLC had a higher mean score of anthropocentrism than those who knew about the GLC. This indicates that knowledge of the GLC has a stronger influence on individuals who were more likely to engage with or protect the environment than those who hold opposite ideas. This study’s results are consistent with the findings of Hines et al. (1987) and Schahn and Holzer (1990), who found that knowledge about protecting the environment was associated with an individuals’ environmental behaviour. For example, Vermeir and Verbeke (2006) found that the consumers who had a knowledge of the sustainability of food consumption tend to purchase sustainable food products.

The results of the study showed that 56.3% of the respondents knew about the GLC. Among this group, there was a significant difference between the gender of the respondents who knew the GLC and their eco-centrism. In terms of knowledge about the GLC, females had more eco-centric attitudes (protecting the environment) than males. Past studies have found that females tend to be more associated with general environmental attitudes (NEP) than males (Casey & Scott, 2006; Jopp, 2012; Kollmuss & Agyeman, 2002; Laroche, Bergeron & Barbaro-Forleo, 2001; Stern et al., 1993), while this study found a significant effect of gender on general environmental attitudes.

This is consistent with the previous study by Mair (2011), which found that 56% of eco-centric respondents were female and 44% were male. In contrast, 60% of the anthropocentric respondents were male and 40% were female. It is possible that because they are more traditionally socialised into caregiver roles, females are predisposed to be more compassionate, nurturing and protective (Casey & Scott, 2006). Compared with males, females are more concerned about environmental quality, thus care more about personal well-being, social welfare, and the health of the biosphere (Stern et al., 1993).
Therefore, the environmental attitudes of Thai men were different from those of Thai women.

It has been argued that environmental education, in every level of education, could help individuals have more knowledge about environmental problems (Damerell, Howe & Milner-Gulland, 2013). This study is also inconsistent with previous studies which stated that a higher formal education level was more associated with environmental concerns (Howell & Laska, 1992; Scott & Willits, 1994; Tarrant & Cordell, 1997; Van Liere & Dunlap, 1980). However, the results of this study were confirmed by Hamilton (1985), Schahn and Holzer (1990) and Kollmuss and Agyeman (2002), who found that the level of education did not have any relationship with general environmental attitudes. It is possible that this is because Thai education in the school-based curriculum has no environmental lessons, even at a basic education level, leading to a lack of awareness and knowledge, and has no budgets to provide environmental projects for students (Thathong, n.d.). Therefore, the difference in the level of education level of the respondents was not associated with environmental concerns in the Thai context.

7.1.2 Thai Hotel Managers’ Decision Making Towards Adopting the GLC

In this study 202 of the respondents (56.2%) had a knowledge of the GLC, with a level of ($M = 4.60$). This data agreed with previous studies which stated that environmental knowledge in such areas as recycling, water conservation and waste management practices influenced environmental behaviour (Erdogan & Baris, 2007; Fryxell & Lo, 2003; Hines et al., 1987; Schahn & Holzer, 1990). This indicated that the Thai hotel managers’ knowledge of the GLC can be measured by their behavioural intentions towards adopting the GLC.
In this study intention to adopt environmental certification is affected by who makes the decision. Previous literature has suggested that the environmental decision making of the manager is an important determinant for adopting environmental certification (Chan & Wong, 2006; Ustad, 2010). On average, the respondents in this study had the authority to make a decision to adopt the GLC (M = 5.12). These findings are, to some extent, consistent with the results of previous studies on general managers, who are among the most influential decision makers, in terms of adopting the EMP and environmental certification (Chan & Wong, 2006; Park, 2009; Prayag et al., 2010; Ustad, 2010). Therefore, this study confirmed that the Thai managers were individuals who had both a knowledge of the GLC, and the authority to make a decision to adopt the GLC. The next section discusses all of the factors influencing the managers’ behavioural intentions to adopt the GLC, followed by the hypothesis testings of the study.

7.2 Discussion of Hypothesis Testing

The following section presents a discussion dealing with the factors that influence Thai accommodation managers’ behavioural intentions to adopt the GLC. This study revealed the accommodation manager’s behavioural intentions to adopt the GLC. As discussed in Chapter 3, and based on the Theory of Planned Behaviour (TPB), behavioural intentions to adopt the GLC can be predicted by three main variables: attitudes towards the perceived benefits of adopting the GLC (AT); subjective norms in relation to the GLC (SN); and the perceived behavioural controls towards the GLC (PBC). Additionally, general environmental concern (NEP) was another independent variable in adopting the GLC.
The results from the principle component analysis revealed four main independent variables. The attitude variable consisted of two factors, which were direct economic benefits and indirect economic benefits. The analysis had only one subjective norm factor. The perceived behavioural control variables had three factors, which were economic barriers, external support barriers and knowledge of EMP barriers. There were two factors in the NEP variable, which were the anthropocentric and the eocentric. Additionally, this study included five control variables (gender, education level, accommodation size, star rating and location). Therefore, the independent variables for this study included eight factors and five control variables.

7.2.1 The Influence of Attitude Towards the Benefits of Adopting the GLC

The results of the multiple regression analysis were used to answer the following hypotheses:

**Hypothesis 2**: There is a positive relationship between the Thai accommodation managers’ attitudes towards the benefits of adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 11**: There is a positive relationship between the Thai accommodation managers’ attitudes towards the benefits of adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

The results of this study contradicted these hypotheses, in that it showed that attitudes had an insignificant relationship with the managers’ behavioural intentions to adopt the GLC in both the next year and the next five years. The results of the multiple regression analysis did not support Hypotheses 2 and 11. Previous literature suggested
that individual’s attitudes influenced their behavioural interest (Ajzen, 1991). Previous scholars stated that businesses decided to adopt environmental management and environmental certification because they gained benefits or advantages (Park, 2009; Park et al., 2012). However, this study found that the managers’ attitudes to adopting the GLC showed two main factors, which were the direct and indirect economic benefits. Both factors had no influence on intention to adopt the GLC in the next year or in the next five years. The attitudes had no influence on the managers’ behavioural intention to adopt the GLC. The result is, however, consistent with other studies focusing on Asia that also reported no relationship between the perceived benefits and behavioural intentions to adopt environmental certification. For example, in Malaysia, Zainol and Zailani (2005) found that the perceived benefits from adopting ISO 14001 did not influence a business to adopt the scheme.

One possible explanation for the rejection of the hypotheses may be due to the benefits of adopting of the GLC being intangible and not easy to measure (Kaiser et al., 1999; Yiridoe et al., 2003; Zainol & Zailani, 2005). Another possible clarification for supporting the results of this study may be due to the period of time. The respondents may have thought that the perceived benefits of adopting the GLC would take time to be repaid. The required investment in technology and the cost of certification, as well as staff training, were perceived to be high. Webster (2000) stated that the perceived benefits of adopting environmental certification take a long time, and that it would take around five years or more. Therefore, attitudes about the perceived benefits of adopting the GLC did not support the managers’ intentions to adopt the GLC. This means that the perceived benefits of adopting the GLC were not an important catalyst to encourage managers to adopt the GLC.
7.2.2 The Influence of Subjective Norms in Relation to Adopting the GLC

The results of multiple regression analysis were used to answer the following hypotheses:

**Hypothesis 3**: There is a positive relationship between the Thai accommodation managers’ subjective norms related to Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 12**: There is a positive relationship between the Thai accommodation managers’ subjective norms related to Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

As previously discussed in Chapter 3, the literature holds that subjective norms are an influential factor which would encourage intent to perform environmental behaviour (Chan & Wong, 2006; Chen et al., 2011; Rivera, 2002; Ustad et al., 2010). Hypothesis 3 investigated the positive influence of subjective norms in relation to adopting the GLC in the next year. The statistical evidence supports this link in Hypothesis 3. The finding is consistent with results from studies in both Western countries (Chen, 2008; Chen et al., 2011; Zhou, 2010) and Asian countries (Tih & Zainol, 2012), where it was reported that the persons who were important and close to the respondents influenced the adoption of environmental certification. Moreover, Thais pay respect to people who are in senior and high positions in Thai society (O’ Sullivan & Tajaroensuk, 1997), such as corporate leaderships, and they were shown to be one of the subjective norm factors that influenced managers to adopt the GLC.
However, the statistical evidence did not support Hypothesis 12, which was that subjective norms or social pressures could not influence behavioural intention to adopt the GLC in the next five years. One possible explanation for the rejection of this hypothesis was the culture. Culture is the ideas, customs, beliefs, and human thoughts that are shared and accepted by a particular society or group of people (Stevenson & Waite, 2011). Thai culture, as an Asian culture tends to be collectivistic and has a wide sphere of influences with strong unavoidable bonds, while Australian culture, as a Western culture, was the opposite (Hofstede, 2001). Campiranon and Scott (2007) also argue that people from different cultures will have different ways of making decisions that reflect on their national culture. Native Thai culture has influenced how managers make decisions. It seems decision making in Thai culture tends to depend heavily on social and cultural norms (Laohapensang, 2009; Phetvaroon, 2006; Soonthonsmai, 2001), especially in environmental behaviour such as recycling behaviours (Ittiravivongs, 2012). Kinship and family relationships are central to Thai culture (Stevenson & Waite, 2011), and extend into formal interactions in corporate and customer relations contexts. The results of the study suggest the important role of social pressure from corporate leadership, regulations, customers, employees, friends and family on the intentions of the managers to engage in adoption of the GLC in the next year. Subjective norms, therefore, are important for managers, especially in a short time period, while in the next five years the people around managers may not be the same. If the subjective norms change, it will affect their decision making to adopt the GLC.

Another possible explanation of why the subjective norms did not influence the manager to adopt the GLC in the next five years may be because of the time period. Hofstede (2001) stated that behaviour related to reality and human nature, which are their beliefs, thoughts, and feelings, can change behaviour over time. The Thai people
need time, training and practice to adapt to a new assignment that can help them to confidently do new things (Thitthongkam, 2013). This may be a reason why the subjective norms did not influence the managers’ behavioural intentions to adopt the GLC in the next five years. Therefore, with extra time for making a decision to adopt the GLC in the next five years, they may think they have enough time for training and preparing their staff. It does matter who is around them.

7.2.3 The Influence of Perceived Behavioural Controls on Adopting the GLC

The results of the multiple regression analysis were used to answer the following hypotheses:

**Hypothesis 4**: There is a positive relationship between the Thai accommodation managers’ perceived behavioural controls towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next year.

**Hypothesis 13**: There is a positive relationship between the Thai accommodation managers’ perceived behavioural controls towards adopting Green Leaf Certification and the Thai accommodation managers’ behavioural intentions towards adopting Green Leaf Certification in the next 5 years.

Chapter 3 of this research outlined the extensive body of empirical evidence which shows that people may not intend to perform a behaviour when they have personal control over their behaviour and decision making, and that this influences their judgment on the risks and benefits of performing the behaviour (Ajzen, 1991). Therefore, Hypothesis 4 examined the positive influence of perceived behavioural controls (PBC) on the behavioural intention to adopt the GLC in the next year.
The PBC in this study indicated the barriers to adopting the GLC. The results from the factor analysis showed that there were three principal factors that influenced the managers’ decision making: economic barriers; knowledge of EMP barriers; and external supporting barriers. The findings revealed that there was a statistically significant negative relationship between the ‘economic barriers’ factor and behavioural intention in the next year (see Table 6.1). Therefore, Hypothesis 4 was supported.

This study’s findings were consistent with those of Bohdanowicz and Martinac (2003), Chen (2008), Tooman et al. (2009) and Ustad et al. (2010), who provided evidence that the constraint of businesses in adopting the EMP and certification came with costs, which are: implementation costs, certification costs and application fees, including investment in training the staff. Therefore, the decision by managers to adopt the GLC in the next year (short time) was based on the financial status of the businesses. It is possible that the managers who intend to adopt the GLC in the next year may think that they have to spend a lot of money to adopt the GLC, and that it will take time to raise the funds. The costs to adopt the GLC have to come from capital resources, so if the costs were low this allowed the managers to decide to adopt the GLC.

This study also examined the positive influence of PBC on the behavioural intention to adopt the GLC in the next five years (H13). The findings of the statistical analysis support the proposed hypothesis (H13), in both the external supporting barriers (negative) and knowledge barriers factors. This means that the external support barriers, including lack of professional assistance, lack of government support and lack of training in the GLC program, decreased the intentions to adopt the GLC in the next five years. External support included professional and government assistance, such as training and reducing the tax and costs for the GLC. These would be vital steps to
improving the protection of the environment and encouraging adoption of the GLC. The results of this study are consistent with those of Chan and Hawkins (2010), who found that managers’ had knowledge of the EMP and were able to identify the required environmental practices, share their knowledge, and care about the performance of their staff. Providing continual and in-depth training was important to employees because they can update and improve their knowledge of the EMP (Chan & Hawkins, 2010).

Managers should manage the employees scheduling and the time needed to address the problem before deciding to adopt the programme (Roberts, 2008). This indicated that external support for the organization was needed in relation to the time put aside for their staff to train and practice.

The knowledge barriers factor showed a statistically significant and positive relationship with intention towards adopting Green Leaf Certification in the next five years, which supported H13. This is a counter-intuitive finding. It suggests that the hotel managers’ belief that if their staff had a lack of knowledge about EMPs and that this would restrict their ability to adopt GLC, they were more likely to seek GLC in 5 years. These results run contrary to the findings of previous literature (Coyle, 2005; Tooman et al., 2009). Similarly, Doody (2010) and Kasim (2009) revealed that knowledge of EMPs was important in the decision to adopt them. The findings in this thesis seem to challenge the conventional wisdom captured in previous research, that employee environmental awareness was a foundation for environmentally sustainable businesses (Bohdanowicz & Martinac, 2003; Chan & Hawkins, 2010; Roberts, 2008). What these previous studies did not consider was the long term. The findings of this study could be interpreted to mean that, given a five year window of opportunity to address the EMP knowledge of their staff, managers feel that they have time to address this barrier. This coupled with the fact that these managers are already somewhat pro-environmentally
positioned on the NEP scale, which explains why they may be more likely to pro-
actively prepare their staff for the eventual implementation.

7.2.4 The Influence of NEP on Adopting the GLC

The results of the multiple regression analysis were used to answer the following
hypotheses:

**Hypothesis 5**: There is a positive relationship between the Thai accommodation
managers’ general environmental attitudes towards adopting Green Leaf Certification
and the Thai accommodation managers’ behavioural intentions towards adopting Green
Leaf Certification in the next year.

**Hypothesis 14**: There is a positive relationship between the Thai accommodation
managers’ general environmental attitudes towards adopting Green Leaf Certification
and the Thai accommodation managers’ behavioural intentions towards adopting Green
Leaf Certification in the next 5 years.

In addition to general environmental attitudes (NEP), there were two factors,
which were eco-centrism and anthropocentricism. The data revealed that the
anthropocentric orientation had a negative influence on the Thai managers’ behavioural
intention to adopt the GLC in the next year. This means that the majority of respondents
had less of an anthropocentric orientation, and were more likely to adopt the GLC in the
next year. This finding was supported by Casey and Scott (2006), where it was reported
that environmental behaviour had a negative relationship with the anthropocentric
factor. It is possible that they were becoming more likely to support the environment,
and that they may feel that adopting the GLC would have a much greater effect on their
quality of life, which in turn makes them increase their level of ecological behaviour.

Another possible reason is that knowledge of the environment, or knowledge of
climate change, may influence environmental concern. A level of knowledge regarding
environmental issues, such as climate change, may motivate people to more environmental behaviour (Fryxell & Lo, 2003; Luo & Deng, 2008). This indicated that Thai managers have environmental knowledge and concern about environmental problems, so they intended to adopt the GLC in the next year.

However, this study also tested both the eco-centrism and anthropocentrism factors, which had a positive relationship to the managers’ behavioural intentions to adopt the GLC in the next five years. Therefore, Hypothesis 14 was not supported. These results were similar to previous scholars who have stated that general environmental concerns cannot predict all environmental behaviour (Lee & Paik, 2011; Nooney et al., 2003). Jopp (2012) found that America and Australia tended to be more eco-centric than other countries. The highest score of anthropocentric people was in Europe, while people from Asia sat in the mid-range.

7.2.5 The Influence of Control Factors on Adopting the GLC

This study had five control variables, which were gender, education level, accommodation size, star rating and location.

Among the five control variables, the regression results showed that only the education level of managers was significant for behavioural intentions to adopt the GLC in the next five years. The results of the multiple regression analysis supported Hypotheses 16. This finding is in agreement with environmental behaviour scholars that have stated that persons who have a good education will be more concerned about the environment (Chen et al., 2011; Chung & Poon, 1994; Nooney et al., 2003). People who had a higher education level have the ability to realize and solve environmental management problems characterized by inherent complexity and ambiguous benefits (Cottrell, 2003; Ewert & Baker, 2001). The results confirmed that managers with a high level of education are more likely to participate in an environmental certification
scheme (Rivera & Leon, 2005). The education factor had no influence on the behavioural intentions to adopt the GLC in the next year. This finding supports previous research (Lam, 2006; Lee & Paik, 2011). The reasons may be because managers think that the intention to adopt the GLC in the next year was too short a time period for them to prepare the paperwork and process the GLC. However, with more time, those managers who have the education to do so, will also have the time to address the complexities associated with environmental problems (Cottrell, 2003; Ewert & Baker, 2001). The results of the multiple regression analysis supported Hypotheses 7.

However, regression results showed that gender, accommodation size, star rating and locations were not significantly related to the behavioural intention to adopt the GLC in both the next year and the next 5 years, meaning that those variables in this study did not have a significant influence on the managers. The results of the multiple regression analysis did not support Hypotheses 6, 8 - 10 and 15 - 19. The findings were contrary to previous scholars who proposed that environmental behaviour was influenced by those variables.

The data reveals that gender did not influence the behavioural intention to adopt the GLC in the next year or in the next five years. Therefore, Hypothesis 6 and 15 were not supported. Previous studies have found gender to be a significant factor in environmental behaviour. Women were more likely to engage in environmental behaviour than men (Barr, 2007) because women are more involved in parenthood and have more environmental experience (Hamilton, 1985), such as in the purchase of green products (Soonthonsmai, 2001). Therefore, for behaviours that they are unfamiliar with, and have no experience with, women are less interested in such environmental behaviour than men. If a person is unfamiliar with, and had no experiences of, specific behaviour such as adopting GLC behaviour, gender would not affect that behaviour.
The finding was confirmed by Rivera and Leon (2005), Chen et al. (2011) and Lee and Paik (2011). Rivera and Leon (2005) found that gender was not related to environmental behaviour in Costa Rica’s certification program.

Hotel sizes were measured by the number of rooms, and consisted of the three categories: small; medium; and large (National Statistical Office, 2010a). A number of previous studies have found that large businesses are more interested in adopting EMS certification than small hotels (Alvarez Gil et al., 2001; Benito & Bentio, 2005; King & Lenox, 2001; Martin-Pena, Diaz-Garrido & Sanchez-Lopez, 2010). The reason for this is because large businesses have more financial capacity and human resources than small businesses in order to become green hotels (Benito & Bentio, 2005). The data of this study revealed that hotel size is not an influence on intentions to adopt the GLC. It may be because the costs of the GLC depend on the size of the organization. The investment associated with implementing and registering for the GLC increased with the size of the businesses. Thai managers may think that they still have fixed costs when they begin to adopt the GLC. The intention to adopt the GLC was not influenced by the size of the hotels. Therefore, Hypotheses 8 and 17 were not supported.

When consumers decide which hotel they should choose, the star rating is an easy way to compare hotels (Narangajavana & Hu, 2008). Callan (1995) further argued that most customers decided to stay at three to five-star hotels, rather than staying at one and two-star hotels. This indicated that customers choose the hotels based on the star rating and prices rather than being interested in staying in green hotels. The data in this study revealed that there was no difference between star rating and intention to adopt the GLC. Therefore, Hypotheses 9 and 18 were not supported. The possible reason for this may be because of the quality of services, which was supported by Narangajavana (2007), who found that there was no difference between star ratings and service quality,
such as service delivery, customer facilities and surroundings in the Thai context. This means hotels with lower star levels improved their service quality as well as hotels with higher star levels.

The data revealed that the geographic locations did not have an effect on the managers’ behavioural intentions to adopt the GLC. Therefore, Hypotheses 10 and 19 were not supported. The results of the present study are different from other reported findings, which have found that people who live in different locations have different environmental behaviour (Chung & Poon, 2001; Wu, 2010), but were consistent with a previous study by Zhou (2010). This may be because this study separated the locations into five regions, while previous studies only compare urban and rural areas.

7.3 Summary

This study investigated what factors influenced the Thai accommodation managers’ behavioural intentions to adopt the GLC in two time periods, in the next year and in the next five years. The above discussion reveals that the subjective norms, perceived behavioural controls and new environmental paradigm variables influenced the Thai hotel managers’ behavioural intentions to adopt the GLC. The next chapter considers the implications of this study for practice, theory and research, and makes recommendations for policy, management and future research.
CHAPTER EIGHT

Conclusion

8.1 Introduction

There has been numerous studies documenting the environmental impacts caused by the tourism industry in Thailand (Chaisawat & Campos, n.d.; Kuong, 2004; Phayakvichien, 2005; Sakornsathien, 1993; Shamsib, 2010; Sintunawa, 2010; Utarasakul, 2012). However, to date there have been no studies that have examined the role hotel managers play in addressing environmental problems through the adoption of the Green Leaf Certification program (GLC) in Thailand. This thesis has sought to fill this gap in the research literature by exploring the factors that influence the Thai hotel managers’ decisions to adopt environmental management practices, in the form of the GLC program. Specifically, it builds on the existing knowledge base of scholarship on sustainable hotel management and examines the factors influencing the Thai hotel managers’ behavioural intentions using the Theory of Planned Behaviour (TPB).

The TPB theoretical model was well suited for this research as it provided a framework for identifying how attitudes towards the benefits of adopting the GLC, the subjective norms in relation to the GLC and the perceived barriers to adopting the GLC influenced the Thai hotel managers’ behavioural intentions. In addition, this study considered how the intention to adopt the GLC may be affected by the period of time in which the intention was framed. It recognised that factors that affect the behavioural intentions of hotel managers may be different under shorter and longer time periods. It also considered the role of the profiles of the hotel managers themselves, and the profiles of the hotels they represented, played in shaping their behavioural intentions towards GLC adoption.
This thesis was developed based on the general premise that positive attitudes toward the environment would lead to behaviours that minimize environmental impacts, regardless of whether an individual knew about specific environmental management practice strategies, such as the GLC. Therefore, this study focussed on the managers’ more general environmental attitudes by employing the New Ecological Paradigm (NEP) scale.

The first chapter of this thesis identified three questions that informed a set of research hypotheses which were subjected to empirical testing. This final chapter revisits those questions and not only draws conclusions but also lays the foundations for discussing the implications of the findings.

8.2 Research Question One: Outcomes

The first research question asked: Is there any difference between those accommodation managers who know about the GLC and those that do not?

The descriptive data analysed in this thesis indicated that there was a difference in the hotel accommodations’ intentions to become Green Leaf certified. The star rating, the size and the geographical locations of hotels were different for the two groups. Managers in smaller hotels, in more remote and regional areas, had lower star ratings, and were less likely to know about the GLC. This indicated that the knowledge of the hotel managers about the GLC was different, based on the demographics of the accommodation establishments.

Despite these demographic and profile differences, there was little difference between those who knew about the GLC and those who did not have knowledge of the GLC in terms of their NEP scores. The only difference was that those who knew of the GLC tended to be less anthropocentric than those who did not know. In addition, there
were some gender differences within the group who knew of the GLC. There were more women in the study who knew about the GLC, and they were more likely to have an eco-centric attitude towards the environment than the men in the study who knew about GLC. However, in a broad sense, the similarity between the groups was more evident. Both groups tended to be more eco-centric than anthropocentric.

8.2.1 Implications for Practice: Research Question One

The implication of the outcomes related to this research question is that a large proportion of the hotel managers in this study already have general pro-environmental attitudes, regardless of their knowledge of the GLC and regardless of the size, location and star rating of their hotels. Given that positive attitudes towards the environment provide an important foundation for ensuring pro-environmental behaviours, the Thai tourism policy makers interested in building a greener hotel sector can do so in the knowledge (albeit based on the sample used in this thesis) that they have a supportive group of pro-environmental hotel managers already working in hotels throughout the country. This suggests that strategies to encourage the greening of hotels should not be overly concerned with trying to reduce practical barriers of the managers. In short, such strategies would be ‘preaching to the converted’. Rather, they should focus on ensuring the managers are provided with the opportunities to act upon their attitudes. For example, training programs should focus less on highlighting the importance of addressing environmental impacts, and more on addressing potential barriers to engaging in pro-environmental initiatives. Those barriers are well articulated in this study for those who know about the GLC. The economic, educational and support barriers faced by the respondents in this study, who know of the GLC, need to be addressed. In terms of the barriers facing those without knowledge of the GLC, this study did not specifically identify these. However, extrapolating from the findings in
this thesis, that low education, lack of support and economic restrictions are barriers for those with knowledge of the GLC (discussed later in this chapter), and that these barriers may be similar for those who do not know of the GLC. This is a reasonable inference, given that previous research suggests that such barriers are particularly acute in hotels that are small in size, have a low star rating and are regionally located (Benito & Bentio, 2005; El Dief & Font, 2010; Kasim, 2009; Zhou, 2010). As this thesis has demonstrated, hotel managers in developing countries who do not know of the environmental certification such as GLC work primarily in these types of hotels, and by logical extension face these same barriers. Such hotels should be the target of programs designed to reduce such barriers.

In regards to the differences among those respondents who knew of the GLC, the findings of this study suggest that women are more likely to have stronger pro-environmental attitudes than men. This suggests that women may be well positioned to adopt leadership roles in the greening of hotels. This might include identifying and recruiting women into education, training and mentoring roles in the hotel sector. Additionally, tourism and environmental authorities in developing countries which have similar environment and culture as Thailand might consider targeting their training and education programs more specifically at men who work in the sector, to further develop their awareness and understanding of environmental issues.

8.3 Research Question Two: Outcomes

The second research question asked: What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next year?
This study found that three factors influenced the hotel managers’ intentions to adopt the GLC. The first was related to normative influences. Persons who were influential and/or close to the respondents positively affected the respondents’ intentions. The second factor relates to perceived behavioural controls, specifically in relation to perceived economic barriers. Respondents who intend to adopt the GLC were less likely to perceive economic barriers associated with this behaviour. The third factor was in relation to the respondents’ general environmental attitudes, as measured through the NEP scale. This study found that those with low anthropocentrism scores were more likely to have an intention to adopt the GLC.

8.3.1 Implications for Practice: Research Question Two

There are a number of implications of these findings for practice. To increase the number of Green Leaf certified establishments in the short term (in the next year), it would be wise for the Thai hotel authorities who wish to increase GLC uptake to instigate training and professional development seminars for human resource managers in hotels. The NEP could be deployed as a mechanism for targeting the managers who would benefit most from education and training programs designed to decrease the manager’s anthropocentrism. Such programs might emphasise the value of nature for its own sake, while challenging beliefs that human needs should be prioritised ahead of protecting the ecological integrity of the planet. However, one of the challenges associated with such an initiative is that changing attitudes is not easily achieved in the short term. Further research, that seeks to understand factors that are transformational in nature, and evoke sudden change in NEP attitudes among hotel managers, may first be necessary.

In relation to the influence that positive social pressures have upon hotel managers’ intentions to adopt the GLC in the short term, the Thai government, the
Tourism Authority of Thailand (TAT), the Thai Hotel Association (THA) and the Green Leaf organization should develop strategies that educate and empower stakeholders (i.e., corporate leadership, customers, employees, friends and family) to apply pressure to hotels to develop their green credentials. Governments are often in a position to create regulatory incentives that further encourage hotels to adopt green certification (e.g., Tax breaks, greening grants). As an example, governments should subsidize and offer economic incentives, such as tax exemptions, to those hotels that invest in green technology (Chaisawat & Campos, n.d.; Chan & Wong, 2006). Moreover, support from governments and associated organizations in the form of small grants (particularly for small and medium hotels) to encourage certification will contribute towards an improved environment (Ann et al., 2006).

Economic incentives are not only important because they may affect a positive influence on hotel managers, they directly address the financial impediments that hotel managers identified as a reason for not getting their hotels certified. Adopting environmental certification requires hotel managers to make a financial commitment to the human and infrastructure resources necessary to become green compliant (Ayuso, 2006; Font, 2003; Ustad, 2010). Moreover, such an investment is unlikely to result in a swift return on investment. However, if the return on investment in adopting certification is not only high, but also quick, managers are more likely to adopt it. Instead of trying to convince hotels that the return on investment will eventually come, the Thai government, and the Green Leaf organization should consider developing more immediate cost reduction strategies to lower the fees for the GLC and the related certification programs. In addition, agencies responsible for the promotion of Green Leaf certification should focus promotion campaigns on the long term benefits of certification, rather than the short term costs.
Therefore, to increase the number of certified hotels in the short period especially in developing countries, increasing the general environmental behaviour, subjective norms and decreasing economic barriers would be the most important factors. The government and associated organisations should pay more attention to these than other factors to improve the environment in the hotels by adopting the certification.

8.4 Research Question Three: Outcomes

The third research question asked: What are the factors influencing the accommodation managers’ behavioural intentions to adopt the GLC in the next 5 years?

The findings showed that accommodation managers’ behavioural intentions to adopt the GLC in the next five years was predicted by two factors. The first factor referred to the perceived barriers to external support for managers. These external support barriers included: a lack of professional assistance, a lack of government support and a lack of training for staff and managers in the GLC program. When these barriers were perceived as being high by the hotel managers in this study there was a low likelihood that the managers would indicate that they intended to adopt the GLC in the next five years.

The second factor was knowledge of Environmental Management Practice (EMP) barriers (PBC). The hotel managers in this study recognised that a lack of knowledge about environmental management practices among their staff was an impediment to adopting the GLC. However, the findings also seem to suggest that given a five year time period, they would have the time to act upon their pro-environmental predispositions, as measured in this study through the NEP, to rectify the lack of knowledge and to be in a position to become Green Leaf certified.
The final factor that predicted intention to adopt the GLC in the next five years, was the education level of hotel managers. Once again, time appears to enable hotel managers to draw upon their own knowledge and skills to enact their pro-environmental values.

Therefore, to improve the environment and increase the number of certified hotels in the long term especially in developing countries, the government and associated organisations should plan and support hotels to adopt the environmental certification. For example, supporting the hotel managers who intend to adopt certification by increasing the professional assistance regarding certification, a seminar specifically on how to adopt certification and adding the environmental knowledge into the formal education level.

8.4.1 Implications for Practice: Research Question Three

Based on the findings of this study, to increase the number of Green Leaf certified establishments in the long term (in the next five years), it is necessary to further develop the external support mechanisms that will extend over this longer time period. For example, the Board of Environmental Promotion of Tourism Activities (BEPTA) should work more closely with the Thai Hotels Association (THA) to provide professional advice on how to prepare for Green Leaf certification over several years. This might assist with a long term GLC development plan that hotels can follow and budget for, on a year by year basis, with the goal of becoming certified in the fifth year.

Other forms of support could also be metered out over a longer period. Rather than providing intensive training that prepares staff and managers for the GLC, that training could be implemented incrementally over a longer period. This would allow hotel managers and their staff to develop the skills that will underpin the roll out of the
EMPs they need, and when they need them. Moreover, these training programs and seminars need to be delivered in locations where the GLC is not well known. This might include regional areas such as north-eastern and eastern Thailand. The programs should also target small hotels, and those with lower star ratings.

The recommendations described here suggest that the predictive factors for both short term and long term adoption of the GLC could be applied equally to those who know about the GLC, and also to those that do not know about it. This may be a valuable approach, given the lack of difference between these two groups, in terms of their pro-environmental stance.

Another recommendation for the Thai government, and associated organizations, should be to encourage hotel managers to undertake study programs that raise their overall education levels. They should identify and develop appropriate education programs in ‘green’ hotel management, focussed on postgraduate programs in regional Universities in Thailand, and also encourage the Thai Hotel Association (THA) to develop scholarships to encourage educational mobility among hotel managers.

8.5 Recommendations for Future Research

This study extends the work of earlier scholarly papers relating to the factors influencing accommodation managers’ behavioural intentions to adopt the GLC with a particular focus on the Thai context. The findings are particularly important as they focus on circumstances that differ substantially from the previous literature. While this research has made several significant contributions, other interesting questions need investigation.

This thesis also found that the general environmental attitudes of Thai hotel managers was associated with their behavioural intentions to adopt the GLC. There was
support from Prapannetivuth and Arttachariya (2008), who found that environmental attitudes had a moderately strong relationship with the responsible environmental behaviour of the Thai people using the New Ecological Paradigm (NEP) scale. Therefore, it would be useful to apply an expanded approach to green certification attitude studies by including general environmental attitude scales (i.e., NEP Scales) in such studies.

This is the first study using exploratory factor analysis with the NEP scales in the Thai context. The findings revealed that the general environmental attitudes of the Thai people in this study could be grouped into the ‘eco-centric’ and the ‘anthropocentric’. Therefore, further research can explore these two categories to measure individual’s environmental attitudes across industries, and in other countries similar to the Thai context.

Additionally, this study did not extend to an analysis of actual behaviour (adopting the GLC) because of the limitation of time. Therefore, another potential area for future research is to examine the relationship between behavioural intention and actual behaviour related to certification. By employing a longitudinal approach involving continual observations of the same variables, and the same people, over long periods of time, would provide robust data that confirms or challenges the TPB model’s assumed link between intentions and behaviours.

It was found that subjective norms are one of the most significant factors that influenced the Thai hotel managers to adopt the GLC in the short term. Therefore, further research should include subjective norms as determinants of behavioural intention to adopt ‘green’ certifications in other developing country contexts. Previous studies found that the environmental values in Asian countries, including Thailand, are
related to traditional, cultural and altruistic factors (Aoyai-Usui, Vinken & Kuribayashi, 2003; Laohapensang, 2009; Phetvaroon, 2006; Soonthonsmai, 2001). In addition, there were several previous studies that found that different cultures affect the robustness of the theory within those cultures (Dolnicar & Grun, 2007; Schwartz, 2006). The findings and conclusions reported here may only be relevant in developing countries similar to Thai culture. In future research, the issues influencing the accommodation managers’ attitudes, such as culture (Thai culture and the organization of the culture) and the environmental policy in the hotels, should be studied to achieve a wider understanding.

Additionally, future research that investigates how perceived behavioural controls impact on other stakeholders involved in the greening of hotels, might examine the corporate leadership and trainers who work in other organizations associated with the GLC, such as the TAT, the THA and the Green Leaf organizations. They should also examine the customers’ perspectives on adopting the GLC. This would further extend understanding of their perspectives on the environmental problems and adopting the GLC.

One of the key findings in this study was that attitudes towards the GLC were not a significant predictor of behavioural intentions, over both the next year and in the next five year periods. This is consistent with other studies in developing countries (Zainol & Zailani, 2005) that challenge the cultural transferability of the Theory of Planned Behaviour (Ajzen, 1991), which holds attitudes as one of the cornerstones of behavioural prediction. One explanation for this is that the role of personal attitudes in influencing behavioural intentions is culturally determined. Hotel managers in collectivist societies (Hofstede, 2001), such as Thailand, may be less likely to access their personally held attitudes in contexts that are collectively determined. When speaking on behalf of a hotel and its staff, managers may make behavioural choices that
are for what they perceive as the collective good, even if this is in contrast to their own attitudes. At a broader level, this calls into question the cultural transferability of the TPB model.

The hotel managers’ education level factor influenced the hotel managers’ behavioural intentions to adopt the GLC. It would be enlightening to understand which subject majors in formal education have the most effect on their decision making to protect the environment and adopt the EMPs. Therefore, further research needs to include a more nuanced and detailed approach to developing profiles of the educational levels of the hotel managers, in order to identify the characteristics of specific educational backgrounds in future hotel certification studies.

This study did not have a specific question asking ‘Is the hotel a Green Leaf certified hotel?’ Without this question, it is impossible to know whether some of the respondents in this study were already certified. If they were certified, this may have affected the way they interpreted and responded to the survey questions. For example, responding to a question about one’s intention to become certified may be confusing if a person has already engaged in that behaviour. However, given that only 4% (approximately 200) of the hotels in Thailand are Green Leaf certified, and given the response rate in this study (12%), it is unlikely that many respondents were from GLC hotels. Nevertheless, the inclusion of a question about current certification would have strengthened the design of the study.

There is a need for more comparative research to gather information by dividing the hotel managers into two main groups, which are the certified accommodation and the non-certified. Further research is needed to explore which, if any, factors impact on
the incidence of adopting the GLC by both groups. As discussed above, the findings of this thesis can be a useful foundation for several interesting topics for further research.

An additional limitation is that this study did not differentiate between levels of Green Leaf certification. The GLC has 5 levels that a hotel can attain. Knowing the level of certification that a hotel manager might seek to attain for their hotel would provide a more fine-grained and differentiated measure of behavioural intentions.

This study focused on the hotel managers’ behavioural intention to adopt the GLC. The findings of this study can be a useful foundation from the hotel managers’ perspective about adopting the environmental certification. Green customers’ perspective is one of the main factors that can affect the hotel managers to make a decision to adopt the certification. Further research is needed to explore the green customers’ perspective about staying in green hotels or implementing certification.

The barriers and benefits of adopting the certification this study is focusing on economic, marketing, customers, local community benefits. However, this study did not focusing on those behind implementing such as protecting biodiversity or having a sustainable supply chain management in place. It would be more interesting topic for the future research.

Because this study design and data collection was limited by both the time and financial constraints of the researcher, sampling only included those hotel managers who came from hotels with email addresses. There are a large number of Thai accommodation establishments (5,420), however the sampling frame of this study was only the 3,005 who had email addresses listed with TAT. This could have affected the diversity of hotels included in this study. The very small regional hotels that do not have email contact were inadvertently excluded. Further qualitatively rich research that
targets such hotels would be valuable, as micro-businesses in Thailand are growing fast (The United Nations, 1991), and yet little is known about them in relation to green certification.

An online survey questionnaire was designed to be used in this thesis because of the large sample, and the constraints of time, costs and human resources. Other reasons why this study received a low response may be because of the limitations of communication technologies. Although the Thai tourism industry is well developed, the development of information and communication technologies (ICT), and the internet, are still in their infancy. The use of ICT in the Thai tourism industry is low in quantity and poor in quality (Cosh & Assenov, 2007). Harzing (2000) found that when using an online survey in South-East Asian countries, the response rate was always low. The generalizability of the findings of this study were indeed limited by a low response rate (12%).

Future research might therefore attempt to replicate the study with a larger sample, and develop larger scale studies internationally that will increase the validity of the study. This will also provide a more rigorous test of the significance of these attitudes as predictors of green certification intentions. Additionally, future research may be able to design a qualitative method, such as interviewing hotel managers, customers and staff to obtain a richer view about their perspectives on environmental

8.6 Concluding Comments

This thesis is a starting point for engaging the hotel industry in a developing country with broader debates and issues related to sustainable business practices. As the tourism industry begins to address its environmental impacts through certification, it becomes a central player in a broader national debate about sustainability. This study outlined
some of the strategies that could be considered in order to minimise negative environmental impacts, which are essential in order to achieve the broader goal of sustainable tourism development. Developing countries still need financial resources and support from governments and external organizations in order to mitigate the negative environmental impacts of tourism in the long term.


CentaraSustainability


Wu, C. T. (2010). *A study of attitude toward green hotel by hoteliers and travel agency managers in Taiwan.* (Master's thesis), Ming Chuan University, Taiwan.


APPENDICES

Appendix 1 Certified Letter
Dear Sirs,

I, Sarapol Chirasawadi, have translated the documents used in the research project entitled “Examining Manager’s Behavioral Intentions towards Adopting Green Leaf Environmental Certification in the Thai Tourism Accommodation Sector” which is a part of Miss Rungnapa Lertpatcharapong’s Ph.D. studies at the University of Newcastle.

To the best of my knowledge and belief, the statements in the Thai language in the following documents have the same meanings as the statements in the English language in the original documents:

1. research questionnaire,
2. information statement for the research project,
3. information statement for pilot study in the research project, and
4. reminder letter.

Sarapol Chirasawadi (Ph.D.)
Deputy Director
Institute of Language Art and Culture
30th March 2012
Appendix 2 Information Statement for Pilot Study (English)
Information Statement for Pilot Study In the Research Project:

Examining Manager’s Behavioural Intentions Toward Adopting Green Leaf Environmental Certification in the Thai Tourism Accommodation Sector

Document Version 1; 20/3/2012

You are invited to participate in the research project identified above which is being conducted by Miss Rungnapa Lettpatcharapong, a PhD Candidate from the Newcastle Business School/Faculty of Business and Law at the University of Newcastle.

The research is part of Miss Rungnapa Lettpatcharapong’s PhD studies at the University of Newcastle, supervised by Dr. Kevin Lyons, Dr. Patricia Johnson and Dr. Po-Hsin Lai from the Newcastle Business School at the University of Newcastle.

Why is the research being done?
The purpose of the research is to isolate the factors that influence the Thai managers’ behavioural intentions to adopt the Green Leaf environmental certification. The research will examine the relationship between the managers’ general environmental attitude and the managers’ behavioural intention to adopt the Green Leaf certification. This is a pilot study and I need your feedback to improve and finalize the questionnaire prior to beginning the research project. After you have completed the survey, there are three questions at the end of the survey for you to provide your comments.

Who can participate in the research?
The researcher will collect data from at least 20 tourism accommodation managers in Bangkok, Thailand as listed in the 2011 Tourism Authority of Thailand registry.

What choice do you have?
Participation in this research is entirely voluntary and the information you provide will remain anonymous.

What would you be asked to do?
If you agree to participate, you will be asked to complete a pilot questionnaire survey.

How much time will it take?
The questionnaire will take approximately fifteen to twenty minutes to complete.

What are the risks and benefits of participating?
There are no direct benefits for you. However, it is hoped the research will be useful for the Tourism Association of Thailand (TAT), the Thai Hotel Association (THA) and Thai government agencies to promote environmentally sustainable practices for the Thai hotel industry.
How will your privacy be protected?
To assure your confidentiality and privacy will be maintained, the collected research data will be held in a secure location by the researcher. Furthermore, only Dr. Kevin Lyons, Dr. Patricia Johnson, Dr. Po-Hsin Lai and Miss Rungnapa Larpatcharapong will have access to the data. Data from the online survey will be password protected and the collected research data will be secured in a locked filing cabinet for 5 years. The secure filing cabinet is located at the chief investigator’s (Dr. Kevin Lyons) office in room UNH3.25 of University House at the city campus. After 5 years has elapsed, the data will then be destroyed.

How will the information collected be used?
The research data will be used for the doctoral thesis of Rungnapa Larpatcharapong. The results of pilot study of this research will be important to know the validity and reliability of the research questionnaire. The researcher will make any needed adjustments to the questionnaire prior to collecting the data from the remaining 5,420 Thai general managers. Upon completion of the pilot study, the researcher will revise as needed and adjust the instrument accordingly. The result of this pilot survey will be used to improve the survey that will be sent to other hotel managers. Your help is deeply appreciated.

What do you need to do to participate?
You will need to read the Information Statement for the Pilot Study and be sure you understand its contents before completing the questionnaire. If there is anything you do not understand, or if you have any questions, you should contact the researcher.

If you agree to participate, please click here to link http://newcastlebusandlaw.us.qualtrics.com/SV/?SID=SV_03rdL2pAaplowJ4 to the online survey.

Upon completion of the questionnaire, submit your online response.

Further information
If you would like further information please contact Miss Rungnapa Larpatcharapong on Mobile 0424662018 email r3114433@uwn.edu.au or Dr. Kevin Lyons on (02) 4921 8969 or email Kevin.Lyons@newcastle.edu.

Thank you for considering this invitation.

Yours Sincerely,

Dr. Kevin Lyons  Miss Rungnapa Larpatcharapong
Principal Supervisor  PhD Candidate

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-2012-0024.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellerly, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
คำที่จงขอข้อมูลสำหรับการศึกษาเกี่ยวกับการวิจัย:
การตรวจสอบความตั้งใจเชิงพฤติกรรมของผู้จัดการท่องเที่ยวไทยในการปรับใช้ประกาศนียบัตรใบไม้เขียวเพื่อสิ่งแวดล้อม
ในภาคที่พักสัมพันธ์ของการท่องเที่ยวไทย

เอกสำรฉบับที่ 1; 2/03/2012

ท่านได้รับเชิญเข้าร่วมในโครงการวิจัยที่ระบุไว้ข้างต้น ซึ่งดำเนินการโดย นางสาวรุ่งนภา เลิศพัชรพงศ์ นักศึกษาระดับปริญญาตรี
คณะธุรกิจและกฎหมาย มหาวิทยาลัยนิวคาสเซิล

งานวิจัยนี้เป็นส่วนหนึ่งของการศึกษาระดับดุษฎีบัณฑิตของ นางสาวรุ่งนภา เลิศพัชรพงศ์ ที่มหาวิทยาลัยนิวคาสเซิล โดยมี ดร. เควิน
ไลออนส์, Dr. Patricia Johnson และ Dr. Pauline Davis จากโรงเรียนธุรกิจ มหาวิทยาลัยนิวคาสเซิล เป็นอาจารย์ที่ปรึกษา

ท่านต้องทำงานวิจัย

จุดประสงค์ของงานวิจัยคือเพื่อแยกปัจจัยที่ส่งผลต่อความตั้งใจเชิงพฤติกรรมของผู้จัดการท่องเที่ยวไทยในการปรับใช้ประกาศนียบัตรใบไม้เขียวเพื่อสิ่งแวดล้อม และความตั้งใจเชิงพฤติกรรมของ
ผู้จัดการท่องเที่ยวไทยในการปรับใช้ประกาศนียบัตรใบไม้เขียวเพื่อสิ่งแวดล้อม การศึกษาเป็นการศึกษาแบบข้างต้น และการทำสำเร็จของการจะเสนอแนะ
ของท่านเพื่อปรับปรุงแบบสอบถาม ค่อนจะนำไปใช้ในโครงการวิจัย หลังจากท่านตอบแบบสอบถามแล้ว มีคำถามที่ท่านตอบแบบสอบถาม
สามารถที่ให้ท่านให้ความคิดเห็น

โครงการนี้เข้าร่วมงานวิจัยนี้

ผู้วิจัยจะเก็บรวบรวมข้อมูลจากผู้จัดการที่พักเพื่อการท่องเที่ยวในกรุงเทพ ประเทศไทย ที่อยู่ในทะเบียนของการท่องเที่ยว สาธารณะจำนวน 20 คน

ท่านมีทางเลือกอะไรบ้าง

การเข้าร่วมในงานวิจัยนี้เป็นไปด้วยความสมัครใจ และข้อมูลที่ท่านให้จะไม่มีการระบุชื่อสิ่งท่าน

Appendix 3 Information Statement for Pilot Study (Thai)
ท่านจะถูกขอให้ทำอะไร

ถ้าท่านตัดสินใจเข้าร่วม ท่านจะถูกขอให้ตอบแบบสอบถามนี้

จะใช้เวลาเท่าไร

จะใช้เวลาประมาณ 15-20 นาทีในการตอบแบบสอบถาม

ความเสี่ยงและผลประโยชน์ที่จะได้ในกระบวนการวิจัย

ท่านจะไม่ได้รับผลประโยชน์โดยตรงใดๆ อย่างไรก็ตาม ท่านจะได้รับนิสิตงานวิจัยเปรียบเทียบด้วยที่อ่านผ่านประเทศไทย (ททท.) สมาคมโรงแรมไทย และหน่วยงานของรัฐบาลไทยในการส่งเสริมการปฏิบัติเพื่อสิ่งแวดล้อมอย่างยั่งยืนในการคุณค่าการขนส่ง

ความเป็นส่วนตัวของท่านจะถูกปกป้องอย่างไร

เพื่อให้แน่ใจว่าความลับและความเป็นส่วนตัวของท่านจะถูกปกป้องไว้ ข้อมูลที่เก็บไว้จะถูกเก็บไว้ในที่ปลอดภัยโดยนักวิจัย ซึ่งไปกว่านี้ มีทั้ง ดร. เควิน ไลออนส์, ดร. แพทริเซีย จอห์นสัน, ดร. โพโซิน ไล และนางสาวรุ่งนภา เลิศพัชรพงศ์ ที่จะสามารถเข้าถึง

ข้อมูลได้ ข้อมูลที่ได้จากการสำรวจออนไลน์จะถูกปกป้องด้วยรหัส และข้อมูลงานวิจัยจะถูกเก็บรักษาไว้ในอุปกรณ์ที่ใช้กลุ่มนักวิจัยในเวลานั้น ผู้สอบสวนได้เพียงอย่างเดียวที่จะสามารถเข้าถึงข้อมูลนี้ คือ นักวิจัยและหัวหน้าการสำรวจ (ดร. เควิน ไลออนส์) ที่อยู่ UNH 3:26 อาคารสิทธิพลัส วิทยาเขตเมือง หลังจากเวลาผ่านไปห้าปี ข้อมูลจะถูกทำลาย

ข้อมูลที่เก็บได้จะนำไปใช้ยังไง

ข้อมูลงานวิจัยนี้จะนำไปใช้ในการค้นหุ้นหน่วยของแรงงานวิจัย ผลการศึกษาจะเป็นสิ่งสำคัญในการปรับแนวความคิด ทำความเข้าใจข้อมูลของแบบสอบถาม นักวิจัยจะทำการปรับปรุงแบบสอบถามก่อนนำไปเก็บข้อมูลจากผู้จัดการชาวไทยที่ เหลืออีก 5,420 คน ข้อมูลนี้จะมีสิ่งสำคัญในการวิเคราะห์ข้อมูลของท่าน

ท่านต้องทำสิ่งใดบ้างเพื่อเข้าร่วมกระบวนการวิจัย

ท่านจำเป็นต้องจำเป็นต้องทำแบบสอบถามคำชี้แจงข้อมูลสำหรับการศึกษานี้ และแน่ใจว่าท่านเข้าใจเนื้อหาในคำชี้แจงเก็บข้อมูลแบบสอบถาม ถ้ามีสิ่งใดที่ท่านไม่เข้าใจ หรือท่านมีคำถาม ท่านควรติดต่อกับนักวิจัย

หากท่านต้องการข้อมูลเพิ่มเติม กรุณาติดต่อที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_03ctL29AprlweUA

เพื่อเข้าสู่ระบบสำรวจออนไลน์

เมื่อตอบแบบสอบถามเสร็จแล้ว กรุณาคลิกส่งตอบออนไลน์ของท่าน

ข้อมูลเพิ่มเติม

ขอขอบคุณที่ท่านพิจารณาคำเชิญนี้

ร้องเรียนเกี่ยวกับการวิจัย

โครงการนี้ได้รับการอนุมัติจากคณะกรรมการวิจัยที่เกี่ยวข้องกับมนุษย์ของมหาวิทยาลัย ความเห็นชอบหมายเลข H-2012-0024 หากท่านมีข้อกังวลเกี่ยวกับการวิจัยหรือหากท่านมีข้อร้องเรียนเกี่ยวกับการดำเนินการวิจัย ท่านสามารถส่งข้อร้องเรียนของท่านไปยังผู้วิจัย หรือทางทีมการติดต่อผู้ช่วยของท่าน หรือทางทีมการติดต่อผู้ช่วยของท่านได้ ท่านสามารถติดต่อเจ้าหน้าที่จริยธรรมทางการวิจัยที่เกี่ยวข้องกับมนุษย์ สำนักวิจัย เดอะ แชนเซลเลอรี่ มหาวิทยาลัยนิวซีแลนด์ นิวคาสเซิล นิวเซาท์เวลส์ 2308 ออสเตรเลีย หมายเลขโทรศัพท์ (02) 49216333 จดหมายอิเล็กทรอนิกส์ Human-Ethics@newcastle.edu.au
Appendix 4 Information Statement for Main Study (English)

Information Statement for the Research Project:

Examining Manager's Behavioural Intentions Toward Adopting Green Leaf Environmental Certification in the Thai Tourism Accommodation Sector

Document Version 2; 2/03/2012

You are invited to participate in the research project identified above which is being conducted by Miss Rungnapa Lerptcharapong, a PhD Candidate from the Newcastle Business School/Faculty of Business and Law at the University of Newcastle.

The research is part of Miss Rungnapa Lerptcharapong's PhD studies at the University of Newcastle, supervised by Dr. Kevin Lyons, Dr. Patricia Johnson and Dr. Po-Hsin Lai from the Newcastle Business School at the University of Newcastle.

Why is the research being done?
The purpose of the research is to isolate the factors that influence the Thai managers' behavioural intentions to adopt the Green Leaf environmental certification. The research will examine the relationship between the managers' general environmental attitude and the managers' behavioural intention to adopt the Green Leaf certification.

Who can participate in the research?
The researcher will collect data from tourism accommodation managers in Thailand. The population for this study will consist of 5,420 accommodation establishments as listed in the 2011 Tourism Authority of Thailand registry.

What choice do you have?
Participation in this research is entirely voluntary and the information you provide will remain anonymous.

Due to the anonymous nature of the research, you will not able to withdraw your responses to our online survey once it has been submitted.

What would you be asked to do?
If you agree to participate, you will be asked to complete an online survey.

How much time will it take?
The questionnaire will take approximately fifteen to twenty minutes to complete.
What are the risks and benefits of participating?
There are no direct benefits for you. However, it is hoped the research will be useful for the Tourism Association of Thailand (TAT), the Thai Hotel Association (THA) and Thai government agencies to promote environmentally sustainable practices for the Thai hotel industry.

How will your privacy be protected?
To assure your confidentiality and privacy will be maintained, the collected research data will be held in a secure location by the researcher. Furthermore, only Dr Kevin Lyons, Dr Patricia Johnson, Dr Po-Hsin Lai and Miss Rungnapa Lertpatcharapong will have access to the data. Data from the online survey will be password protected and the collected research data will be maintained in a locked filing cabinet for 5 years. The secure filing cabinet is located at the chief investigator’s (Dr. Kevin Lyons) office in room UNH3:26 of University House at the city campus. After 5 years has elapsed, the data will then be destroyed.

How will the information collected be used?
The research data will be used for the doctoral thesis of Rungnapa Lertpatcharapong. A summary of the research results will be made available to participants upon request. As well, the research thesis will be available in the public domain through the University of Newcastle library. Additionally, the results of the study will be provided to the Tourism Association of Thailand (TAT) and the Thai Hotel Association (THA).

What do you need to do to participate?
You will need to read the Information Statement for Pilot Study and be sure you understand its contents before completing the questionnaire. If there is anything you do not understand, or if you have any questions, you should contact the researcher.

If you agree to participate, please click here to link
http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2k8INDmASnXRa
to the online survey.

Further information
If you would like further information please contact Miss Rungnapa Lertpatcharapong on Mobile 0424662016 email c3114436@uon.edu.au or Dr Kevin Lyons on (02) 4921 8989 or email Kevin.Lyons@newcastle.edu.au.

Thank you for considering this invitation.

Complaints about this research
This project has been approved by the University’s Human Research Ethics Committee, Approval No. H-2012-0024.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
Appendix 5 Information Statement for Main Study (Thai)

ดร. เควิน ไลออนส์
โรงเรียนธุรกิจธุรกิจ
คณะธุรกิจและกฎหมาย
ยูนิเวิร์ซิตี้ไดรว์
คาลลากาน
ออสเตรเลีย
โทรศัพท์: (02) 4921 8989
โทรสาร: (02) 4921 691
จดหมายอิเล็กทรอนิกส์: Kevin.Lyons@newcastle.edu.au

การกระทำของข้อมูลสำหรับโครงการวิจัย:
การตรวจสอบความตั้งใจเชิงพฤติกรรมของผู้จัดการต่อด้านการประกอบธุรกิจภายในไม้เขียวเพื่อสิ่งแวดล้อม
ในภาคที่สั่งทำการท่องเที่ยวไทย
เอกสารฉบับที่: 2/03/2012

ท่านได้รับการเชิญเข้าร่วมโครงการวิจัยที่ระบุไว้ข้างต้น ซึ่งดำเนินการโดย นางสาวรุ่งนภา เลิศพัชรพงศ์ นักศึกษาระดับปริญญาตรีดุสิตบัณฑิต โรงเรียนธุรกิจการศึกษา มหาวิทยาลัยนิวคาสเซิล

งานวิจัยนี้เป็นส่วนหนึ่งของการศึกษาระดับปริญญาตรีของ นางสาวรุ่งนภา เลิศพัชรพงศ์ ที่มหาวิทยาลัยนิวคาสเซิล โดยมี ดร. เควิน ไลออนส์ และ ดร. ทิวทิวา แฝงสำราญ และ ดร. ไพจิตร ไทยจิน ซึ่งจากโรงเรียนธุรกิจการศึกษา มหาวิทยาลัยนิวคาสเซิล เป็นอาจารย์ที่ปรึกษา

ที่ไม่ต้องทำงานวิจัย

จุดประสงค์ของงานวิจัยคือเพื่อตรวจสอบความตั้งใจเชิงพฤติกรรมของผู้จัดการชาวไทยในการปรับใช้ประกาศมิตรภาพไม้เขียว งานวิจัยจะศึกษาความตั้งใจเชิงพฤติกรรมของผู้จัดการในการปรับใช้ประกาศมิตรภาพไม้เขียวเพื่อสิ่งแวดล้อม

ใครสามารถเข้าร่วมงานวิจัยนี้

ผู้วิจัยจะเก็บรวบรวมข้อมูลจากผู้จัดการที่พักเพื่อการท่องเที่ยวในประเทศไทย จำนวน 5,420 แห่ง ที่อยู่ในทะเบียนของการท่องเที่ยวแห่งประเทศไทย ในปี พ.ศ. 2554

ที่มีแนวทางอะไรบ้าง

การเข้าร่วมในงานวิจัยนี้เป็นไปด้วยความสมัครใจ และข้อมูลที่ท่านให้จะไม่มีการระบุชื่อตัวท่านในการระบุชื่อตัวข้อความ ทำให้ท่านไม่สามารถขอคืนข้อมูลของท่าน หลังจากได้ส่งแบบสอบถามออนไลน์แล้ว
ท่านจะถูกขอให้ทำอะไร
ถ้าท่านต้องการเข้าร่วม ท่านจะถูกขอให้ตอบแบบสอบถามออนไลน์
จะใช้เวลาเท่าไร
จะใช้เวลาประมาณ 15-20 นาทีในการตอบแบบสอบถาม
จะมีความเสี่ยงเพียงใดหรือประโยชน์ที่จะได้ในทางการเข้าร่วมการวิจัย
ผู้สมัครไม่ได้รับผลประโยชน์โดยตรงใด ๆ อย่างไรก็ตาม ผู้วิจัยหวังว่าผู้สมัครจะรู้สึกได้ว่าการท่องเที่ยว (ททท.) สมาคมโรงแรมไทย และหน่วยงานของรัฐบาลไทยในการส่งเสริมการปฏิบัติเพื่อสิ่งแวดล้อมอย่างยั่งยืนในภาคอุตสาหกรรมโรงแรมของไทย
ความเป็นส่วนตัวของท่านจะถูกปกป้องอย่างไร
เพื่อให้แน่ใจว่าความลับและความเป็นส่วนตัวของท่านจะถูกรักษาไว้ ข้อมูลที่เก็บได้จะถูกกู้เก็บไว้ในที่ที่ปลอดภัยโดยนักวิจัย ซึ่งมีเพียง ดร. เควิน ไลออนส์ ดร. แพทริเซีย จอห์นสัน ดร. โพ ซิน ไล และนางสาวรุ่งนภา เลิศพัชรพงศ์เท่านั้น ที่จะสามารถเข้าถึงข้อมูลได้ ข้อมูลที่เก็บจากการสำรวจออนไลน์จะถูกเปลี่ยนด้วยรหัส และข้อมูลงานวิจัยจะถูกเก็บรักษาไว้ในห้องทำงานของท่านผู้เข้าร่วม (ดร. เควิน ไลออนส์) ที่ตึก UNH 3:26 อาคารยูเวิร์ชั่น วิทยาศาสตร์ เขตเมือง หลังจากเวลาผ่านไปห้าปี ข้อมูลจะถูกทำลาย
ข้อมูลที่เก็บได้จะนำไปใช้ยังไง
ข้อมูลที่เก็บได้จะนำไปใช้ในงานคุณค่าที่คุณสมควรของงานวิจัย และมีการร้องขอจากผู้สมัครในทางการสื่อสารที่ организацияของมหาวิทยาลัยนิวคาสเซิล นอกจากนี้ ผลของการศึกษาจะถูกเสนอไปยังการท่องเที่ยวแห่งประเทศไทย (ททท.) และสมาคมโรงแรมไทย
ท่านจะต้องทำสิ่งใดบ้างเพื่อเข้าร่วมการวิจัย
ท่านจะต้องอ่านคำชี้แจงข้อมูลสำหรับโครงการวิจัย และแน่ใจว่าท่านเข้าใจถึงคำชี้แจงก่อนตอบแบบสอบถาม ถ้ามีสิ่งใดที่ท่านไม่เข้าใจ หรือหากท่านมีคำถาม ท่านควรติดต่อนักวิจัย
หากท่านต้องการข้อมูลเพิ่มเติม กรุณาอีเมลที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ข้อมูลที่เก็บได้ สามารถดูข้อมูลเพิ่มเติม กรุณาติดต่องานวิจัยและการตลาดของผู้เข้าร่วม ได้ที่ http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDMAsXRaj ที่เข้ารู้
แบบสำรวจออนไลน์
ขอขอบคุณที่ท่านพิจารณาคำเชิญนี้

ร้องเรียนเกี่ยวกับการวิจัย

โครงการนี้ได้รับการเห็นชอบจากคณะกรรมการจริยธรรมทางการวิจัยที่เกี่ยวข้องกับมนุษย์ของมหาวิทยาลัย ความเห็นชอบหมายเลข H-2012-0024 หากท่านมีข้อสงสัยเกี่ยวกับการวิจัย หรือหากท่านมีข้อร้องเรียนเกี่ยวกับการดำเนินงานวิจัย ท่านสามารถส่งข้อร้องเรียนของท่านไปยังผู้วิจัย หรือหากต้องการติดต่อผู้รับรองการรักษาความลับอีก ท่านมีทางติดต่อเจ้าหน้าที่จริยธรรมทางการวิจัยที่เกี่ยวข้องกับมนุษย์ สำนักวิจัย มหาวิทยาลัยนิวคาสเซิล ถูมินิเวอร์ซิตี้ นิวซีแลนด์ นิวเซาท์เวลส์ 2308 ออสเตรเลีย หมายเลขโทรศัพท์ (02) 49216333 จดหมายอิเล็กทรอนิกส์ Human-Ethics@newcastle.edu.au
Appendix 6 Questionnaire for Pilot Study (English)

Section A. Adopting the Green Leaf Certification (GLC)

1. Are you aware that the Green Leaf environmental certification program exists?
   - [ ] Yes (if Yes, please proceed and answer the survey questions below)
   - [ ] No (if No, proceed directly to section B and C)

2. Please indicate your familiarity and knowledge about the Green Leaf certification program based on a graduated 1 to 7 scale.
   The number 1 indicates that you are not familiar or knowledgeable about the program and the number 7 indicates that you have an extensive knowledge and familiarity with the program.

   1 2 3 4 5 6 7
A1. For each statement below, select the one which most accurately represents the benefits your establishment realises by adopting the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement Adopting the GLC can...</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. reduce operational expenses</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. increase profitability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. insure environmental sustainability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. improve the natural environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. reduce greenhouse gas emissions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. reduce water consumption</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. reduce waste materials</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. contribute to habitat conservation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9. improve the hotel’s image</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10. help access new markets</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11. provide marketing advantages</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>12. increased market share</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>13. improve customer satisfaction</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>14. upgrade quality of services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>15. improve the hotel’s relationship with the local community</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>16. improve public relations</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
A2. For each statement below, select the one which most accurately represents your social pressures to adopt the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Government tourism regulations influence my decision to adopt the GLC</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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</tr>
<tr>
<td>2. My employees influence my decision to adopt the GLC</td>
<td>1</td>
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</tr>
<tr>
<td>3. My customers influence my decision to adopt the GLC</td>
<td>1</td>
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</tr>
<tr>
<td>4. My corporate leadership influences my decision to adopt the GLC</td>
<td>1</td>
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<tr>
<td>5. My family influences my decision to adopt the GLC</td>
<td>1</td>
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<tr>
<td>6. My friends influence my decision to adopt the GLC</td>
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</tr>
</tbody>
</table>
A3. For each statement below, select the one which most accurately represents the barriers to adopting the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High implementation cost</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>7</td>
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<tr>
<td>2. High certification cost, including membership and application fees</td>
<td>1</td>
<td>2</td>
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<td>7</td>
</tr>
<tr>
<td>3. Cost of technology to implement environmentally sustainable practices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. Complicated GLC requirements</td>
<td>1</td>
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<td>3</td>
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<td>7</td>
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<tr>
<td>5. Lengthy time required for GLC</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>7</td>
</tr>
<tr>
<td>6. Inadequate professional assistance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. Lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>1</td>
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</tr>
<tr>
<td>8. The hotel staff's lack of knowledge about environmentally sustainable practices makes it difficult to implement practices needed to obtain the GLC</td>
<td>1</td>
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<tr>
<td>9. Lack of GLC training programs makes it difficult for me to implement practices needed to obtain the GLC</td>
<td>1</td>
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</tr>
<tr>
<td>10. Lack of training programs makes it difficult for my staff to implement practices needed to obtain the GLC</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>11. Inadequate professional advice makes it difficult for my hotel to obtain the GLC</td>
<td>1</td>
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<tr>
<td>12. Lack of government support makes it difficult to adopt the GLC</td>
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</tr>
<tr>
<td>13. High employee turnover rate of environmentally trained personnel makes it difficult to adopt the GLC</td>
<td>1</td>
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<td>7</td>
</tr>
</tbody>
</table>
A4. For each statement below, select the one which most accurately represents your intention to adopt the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There is a strong possibility, I will adopt the GLC at my hotel within the next year</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tr>
<tr>
<td>2. There is a strong possibility, I will adopt the GLC at my hotel within the next 5 years</td>
<td>1</td>
<td>2</td>
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</tr>
</tbody>
</table>

A5. Do you have any other comments or suggestions about the Green Leaf Certification program that you would like to provide?

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B. For each statement below, select the one which most accurately represents your attitude about the environment.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We are approaching the population limit which the earth can support</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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</tr>
<tr>
<td>2. Humans have the right to modify the natural environment to suit their needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. When humans interfere with nature it often produces disastrous consequences</td>
<td>1</td>
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</tr>
<tr>
<td>4. Human ingenuity will insure that we do not make the earth unliveable</td>
<td>1</td>
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<td>7</td>
</tr>
<tr>
<td>5. Human beings severely abusing the environment</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. The earth has plenty of natural resources if we just learn how to develop them</td>
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</tr>
<tr>
<td>7. Plants and animals have as much right as humans to exist</td>
<td>1</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
<td>1</td>
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</tr>
<tr>
<td>9. Despite our special abilities humans are still subject to the laws of nature</td>
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</tr>
<tr>
<td>10. The so-called “ecological crisis” facing humankind has been greatly exaggerated</td>
<td>1</td>
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<td>7</td>
</tr>
<tr>
<td>11. The earth is like a spaceship with very limited room and resources</td>
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</tr>
<tr>
<td>12. Humans were meant to rule over the rest of nature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>13. The balance of nature is very delicate and easily upset</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<td>6</td>
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</tr>
<tr>
<td>14. Humans will eventually learn enough about how nature works to be able to control it</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>15. If things continue on their present course, we will soon experience a major ecological catastrophe</td>
<td>1</td>
<td>2</td>
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<td>7</td>
</tr>
</tbody>
</table>
Section C. Listed below are some general background questions about you and your establishment

Question 1. Gender

☐ Male
☐ Female

Question 2. Education level

☐ Primary School (Prathom 1 to 6)
☐ Lower Secondary School (Mattayom 1 to 3)
☐ Upper Secondary School (Mattayom 4 to 6)
☐ Vocational Certification
☐ Vocational Diploma
☐ A Bachelor’s Degree
☐ Master’s Degree
☐ Ph.D

Question 3. How many rooms are in your establishment?

☐ Less than 60 rooms (Small)
☐ 60 - 149 rooms (Medium)
☐ 150 rooms or more (Large)

Question 4. What is the star rating of your establishment?

☐ 1 Star Rating
☐ 2 Star Rating
☐ 3 Star Rating
☐ 4 Star Rating
☐ 5 Star Rating

Question 5. Please indicate if you have the decision making authority to adopt the Green Leaf certification program at your establishment using the graduated scale below.

The number 1 indicates that you do not have the authority and the number 7 indicates you have complete authority to adopt the Green Leaf certification program.

[1 2 3 4 5 6 7]
Section D Survey Discussion

Now that you have completed the survey, could you please take a few minutes to provide some feedback? The feedback will be used to revise and improve the survey prior to beginning the research project. Please provide any insights you have concerning the content or clarity of the questions asked above. Also, please state if you think a certain question or practice is not applicable to the hotel manager’s behavioural intention toward adopting the Green Leaf Certification.

1. Were the questions clear and understandable and did you feel comfortable answering the questions?

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2. Was 15 to 20 minutes sufficient time to complete the survey?

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3. Do you have any suggestions about how the survey could be improved?

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Thank you very much for your time and participation.
แบบสอบถามวิจัย

ส่วน ก : การนำเกียรติบัตรใบไม้เขียว (Green Leaf Certification) ไปใช้ในสถานประกอบการ

1. ท่านมีความรู้หรือทราบเกี่ยวกับเกียรติบัตรใบไม้เขียวด้านสิ่งแวดล้อม (Green Leaf Certification) ที่มีอยู่หรือไม่

☐ ทราบ (ถ้าทราบ, โปรดดำเนินการต่อโดยตอบแบบสอบถามด้านล่าง)

☐ ไม่ทราบ (ถ้าไม่ทราบ, โปรดดำเนินการต่อในส่วน ข และส่วน ค)

2. กรุณาระบุความคุ้นเคยและความรู้ของท่านเกี่ยวกับเกียรติบัตรใบไม้เขียวด้านสิ่งแวดล้อมโดยอ้างอิงตั้งแต่ระดับ 1 ถึงระดับ 7 โดยหมายเลข

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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</thead>
</table>
ในแต่ละข้อความด้านล่าง กรุณากดตัวเลือกตัวที่ตรงกับระดับความคิดเห็นของท่านที่สุด เพื่อแสดงประโยชน์ที่สถานประกอบการของท่านจะได้รับหากนำเกียรติบัตรใบไม้เขียวไปใช้

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<th>ไม่เห็นด้วย</th>
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<th>เห็นด้วยอย่างยิ่ง</th>
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<tr>
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<td>2. เพิ่มผลกำไร</td>
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<td>10. มีส่วนช่วยเพิ่มมูลค่าทางสุขภาพต่อไปนี้</td>
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<td>11. เพิ่มช่องทางการมีส่วนร่วมในตลาด</td>
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<td>13. เพิ่มความคิดเห็นของการทำก้าว</td>
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<td>16. ส่งเสริมการประชาสัมพันธ์</td>
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ในแต่ละข้อความด้านล่าง กรุณากลั่นคิดเลือกข้อความที่ตรงกับระดับความคิดเห็นท่านมากที่สุด เพื่อแสดงระดับอิทธิพลทางสังคมที่มีต่อท่านในการนำเกียรติบัตรใบไม้เขียวมาใช้

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<th>ข้อความ</th>
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<th>ไม่แน่ใจ</th>
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<th>เห็นด้วย</th>
<th>เห็นด้วยบ้าง</th>
<th>อย่างยิ่ง</th>
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</thead>
<tbody>
<tr>
<td>1. มาตรการด้านการท่องเที่ยวของรัฐบาลมีอิทธิพลต่อการตัดสินใจของข้าพเจ้าในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>2. พนักงานของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรไปใช้</td>
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<td>3. ลูกค้าของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรไปใช้</td>
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<td>4. ความเป็นผู้นำองค์กรของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรไปใช้</td>
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<td>5. ครอบครัวของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรไปใช้</td>
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<td>6. เพื่อนของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรไปใช้</td>
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ในแต่ละข้อความด้านล่าง กรุณาเลือกตัวเลือกว่าระดับความคิดเห็นท่านมากที่สุด เพื่อแสดงระดับอุปสรรคในการนําเอาเกียรติบัตรใบไม้เขียวได้จําเป็นมาใช้

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<th>เห็นด้วยอย่างยิ่ง</th>
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<td>1. ค่าใช้จ่ายในการนํามาปฏิบัติ</td>
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<td>3. เทคโนโลยีที่ทำให้งานด้านสิ่งแวดล้อมเกิดความยั่งยืนมีค่าใช้จ่ายสูง</td>
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<td>4. ข้อกําหนดของเกียรติบัตรใบไม้เขียวไม่ชัดเจน มีความชัดเจนน้อย</td>
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<td>5. ใช้เวลาในการขอรับเกียรติบัตรใบไม้เขียว</td>
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<td>6. การเข้าถึงแหล่ง笑笑เพื่อขั้นตอนขั้นตอนขั้นตอนสิ่งแวดล้อมอย่างมีคุณค่า</td>
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<td>7. การขาดความรู้เกี่ยวกับการปฏิบัติตามสิ่งแวดล้อมอย่างมีประสิทธิภาพ</td>
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<td>8. หนังสือเวียน ข้อความรู้เกี่ยวกับการปฏิบัติตามสิ่งแวดล้อมอย่างมีประสิทธิภาพ</td>
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<td>9. การขาดหลักสูตรการอบรมเกี่ยวกับเกียรติบัตรใบไม้เขียว ในไม่ชัดเจน ทำให้ไม่สามารถมีการหาขั้นตอนเพื่อจัดการเพื่อให้เกิดการปฏิบัติตามสิ่งแวดล้อมอย่างมีประสิทธิภาพ</td>
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<td>10. การขาดหลักสูตรการอบรมเกี่ยวกับเกียรติบัตรใบไม้เขียว ในไม่ชัดเจน ทำให้ไม่สามารถมีการหาขั้นตอนเพื่อจัดการเพื่อให้เกิดการปฏิบัติตามสิ่งแวดล้อมอย่างมีประสิทธิภาพ</td>
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<td>11. การขาดความมั่นคงขั้นตอนขั้นตอนสิ่งแวดล้อมในไม่ชัดเจน</td>
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<td>12. การขาดการสนับสนุนจากฝ่ายกฎหมาย ทำให้การตัดการขอรับเกียรติบัตรใบไม้เขียวไม่ชัดเจน</td>
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<td>13. การขาดการเปลี่ยนแปลงของพนักงานที่ได้รับการฝึกอบรมขั้นตอนสิ่งแวดล้อมสูงส่งผลให้ออกการขอรับเกียรติบัตรใบไม้เขียวไม่ชัดเจน</td>
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ในแต่ละข้อความด้านล่าง กรุณาเลือกตัวเลือกที่ตรงกับระดับความคิดเห็นของท่านมากที่สุด เพื่อแสดงความค้ำใจของท่านในการรับระบบ เกียรติบัตรใบไม้เขียว มาใช้

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<thead>
<tr>
<th>ข้อความ</th>
<th>ไม่เห็นด้วยอย่างยิ่ง</th>
<th>ไม่เห็นด้วยเล็กน้อย</th>
<th>ไม่แน่ใจ</th>
<th>เห็นด้วยเล็กน้อย</th>
<th>เห็นด้วยอย่างยิ่ง</th>
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<td>1. มีความเป็นไปได้อย่างมากที่ข้าพเจ้าจะรับเอาระบบเกียรติบัตรใบไม้เขียวมาใช้ที่สถานประกอบการภายในปีหน้า</td>
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<td>2. มีความเป็นไปได้อย่างมากที่ข้าพเจ้าจะรับเอาระบบเกียรติบัตรใบไม้เขียวมาใช้ที่สถานประกอบการภายในอีก 5 ปีข้างหน้า</td>
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ท่านมีความคิดเห็นหรือค้านแนะนําใด ๆ ที่เกี่ยวกับระบบเกียรติบัตรใบไม้เขียวที่ต้องการนําเสนอหรือไม่?

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ส่วน ข. ในแต่ละข้อความด้านล่าง กรุณาเลือกตัวเลือกที่ตรงกับระดับความคิดเห็นของท่านมากที่สุด เพื่อแสดงทัศนคติของท่านต่อกล่าวคือ

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<tr>
<th>ข้อความ</th>
<th>ไม่เห็นด้วยอย่างยิ่ง</th>
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<th>เห็นด้วยเล็กน้อย</th>
<th>เห็นด้วยอย่างยิ่ง</th>
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<tbody>
<tr>
<td>1. เรากำลังเข้าสู่ช่วงจังหวะของจำนวนประชากรที่โลกจะสามารถรับได้</td>
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<td>2. มนุษย์มีสิทธิที่จะปรับเปลี่ยนสภาพแวดล้อมทางธรรมชาติเพื่อให้ตรงต่อความต้องการ</td>
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<td>3. เมื่อมนุษย์ละลายจดจ่อของธรรมชาติ ถ้าฝ่าจะเกิดขึ้นก็ควรจะเกิดขึ้นตามมา</td>
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<td>4. การสร้างสรรค์ของมนุษย์ทำให้มันใหม่ได้ว่าเราจะทำให้โลกเป็นสถานที่ที่สามารถพักผ่อนได้เสมอ</td>
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<td>5. มันยังไงที่ทำลายสิ่งแวดล้อมอย่างร้ายแรง</td>
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<td>6. โลกมีทรัพยากรธรรมชาติมากมาย หากเราใช้รู้จะทำให้พื้นที่ทรุดโทรม</td>
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<td>7. พืชและสัตว์มีสิทธิที่จะมีอยู่ในสิ่งแวดล้อม</td>
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<td>8. สมดุลของธรรมชาติมีความแข็งแกร่งเพียงพอที่จะรับมือกับผลกระทบจากประเทศอุตสาหกรรมสมัยใหม่</td>
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<td>9. แม้ว่าเราจะมีความสามารถมากมายแต่มนุษย์ยังต้องมีการรับรู้เกี่ยวกับกฎของธรรมชาติ</td>
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<td>10. สิ่งที่เกิดขึ้นกับระบบนิเวศน์ที่มนุษย์กำลังเผชิญ เป็นสิ่งที่ชาติต้องจงใจไปมาก</td>
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<td>11. สิ่งที่เกิดขึ้นกับระบบนิเวศน์ที่มนุษย์กำลังเผชิญเป็นสิ่งที่ชาติต้องจงใจไปมาก</td>
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<td>12. มันยังไงที่ทำไหนได้ในสิ่งที่มีอยู่ในธรรมชาติ</td>
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<td>13. สมดุลทางธรรมชาติเป็นสิ่งที่ควรจะคิดและถูกทำตามได้ง่าย</td>
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<td>14. มันยังไงที่ทำจะสามารถเรียนรู้ได้ในสิ่งที่ทำให้ธรรมชาติทำงานอย่างไร เพื่อจะสามารถควบคุมธรรมชาติได้</td>
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<td>15. หากยังคงต่างๆ ก็ต้องมีไปตามทุกวันนี้ เราจะต้องประสบกับผลกระทบทางระบบมีวิวัฒนาการใหญ่ไม่ใหญ่ปลาย</td>
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ส่วนค. ลักษณะทั่วไปของผู้ตอบแบบสอบถาม และสถานประกอบการของท่าน

1. เพศ
☐ ชาย
☐ หญิง

2. ระดับการศึกษา
☐ ประถมศึกษา (ป. 1-6)
☐ มัธยมศึกษาตอนต้น (ม. 1-3)
☐ มัธยมศึกษาตอนปลาย (ม. 4-6)
☐ ประกาศนียบัตรวิชาชีพ (ปวช.)
☐ ประกาศนียบัตรวิชาชีพชั้นสูง (ปวส.)
☐ ปริญญาตรี
☐ ปริญญาโท
☐ ปริญญาเอก

3. จำนวนห้องในสถานประกอบการของท่าน
☐ ต่ำกว่า 60 ห้อง (โรงแรมขนาดเล็ก)
☐ 60-149 ห้อง (โรงแรมขนาดกลาง)
☐ 150 ห้อง หรือ มากกว่า (โรงแรมขนาดใหญ่)

4. ระดับสถานประกอบการของท่าน
☐ หนึ่งดาว
☐ สองดาว
☐ สามดาว
☐ สี่ดาว
☐ ห้าดาว

5. กรุณาระบุถึงระดับการมีอำนาจตัดสินใจของท่านในการปรับใช้ระบบการศึกษาใบไม้เขียวด้านสิ่งแวดล้อมในสถานประกอบการของท่าน โดยใช้ระดับดังนี้

หมายเลข 1 หมายถึง ท่านไม่มีอำนาจในการตัดสินใจแต่อย่างใดและหมายเลข 7 หมายถึงท่านมีอำนาจสมบูรณ์ในการตัดสินใจ

1 2 3 4 5 6 7
ส่วน ง การออกแบบแบบสอบถาม

เมื่อท่านได้ตอบแบบสอบถามแล้ว กรุณาสอบถามสิ่งที่คุณคิดเห็นเพื่อปรับปรุงและปรับปรุงแบบสอบถาม ก่อนนำไปใช้ในงานวิจัย กรุณาให้ความคิดเห็นที่เกี่ยวข้องกับเนื้อหาและความชัดเจนของข้อคำถามข้างล่าง ซึ่งนี้ กรุณาระบุหากท่านคิดว่าข้อคำถามหรือข้อปฏิบัติบางข้อไม่เหมาะสมด้วยการวัดความตั้งใจของผู้จัดการโรงแรมในการปรับใช้ประกาศนียบัตรใบไม้เขียว

1. ข้อคำถามชัดเจนและเข้าใจง่ายหรือไม่ และท่านรู้สึกสะดวกใจที่จะตอบข้อคำถามเหล่านั้นหรือไม่

2. ระยะเวลา 15 ถึง 20 นาทีเพียงพอในการตอบแบบสอบถามหรือไม่

3. ท่านมีข้อเสนอแนะเพื่อปรับปรุงแบบสอบถามหรือไม่

ขอขอบคุณอย่างสูงสุดสำหรับเวลาและความร่วมมือของท่าน
Appendix 8 Questionnaire for Main Study (English)

Section A. Adopting the Green Leaf Certification (GLC)

1. Are you aware that the Green Leaf environmental certification program exists?
   - Yes (if Yes, please proceed and answer the survey questions below)
   - No (if No, proceed directly to section B and C)

2. Please indicate your familiarity and knowledge about the Green Leaf certification program based on a graduated 1 to 7 scale.

   The number 1 indicates that you are not familiar or knowledgeable about the program and the number 7 indicates that you have an extensive knowledge and familiarity with the program.

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
A1. For each statement below, select the one which most accurately represents the benefits your establishment realises by adopting the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. reduce operational expenses</td>
<td>1</td>
<td>2</td>
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<tr>
<td>2. increase profitability</td>
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<td>7</td>
</tr>
<tr>
<td>3. insure environmental sustainability</td>
<td>1</td>
<td>2</td>
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<tr>
<td>4. improve the natural environment</td>
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<tr>
<td>5. reduce greenhouse gas emissions</td>
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<td>6. reduce waste materials</td>
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<td>7</td>
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<tr>
<td>7. contribute to habitat conservation</td>
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<td>2</td>
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<tr>
<td>8. improve the hotel’s image</td>
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<tr>
<td>9. help access new markets</td>
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<td>10. provide marketing advantages</td>
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<td>7</td>
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<tr>
<td>11. increased market share</td>
<td>1</td>
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<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>12. improve customer satisfaction</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>13. upgrade quality of services</td>
<td>1</td>
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<td>3</td>
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<tr>
<td>14. improve the hotel’s relationship with the local community</td>
<td>1</td>
<td>2</td>
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<td>15. improve public relations</td>
<td>1</td>
<td>2</td>
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<td>7</td>
</tr>
</tbody>
</table>
A2. For each statement below, select the one which most accurately represents your social pressures to adopt the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
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<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Government tourism regulations influence my decision to adopt the GLC</td>
<td>1</td>
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<tr>
<td>2. My employees influence my decision to adopt the GLC</td>
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<tr>
<td>3. My customers influence my decision to adopt the GLC</td>
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<tr>
<td>4. My corporate leadership influences my decision to adopt the GLC</td>
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<tr>
<td>5. My family influences my decision to adopt the GLC</td>
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<tr>
<td>6. My friends influence my decision to adopt the GLC</td>
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</tr>
</tbody>
</table>
A3. For each statement below, select the one which most accurately represents the barriers to adopting the Green Leaf Certification.

<table>
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<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
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<th>Slightly Disagree</th>
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<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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</thead>
<tbody>
<tr>
<td>1. High implementation cost</td>
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<td>2. High certification cost, including membership and application fees</td>
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<tr>
<td>3. Cost of technology to implement environmentally sustainable practices</td>
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<td>4. Complicated GLC requirements</td>
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<td>5. Lengthy time required for GLC</td>
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<td>6. Inadequate professional assistance</td>
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<td>7. Lack of knowledge about environmentally sustainable practices makes it</td>
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<td>difficult to implement practices needed to obtain the GLC</td>
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<td>8. The hotel staff's lack of knowledge about environmentally sustainable</td>
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<td>practices makes it difficult to implement practices needed to obtain the</td>
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<td>GLC</td>
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<td>9. Lack of GLC training programs makes it difficult for me to implement</td>
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<td>practices needed to obtain the GLC</td>
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<td>10. Lack of training programs makes it difficult for my staff to implement</td>
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<tr>
<td>practices needed to obtain the GLC</td>
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<tr>
<td>11. Inadequate professional advice makes it difficult for my hotel to</td>
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<td>obtain the GLC</td>
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<tr>
<td>12. Lack of government support makes it difficult to adopt the GLC</td>
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<tr>
<td>13. High employee turnover rate of environmentally trained personnel</td>
<td>1</td>
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<tr>
<td>makes it difficult to adopt the GLC</td>
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</tr>
</tbody>
</table>
A4. For each statement below, select the one which most accurately represents your intention to adopt the Green Leaf Certification.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There is a strong possibility, I will adopt the GLC at my hotel within the next year</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>2. There is a strong possibility, I will adopt the GLC at my hotel within the next 5 years</td>
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</table>

A5. Do you have any other comments or suggestions about the Green Leaf Certification program that you would like to provide?

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B. For each statement below, select the one which most accurately represents your attitude about the environment.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We are approaching the population limit which the earth can support</td>
<td>1</td>
<td>2</td>
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<td>7</td>
</tr>
<tr>
<td>2. Humans have the right to modify the natural environment to suit their needs</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>3. When humans interfere with nature it often produces disastrous consequences</td>
<td>1</td>
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<tr>
<td>4. Human ingenuity will insure that we do not make the earth unliveable</td>
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</tr>
<tr>
<td>5. Human beings severely abusing the environment</td>
<td>1</td>
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<td>6</td>
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</tr>
<tr>
<td>6. The earth has plenty of natural resources if we just learn how to develop them</td>
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<tr>
<td>7. Plants and animals have as much right as humans to exist</td>
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<tr>
<td>8. The balance of nature is strong enough to cope with the impacts of modern industrial nations</td>
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<tr>
<td>9. Despite our special abilities humans are still subject to the laws of nature</td>
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</tr>
<tr>
<td>10. The so-called &quot;ecological crisis&quot; facing humankind has been greatly exaggerated</td>
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<tr>
<td>11. The earth is like a spaceship with very limited room and resources</td>
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</tr>
<tr>
<td>12. Humans were meant to rule over the rest of nature</td>
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<td>4</td>
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<td>6</td>
<td>7</td>
</tr>
<tr>
<td>13. The balance of nature is very delicate and easily upset</td>
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<td>6</td>
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<tr>
<td>14. Humans will eventually learn enough about how nature works to be able to control it</td>
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<tr>
<td>15. If things continue on their present course, we will soon experience a major ecological catastrophe</td>
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</table>
Section C. Listed below are some general background questions about you and your establishment

**Question 1. Gender**

- [ ] Male
- [ ] Female

**Question 2. Education level**

- [ ] Primary School (Prathom 1 to 6)
- [ ] Lower Secondary School (Mattayom 1 to 3)
- [ ] Upper Secondary School (Mattayom 4 to 6)
- [ ] Vocational Certification
- [ ] Vocational Diploma
- [ ] A Bachelor’s Degree
- [ ] Master’s Degree
- [ ] Ph.D

**Question 3. How many rooms are in your establishment?**

- [ ] Less than 60 rooms (Small)
- [ ] 60 -149 rooms (Medium)
- [ ] 150 rooms or more (Large)

**Question 4. What is the star rating of your establishment?**

- [ ] 1 Star Rating
- [ ] 2 Star Rating
- [ ] 3 Star Rating
- [ ] 4 Star Rating
- [ ] 5 Star Rating

**Question 5. Please indicate if you have the decision making authority to adopt the Green Leaf certification program at your establishment using the graduated scale below.**

The number 1 indicates that you do not have the authority and the number 7 indicates you have complete authority to adopt the Green Leaf certification program.
Question 6 Where is your accommodation establishment located?

☐ Bangkok Region
☐ Central Region
☐ Northern Region
☐ Northeatern Region
☐ Southern Region
Appendix 9 Questionnaire for Main Study (Thai)

แบบสอบถามวิจัย

ส่วน ก: การนำเกียรติบัตรใบไม้เขียว (Green Leaf Certification) ไปใช้ในสถานประกอบการ

1. ท่านมีความตระหนักหรือทราบเกี่ยวกับเกียรติบัตรใบไม้เขียวด้านสิ่งแวดล้อม (Green Leaf Certification) ที่มีอยู่หรือไม่

☐ ทราบ (ถ้าทราบ, โปรดดำเนินการต่อโดยตอบแบบสอบถามด้านล่าง)

☐ ไม่ทราบ (ถ้าไม่ทราบ, โปรดดำเนินการต่อในส่วน ข และส่วน ค)

2. กรุณาระบุถึงความคุ้นเคยและความรู้ของท่านเกี่ยวกับเกียรติบัตรใบนี้ด้านสิ่งแวดล้อม โดยอ้างอิงตั้งแต่ระดับ 1 ถึงระดับ 7 โดยหมายเลข

<table>
<thead>
<tr>
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หมายถึง:

1. ท่านไม่มีความคุ้นเคยและความรู้เกี่ยวกับเกียรติบัตรใบนี้ด้านสิ่งแวดล้อมแต่อย่างใด
2. ท่านมีความคุ้นเคยและความรู้เกี่ยวกับเกียรติบัตรใบนี้ด้านสิ่งแวดล้อมเป็นอย่างดี
ในแต่ละข้อความด้านล่าง กรุณาเลือกตัวเลือกที่ตรงกับระดับความคิดเห็นท่านมากที่สุด เพื่อแสดงประโยชน์ที่สถานประกอบการของท่านจะได้รับหากนำเกียรติบัตรใบไม้เขียวไปใช้

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<th>ข้อความการนำเอาเกียรติบัตรใบไม้เขียวไปใช้ สามารถ...</th>
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<td>2. เพิ่มผลกำไร</td>
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<td>3. รักษาสภาพแวดล้อมให้ยั่งยืน</td>
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<td>6. ลดปริมาณขยะ</td>
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<td>7. มีส่วนร่วมรักษ์ถิ่นท้องถิ่น</td>
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<td>8. สงเสริมภาพลักษณ์ของโรงแรม</td>
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<td>9. มีส่วนร่วมพัฒนาช่องทางสู่ตลาดใหม่ๆ</td>
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<td>10. เพิ่มข้อได้เปรียบในการตลาด</td>
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<td>11. ยกระดับความสัมพันธ์อันดีระหว่างท้องถิ่นและที่อยู่อาศัย</td>
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<td>15. ส่งเสริมการประชาสัมพันธ์</td>
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<th>ข้อความ</th>
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<th>เห็นด้วย อย่างยิ่ง</th>
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<tr>
<td>1. มาตรการด้านการท่องเที่ยวของรัฐบาลมีอิทธิพลต่อการตัดสินใจของข้าพเจ้าในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>2. พนักงานของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>3. ลูกค้าของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>4. ความเป็นผู้นำขององค์กรของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>5. ครอบครัวของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<td>6. เพื่อนของข้าพเจ้ามีอิทธิพลต่อการตัดสินใจในการนำเกียรติบัตรใบไม้เขียวมาใช้</td>
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<th>ข้อความ</th>
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<th>เห็นด้วยอย่างยิ่ง</th>
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<tbody>
<tr>
<td>1. ค่าใช้จ่ายในการนำเกียรติบัตรใบไม้เขียวไปปฏิบัติ</td>
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<td>2. ค่าใช้จ่ายเพิ่มเติมที่เกี่ยวกับการฝึกอบรมซึ่งรวมถึงค่าสมัครและค่าสมาชิก</td>
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<td>3. เทคโนโลยีที่ทำให้งานด้านสิ่งแวดล้อมเกิดความยั่งยืนมีค่าใช้จ่ายสูง</td>
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<td>4. ข้อกำหนดของเกียรติบัตรใบไม้เขียวไม่ชัดเจน มีความซับซ้อน</td>
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<td>5. ใช้เวลาในการขอรับเกียรติบัตรใบไม้เขียว</td>
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<td>6. การขาดหลักสูตรการอบรมเรื่องเกียรติบัตรใบไม้เขียว</td>
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<td>7. การขาดหลักสูตรการอบรมเรื่องเกียรติบัตรใบไม้เขียว</td>
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<td>12. การขาดการสนับสนุนจากวิชาชีพ</td>
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<td>13. ติดตามการเปลี่ยนแปลงของพนักงานที่ได้รับการฝึกอบรมด้านสิ่งแวดล้อม</td>
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1. มีความเป็นไปได้อย่างมากที่ข้าพเจ้าจะรับเอาระบบเกียรติบัตรใบไม้เขียวมาใช้ที่สถานประกอบการภายในปีหน้า

2. มีความเป็นไปได้อย่างมากที่ข้าพเจ้าจะรับเอาระบบเกียรติบัตรใบไม้เขียวมาใช้ที่สถานประกอบการภายในอีก 5 ปีข้างหน้า

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<td>2. มีความเป็นไปได้อย่างมากที่ข้าพเจ้าจะรับเอาระบบเกียรติบัตรใบไม้เขียวมาใช้ที่สถานประกอบการภายในอีก 5 ปีข้างหน้า</td>
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ท่านมีความคิดเห็นหรือคำแนะนำอื่นๆ ที่ท่านคิดว่าระบบเกียรติบัตรใบไม้เขียวที่ต้องการนำเสนอหรือไม่?

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ในแต่ละข้อคิดเกี่ยวกับสิ่งแวดล้อม ควรตอบตามความคิดเห็นของท่านโดยใช้ระดับความคิดเห็นที่เริ่มต้นที่สูงที่สุด เพื่อแสดงทัศนคติของท่านต่อสิ่งแวดล้อม

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<th>เห็นด้วย</th>
<th>อย่างยิ่ง</th>
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<tr>
<td>1. เรากำลังเข้าสู่ขีดจำกัดของจำนวนประชากรที่โลกจะสามารถรับได้</td>
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<td>2. มนุษย์มีสิทธิที่จะปรับเปลี่ยนสภาพแวดล้อมทางธรรมชาติเพื่อให้ตรงต่อความต้องการ</td>
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<td>3. เมื่อมนุษย์ทำลายธรรมชาติที่มีก็จะเกิดขึ้นอย่างยิ่ง</td>
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<td>6. โลกมีทรัพยากรธรรมชาติมากมาย หากเราใช้ทรัพยากรของเรา</td>
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<td>8. สมดุลของธรรมชาติมีความแข็งแกร่งเพียงพอที่จะรับมือกับผลกระทบจากประเทศอุตสาหกรรมสมัยใหม่</td>
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<td>9. แม้ว่าเราจะมีความสามารถมากมายแต่มนุษย์ก็ยังต้องขึ้นอยู่กับกฎของธรรมชาติ</td>
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<td>10. สิ่งที่เรียกว่า“ภัยพิบัติของระบบนิเวศน์”ที่มนุษย์ทำอย่างไม่ยั้งยงเป็นสิ่งที่ซึ่งทุกเกิดขึ้นอย่างไม่ยั้งยง</td>
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<td>14. มนุษย์จะสามารถรื้อวิถีใดได้ในที่สุดที่ควรจะทำให้ธรรมชาติทำงานอย่างไรเพื่อจะสามารถควบคุมธรรมชาติได้</td>
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<td>15. หากสิ่งที่ดีอย่างยิ่งในการใช้ทรัพยากรที่เราต้องประสบกับลักษณะของระบบอุตสาหกรรมมีสิทธิ้ในการไม่ถูกนับ</td>
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ส่วนที่ 3. ลักษณะทั่วไปของผู้ตอบแบบสอบถาม และสถานประกอบการของท่าน

5. เพศ
☐ ชาย
☐ หญิง

6. ระดับการศึกษา
☐ ประถมศึกษา (ป. 1-6)
☐ มัธยมศึกษาตอนต้น (ม. 1-3)
☐ มัธยมศึกษาตอนปลาย (ม. 4-6)
☐ ประกาศนียบัตรวิชาชีพ (ปวช.)
☐ ประกาศนียบัตรวิชาชีพชั้นสูง (ป.วส.)
☐ ปริญญาตรี
☐ ปริญญาโท
☐ ปริญญาเอก

7. จำนวนห้องในสถานประกอบการของท่าน
☐ ต่ำกว่า 60 ห้อง (โรงแรมขนาดเล็ก)
☐ 60-149 ห้อง (โรงแรมขนาดกลาง)
☐ 150 ห้อง หรือ มากกว่า (โรงแรมขนาดใหญ่)

8. ระดับสถานประกอบการของท่าน
☐ เหนือด้าน
☐ ตะวันออก
☐ ตะวันตก
☐ ใต้ด้าน
☐ เหนือทิศ

5. กรุณาระบุถึงระดับการมีอำนาจตัดสินใจของท่านในการปรับใช้ระบบเกียรติบัตรใบไม้เขียวด้านสิ่งแวดล้อมในสถานประกอบการของท่าน โดยใช้ระดับดังนี้

หมายเลข 1 หมายถึง ท่านไม่มีอำนาจในการตัดสินใจแต่อย่างใด และหมายเลข 7 หมายถึงท่านมีอำนาจสมบูรณ์ในการตัดสินใจ

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
---|---|---|---|---|---|---|

6. ที่ตั้งสถานประกอบการของท่าน
☐ กรุงเทพมหานคร
☐ ภาคเหนือ
☐ ภาคตะวันออกเฉียงเหนือ
☐ ภาคใต้
Appendix 10 Reminder Letter (English)

Reminder from Rungnapa Leertpatcharapong at the University of Newcastle

Dear General Manager,

If you have already completed the online survey for the research project: Examining Manager’s Behavioural Intentions Toward Adopting Green Leaf Environmental Certification in the Thai Tourism Accommodation Sector, thank you. Your input is very important for the research project. If you have not had an opportunity to complete the survey, please review the questionnaire. It will only take a few minutes complete.

This research project is an online survey. Your response will be useful for the Thai Hotel Association (THA) and Thai government agencies to promote environmentally sustainable practices for the Thai hotel industry.

Your online feedback will be anonymous and will be combined with that of general managers from other Thai hotels.

Please click the link http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDmASnXRa for completing the survey.

Thank you in advance for your valuable feedback.
Appendix 11 Reminder Letter (Thai)

จดหมายเตือนความจำ

เรียนท่านผู้จัดการ

ขอขอบคุณหากท่านได้ตอบแบบสำรวจออนไลน์จากโครงการวิจัย  "การตรวจสอบความตั้งใจเชิงพฤติกรรมของผู้จัดการต่อการนำประกาศนโยบายไม่ได้มีข้อมูลเพิ่มเติมเพื่อแสดงผลมาในภาคที่พิจารณาการท่องเที่ยวที่สวยงามของไทย" เป็นที่เรียบร้อยแล้วความคิดเห็นของท่านสำคัญอย่างมากสำหรับโครงการวิจัยนี้หากท่านยังไม่ได้ตอบแบบสำรวจหรือจะระบุแบบสอบถามไม่ใช่เวลาตอบเพียงไม่นานที่โครงการวิจัยนี้เป็นการสำรวจออนไลน์ต่อไปของท่านจะเป็นประโยชน์ต่อสมาคมโรงแรมไทยและหน่วยงานรัฐบาลไทยในการสำรวจการปฏิบัติที่ดีอาจแลกเปลี่ยนข้อมูลที่ภาคเอกชนสามารถเป็นประโยชน์

คำตอบออนไลน์ของท่านจะไม่มีการระบุชื่อและจะถูกรวมเข้ากับคำตอบของผู้จัดการจากโรงแรมไทยอื่นๆ

กรุณาทางลิงค์

http://newcastlebusandlaw.us.qualtrics.com/SE/?SID=SV_3F2K8INDmASnXRa

เพื่อตอบแบบสำรวจ

ขอขอบคุณล่วงหน้าสำหรับคำตอบที่มีการท่าน
Appendix 12 Respondents who Know and those who Did Not Know the GLC,

Across a Profile of Respondents (Crosstabulation)

<table>
<thead>
<tr>
<th></th>
<th>Know the GLC Expected Count</th>
<th>Not know the GLC Expected Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>92.0</td>
<td>62.0</td>
</tr>
<tr>
<td>Female</td>
<td>110.0</td>
<td>95.0</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than Bachelor’s Degree</td>
<td>21.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>115.0</td>
<td>98.0</td>
</tr>
<tr>
<td>Higher than Bachelor’s Degree</td>
<td>66.0</td>
<td>42.0</td>
</tr>
<tr>
<td><strong>Accommodation Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>87.0</td>
<td>109.0</td>
</tr>
<tr>
<td>Medium</td>
<td>69.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Large</td>
<td>46.0</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Star rating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 star rating</td>
<td>29.0</td>
<td>49.0</td>
</tr>
<tr>
<td>3 star rating</td>
<td>85.0</td>
<td>79.0</td>
</tr>
<tr>
<td>4-5 star rating</td>
<td>88.0</td>
<td>29.0</td>
</tr>
<tr>
<td><strong>Accommodation Located</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangkok</td>
<td>37.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Central</td>
<td>30.0</td>
<td>33.0</td>
</tr>
<tr>
<td>Northern</td>
<td>42.0</td>
<td>42.0</td>
</tr>
<tr>
<td>North-Eastern</td>
<td>16.0</td>
<td>23.0</td>
</tr>
<tr>
<td>Southern</td>
<td>77.0</td>
<td>49.0</td>
</tr>
</tbody>
</table>
Appendix 13 The Results of Z-test

The Z-test is used to comparing a single sample with a known population was employed to examine the difference between sample and population. Therefore, this study compared the proportion of population and the proportion of sampling frame to check whether the sampling frame is representative to population by using Z-test.

**Formula:**

\[ Z = \frac{p_1 - \hat{p}_1}{\sigma_{p1}} \]

\[ \sigma_{p1} = \sqrt{\hat{p}_1 (1 - \hat{p}_1) \left( \frac{1}{n_1} \right)} \]

Where:

- \( p_1 \) = a single sample
- \( \hat{p}_1 \) = a single sample with a known population value
- \( n_1 \) = number of sample

**Size**

<table>
<thead>
<tr>
<th>Size</th>
<th>Population</th>
<th>Sample</th>
<th>( p_1 ) (Sam/202)</th>
<th>( \hat{p}_1 ) (Pop/5420)</th>
<th>( \sigma_{p1} )</th>
<th>( Z )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>3945</td>
<td>88</td>
<td>0.435644</td>
<td>0.727860</td>
<td>0.034887</td>
<td>-12.4872</td>
</tr>
<tr>
<td>Medium</td>
<td>1034</td>
<td>68</td>
<td>0.336634</td>
<td>0.190775</td>
<td>0.033249</td>
<td>-10.1246</td>
</tr>
<tr>
<td>Large</td>
<td>441</td>
<td>46</td>
<td>0.227723</td>
<td>0.081365</td>
<td>0.029506</td>
<td>-7.71778</td>
</tr>
<tr>
<td></td>
<td>5420</td>
<td>202</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\((1/202)= 0.004950495\)

**Location**

<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
<th>Sample</th>
<th>( p_1 ) (Sam/202)</th>
<th>( \hat{p}_1 ) (Pop/5420)</th>
<th>( \sigma_{p1} )</th>
<th>( Z )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangkok</td>
<td>294</td>
<td>37</td>
<td>0.183168</td>
<td>0.054244</td>
<td>0.027215</td>
<td>-4.737190</td>
</tr>
<tr>
<td>Central</td>
<td>1467</td>
<td>29</td>
<td>0.143564</td>
<td>0.270664</td>
<td>0.024671</td>
<td>5.151694</td>
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<tr>
<td>Northern</td>
<td>1078</td>
<td>43</td>
<td>0.212871</td>
<td>0.198893</td>
<td>0.028801</td>
<td>-0.485340</td>
</tr>
<tr>
<td>North-Eastern</td>
<td>1091</td>
<td>16</td>
<td>0.079208</td>
<td>0.201292</td>
<td>0.019002</td>
<td>6.424922</td>
</tr>
<tr>
<td>Southern</td>
<td>1490</td>
<td>77</td>
<td>0.381188</td>
<td>0.274908</td>
<td>0.034172</td>
<td>-3.110140</td>
</tr>
<tr>
<td></td>
<td>5420</td>
<td>202</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\((1/202)= 0.00495049\)
Appendix 14 The results of the difference between behavioural intentions (BI)

in the next year and in the next five years

Pair t-test and McNemar’s test were employed.

Pair t-test

The results from Pair t-test showed that the mean of BI in the next five year was considerably higher than the mean of BI in the next year. This difference is significant.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>Q5_1</td>
<td>4.70</td>
<td>202</td>
<td>1.473</td>
</tr>
<tr>
<td></td>
<td>Q5_2</td>
<td>5.45</td>
<td>202</td>
<td>1.193</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Pair 1</td>
</tr>
</tbody>
</table>

Paired Samples Statistics
Appendix 15 McNemar’s test

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McNemar-Bowker Test</td>
<td>65.598</td>
<td>18</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Q5_1 * Q5_2 Crosstabulation**

<table>
<thead>
<tr>
<th>Q5_2</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>17</td>
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<tr>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>6</td>
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<tr>
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<td>0</td>
<td>0</td>
<td>22</td>
<td>18</td>
<td>22</td>
<td>3</td>
<td>65</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>35</td>
<td>7</td>
<td>51</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>33</td>
<td>43</td>
<td>88</td>
<td>30</td>
<td>202</td>
</tr>
</tbody>
</table>

The results from McNemar’s test showed that the proportion of BI in the next five year was markedly greater than the proportion of BI in the next year. This difference is significant.

The results of both two methods showed that there are difference between BI next year and BI next five years. Therefore, this study will separate BI (dependent variable) into two dependent variables and multiple regression will be adopted to examine the relationship between behaviour intentions to adopt the GLC and factors that influence to adopt the GLC.