UNIVERSITI PUTRA MALAYSIA

RECREATION VALUE OF DOMESTIC VISITORS IN KILIM KARST GEOFOREST PARK, LANGKAWI, MALAYSIA

NURUL HIKMAH BINTI ZAMELI

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By

NURUL HIKMAH BINTI ZAMELI

Thesis submitted to the School of Graduate Studies,
Universiti Putra Malaysia, in Fulfillment of the Requirements for the
Degree of Master of Science

June 2014

DEDICATION

This dissertation is dedicated to my beloved:

FATHER, MOTHER
GRANDFATHER, GRANDMOTHER
YOUNGER BROTHERS, YOUNGER SISTERS
ALL FAMILY MEMBERS
&
FRIENDS

For their never ending concerned, encouragement, patience, inspiration, assisting and continuous support.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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June 2014

Chairman : Syamsul Herman Bin Mohamad Affandi, PhD

Faculty : Institute of Tropical Forestry and Forest Product

Geopark is known as a national protected area that has geological unique features that are of particular significance, rarity, or aesthetic appeal. The concept of Geopark is an integrated concept of protection, education, and sustainable development of a natural area. There are resources for recreational activities in Geoparks that evolve as a tourism development and attract tourists to visit Geoparks. Tourists gain benefits or satisfaction through their experiences while visiting Geoparks. These benefits are subjective to each person; however, it can be quantified by applying economic approaches to give value to the heritage sites. This study puts forward the concept in valuing the Geopark in Kilim, Langkawi. Kilim Karst Langkawi Geopark (KKGP) consists of the oldest limestone hills with a variety of shapes and sizes of pinnacles and unique flora and fauna in the mangrove forest and at the river and beach.

The main objective of this study is to assess the economic value of KKGP. This main objective is followed by three specific objectives, which are to 1) to determine the social demography of domestic visitors visiting KKGP, 2) to determine the factors influencing visitors to visit KKGP, and 3) to determine the consumer surplus.

Individual Travel Cost Method (ITCM) was employed to estimate the benefits to the visitors of KKGP. A total of 300 of respondents among domestic tourists in KKGP were surveyed using a structured questionnaire. The distribution of questionnaire was conducted in area of KKGP only to ensure the visitors had already experienced the recreational activities around the area. The questionnaire was designed to attain information such as socioeconomic information of the visitors (e.g., gender, education, age,

monthly income), trip characteristics of visitors (perception towards important of KKGP, perception towards facilities and services in KKGP, perception towards surrounding environment KKGP, perception towards crowdedness in KKGP), and all travel cost of visitors (e.g., travel cost, time cost, on-site cost, alternative cost). The count data from the variables in this study were modelled by employing linear regression.

The findings showed that there were more female tourists (56%) than male tourists (34%). Most of the tourists were in the range of 41–55 years old (29.3%). The highest (34.6%) percentage of tourists was having diploma/professional certificate. Service-related work was found to be the highest (24.1%) in terms of type of profession. 13 independent variables were used in the multiple regression model to determine the factors influencing visitation to KKGP. Only five factors were found to be significant at 5% level, namely travel cost to KKGP, education years of tourists, cost of travelling time, monthly income, and visitors' perception towards importance of Geopark. The consumer surplus was estimated at RM 46,202.43 per year at zero cost. The estimated average consumer surplus was RM 310/trip/year. Thus, the economic value for KKGP was estimated approximately at RM 47 million for 2011. The recreational value found in this study showed that the recreational activities in KKGP offered benefits to the visitors. This study provides information regarding the value of satisfaction gained by the tourists during their visit to KKGP. This information may help the management in decision making process to offer good services and products in future.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

NILAI REKREASI PENGUNJUNG DOMESTIK DI TAMAN GEORIMBA KARS KILIM, LANGKAWI, MALAYSIA

Oleh

NURUL HIKMAH BINTI ZAMELI

Jun 2014

Pengerusi : Syamsul Herman Bin Mohamad Affandi, PhD
Fakulti : Institut Perhutanan Tropika dan Produk Hutan

Geopark dikenali sebagai kawasan perlindungan kebangsaan yang mempunyai ciri-ciri geologi yang unik dan mempunyai daya tarikan yang signifikan, jarang ditemui, dan mempunyai nilai estetika. Konsep Geopark mengintegrasikan konsep pelindungan, pendidkan, dan pembangunan lestari kawasan semula jadi. Terdapat sumber-sumber bagi menjalankan aktiviti rekreasi di Geopark yang berkembang sebagai pembangunan pelancongan dan menarik pengunjung untuk mengunjungi Geopark. Pengunjung-pengunjung mendapat faedah atau kepuasan melalui pengalaman mereka semasa mengunjungi Geopark. Faedah-faedah ini agak subjektif kepada setiap orang; walau bagamanapun, ia boleh diukur dengan menggunakan pendekatan ekonomi. Dengan cara ini, ia memberi nilai kepada tapak warisan itu sendiri. Kajian ini mengemukakan konsep dalam menilai Geopark di Kilim, Langkawi. Taman Georimba Kars Kilim (KKGP) terdiri daripada bukit-bukit batu kapur yang tertua dengan pelbagai bentuk dan saiz puncak, flora dan fauna unik yang datang dari hutan bakau, sungai dan pantai.

Objektif utama kajian ini adalah untuk mengukur nilai ekonomi KKGP. Kaedah Kos Perjalanan (*Travel Cost Method*, TCM) digunakan untuk menganggarkan faedah pengunjung di KKGP. Seramai 300 responden dalam kalangan pengunjung domestik di KKGP telah dikaji selidik dengan menggunakan soal selidik yang berstruktur.

Hasil kajian menunjukkan bahawa pengujung wanita (56%) lebih banyak berbanding pengunjung lelaki (34%). Kebanyakan pengunjung adalah dalam lingkungan kumpulan usia 41–55 tahun (29.3%). Pengunjung yang mempunyai diploma atau sijil profesional adalah paling ramai (34.6%) menyertai aktiviti di KKGP. Kerja berkaitan pekhidmatan didapati yang

tertinggi (24.1%) dari segi jenis profesion. Terdapat 13 pemboleh ubah tak bersandar yang digunakan dalam model regresi untuk menentukan faktor-faktor yang mempengaruhi lawatan ke KKGP. Hanya lima faktor didapati signifikan pada tahap 5%, iaitu perjalanan kos ke KKGP, tahun pendidikan pengunjung, kos masa perjalanan, pendapatan bulanan, dan persepsi pengunjung terhadap Geopark di kawasan itu. Lebihan pengguna dianggarkan pada RM 46,202.43 per tahun pada kos sifar. Anggaran purata lebihan pengguna ialah RM310/trip/tahun. Oleh itu, nilai ekonomi bagi KKGP dianggarkan sekitar RM 47 juta untuk tahun 2011. Nilai rekreasi yang ditemui dalam kajian ini menunjukkan bahawa aktiviti rekreasi di KKGP menawarkan faedah kepada pengunjung. Kajian ini menyediakan maklumat mengenai nilai kepuasan pengunjung yang diperoleh semasa lawatan mereka ke KKGP. Maklumat ini boleh membantu pihak pengurusan dalam proses membuat keputusan untuk menawarkan perkhidmatan dan produk yang baik pada masa akan datang.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master Science. The members of the Supervisory Committee were as follows:

Syamsul Herman Bin Mohamad Affandi, PhD
Senior Lecturer
Faculty of Forestry
Universiti Putra Malaysia
(Chairman)

Ahmad bin Shuib, PhD
Professor
Institute of Agricultural and Food Policy Studies (IKDPM)
Universiti Putra Malaysia
(Member)

Zaiton Binti Samdin, PhD
Associate Professor
Faculty of Forestry
Universiti Putra Malaysia
(Member)

_____

BUJANG KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

Signature: _____

Name of
Member of
Supervisory
Chairman : Dr. Syamsul Herman Bin Mohamad Affandi

Signature: _____

Name of
Member of
Supervisory
Committee : Prof. Dr. Ahmad bin Shuib

Signature: _____

Name of
Member of
Supervisory
Committee : Prof. Madya Dr. Zaiton Binti Samdin

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LIST OF ABBREVIATIONS

CS	Consumer Surplus
GDP	Gross Domestic Product
ITCM	Individual Travel Cost Method
LADA	Langkawi Development Authority
RP	Revealed Preferences
SP	Stated Preference
TCM	Travel Cost Method
TEV	Total Economic Value
WTA	Willingness To Accept
WTP	Willingness To Pay
ZTCM	Zonal Travel Cost Method

CHAPTER 1

INTRODUCTION

1.0 General Background

The term "Geopark" is established in 1997 after the decision made by the Earth Sciences of UNESCO, and the first name suggested is "Reserve" instead of "Geopark" (Farsani, 2012). The Geopark is known as a national protected area that has geological heritage sites that are of particular significance and rarity and have aesthetic appeal. Moreover, protection, education, and sustainable development are integrated in the Geopark. There are three-pronged approaches for Geopark to fulfil its goals, which are conservation, education, and geotourism (UNESCO, 2006).

A holistic approach in Geopark is used to conserve and promote natural and cultural heritage under the Geopark label. In terms of education, Geopark is a tool to transmit knowledge and awareness of the values of Geopark (Norzaini, 2011). Currently, the declaration of UNESCO on Geopark as a new model for sustainable development has made the local communities participate in protecting the natural areas (Farsani, 2012).

The geotourism approach can create opportunities for local communities to improve their economy. There are also recreational activities to attract tourists to visit the Geopark.

Through Geopark, the public can be educated and exposed with environment and geoheritage education issues. Geotourism activities can also be developed, and the Geopark can be conserved for future generations (James, 2010).

Generally, Geopark improves and supports certain image or branding to the geological heritage and tourism development (Xu, 2010). According to Sharina et al. (2011), the main components of Geopark can be built as tools for sustainable resource utilisation.

Figure 1.1 shows the main components of a Geopark, namely conservation, tourism, and societal well-being. Combination of tourism and conservation in one area can give benefits to social economy and prevent overexploitation of the nature.

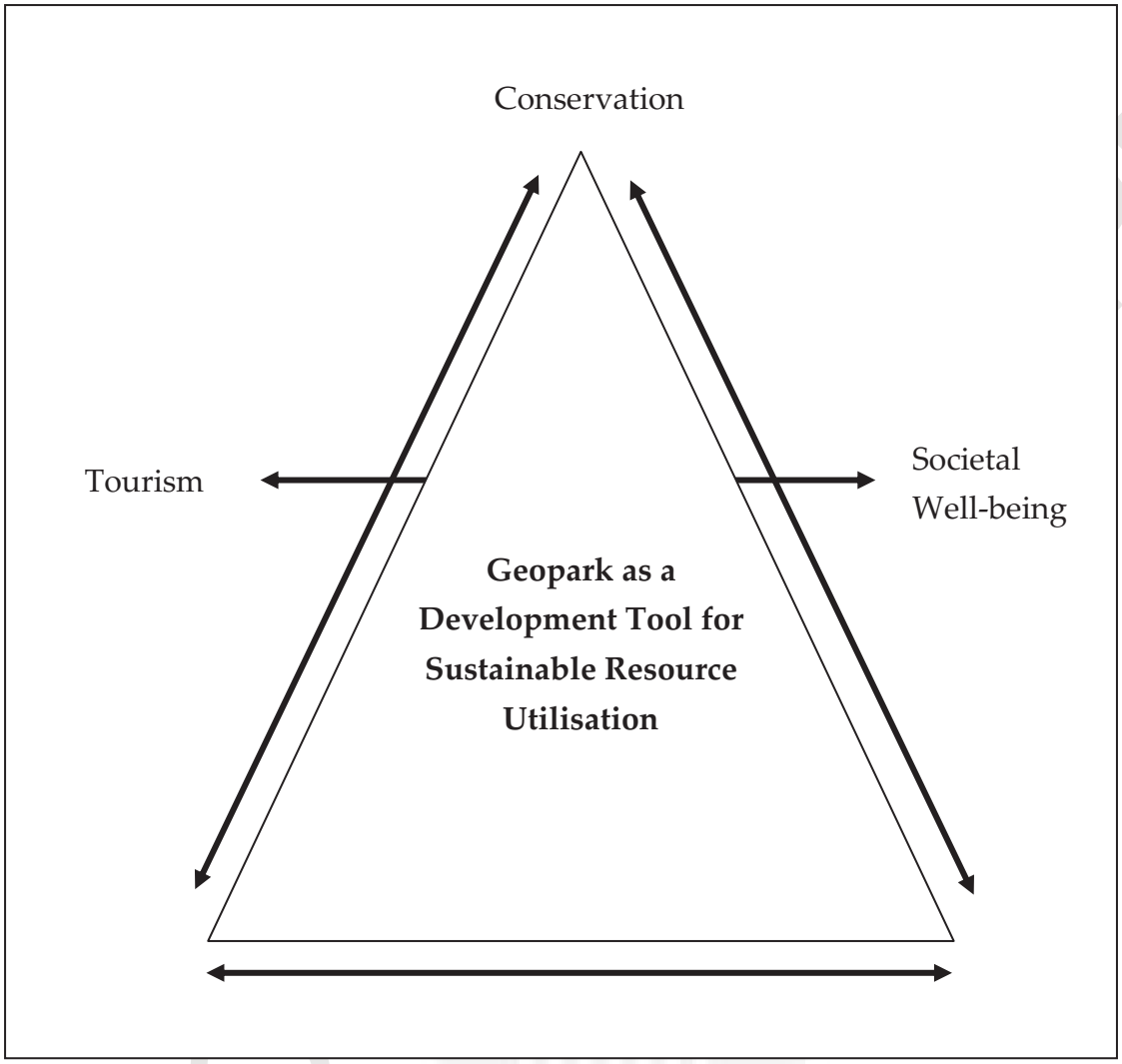

Figure 1.1. Main Components of Geopark (Source: Sharina et al., 2011)

1.1 Socioeconomic Development of Kilim, Langkawi

The development of the socioeconomy in Langkawi has gone through several stages, as shown in Figure 1.2. The socioeconomic development began with agriculture and fishery sectors being the sources of income for the local community in Langkawi.

These sectors have transformed into tourism-based economy after Langkawi was declared a duty-free island on 1987. In the early tourism development stage in Langkawi, most local people in the community worked as entrepreneurs in tourism-related activities since the Government had invested to develop infrastructure and basic facilities in the island. At that time, Langkawi began to be known as a tourism site and had been promoted abroad as a travel destination.

As the tourism sector became more established in Langkawi, the development of Geopark was planned in order to protect and manage this tourism site in a proper and sustainable way. At the same time, the profit from tourism-based economy still could be produced.

Thus, the ecotourism and knowledge-based tourism were applied in Langkawi and had indirectly increased the attraction of Langkawi as a tourism destination. Moreover, the standards of living of the local people had been improved as they participated in the tourism industry (Sharina et al., 2011).

Kilim is a small part of Langkawi that currently grows as a tourism destination. Kilim area is the combination of small villages. The economic activities of local community in Kilim before the tourism industry were fisheries and mangrove forest logging for charcoal industry. According to Nizar (2012), there was a charcoal factory in Kilim area before the launch of Geoforest Park in Kilim.

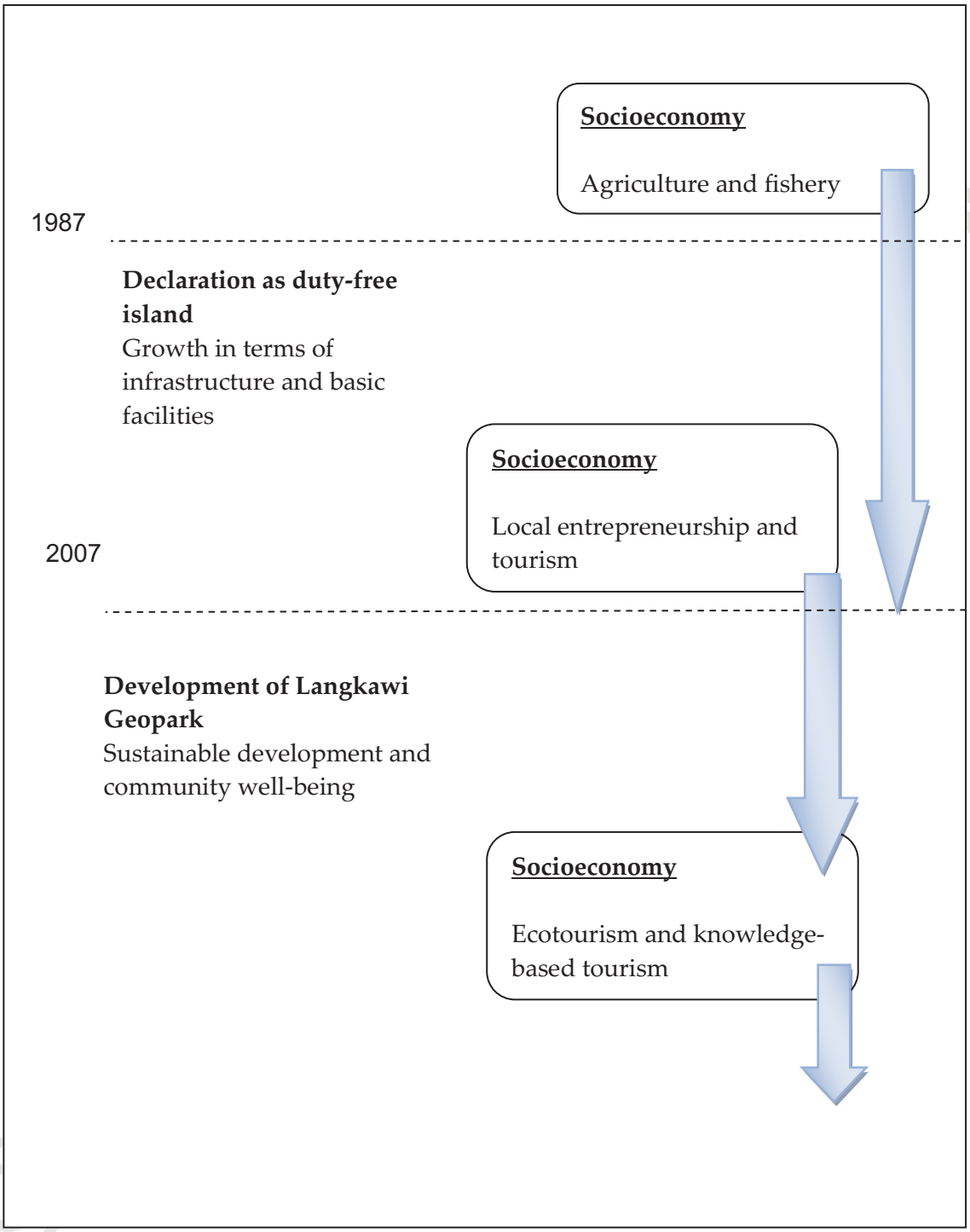

Figure 1.2. Stages of Socioeconomic Development in Langkawi (Source: Sharina et al., 2011)

1.2 Involvement of Kilim in Tourism Sectors

Tourism industry in Kilim was initiated in November 1996 by a fisherman, Mr. Saad b. Mustafa (Rural and Regional Development Ministry, 2009). His idea was to run a tourism project such as a boat tour around the rivers in Kilim. The project is known as *Kumpulan Ekonomi Nelayan* (KEN). This project is coordinated by the Village Development and Safety Association (JKKKP) of Kampung Kilim and carried out by a group of fishermen in Kilim (Rural and Regional Development Ministry, 2009).

The project implementation began in September 2002 and was officially launched on 18 September 2004. According to The Star (2009), the project has attracted many visitors with around 10,000 visitors each month. Table 1.1 shows thestatistic of the number of tourists in Kilim Karst Geoforest Park (KKGP). As shown in the table, there was a huge increase in the number of tourists from 2010 to 2011. The tourism industry in Kilim is seasonal and influenced by holidays.

Table 1.1: Statistic of the Number of Tourists in KKGP

Month	2010	2011
January	8,975	28,970
February	9,090	28,531
March	10,255	28,313
April	9,717	26,268
May	9,080	26,649
June	10,220	23,637
July	10,455	24,600
August	7,909	8,041
September	8,822	22,769
October	9,388	22,731
November	11,490	34,565
December	12,530	46,251
TOTAL	**117,931**	**321,325**

(Source: Koperasi Komuniti Kampung Kilim Langkawi Berhad, 2012)

The achievement of Kilim is when it was awarded as a Geoforest Park by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in June 2007. After obtaining the status of Geopark, Kilim has been known as Kilim Karst Geoforest Park (KKGP). The area of KKGP does not only include the villages in Kilim, but also two other villages namely Air Hangat Village and Kisap Village and some small islands. There are two sites in Langkawi with Geoforest Park status other than KKGP. They are Machinchang

Cambrian Geoforest Park and Dayang Bunting Marble Geoforest Park (see Figure 1.3).

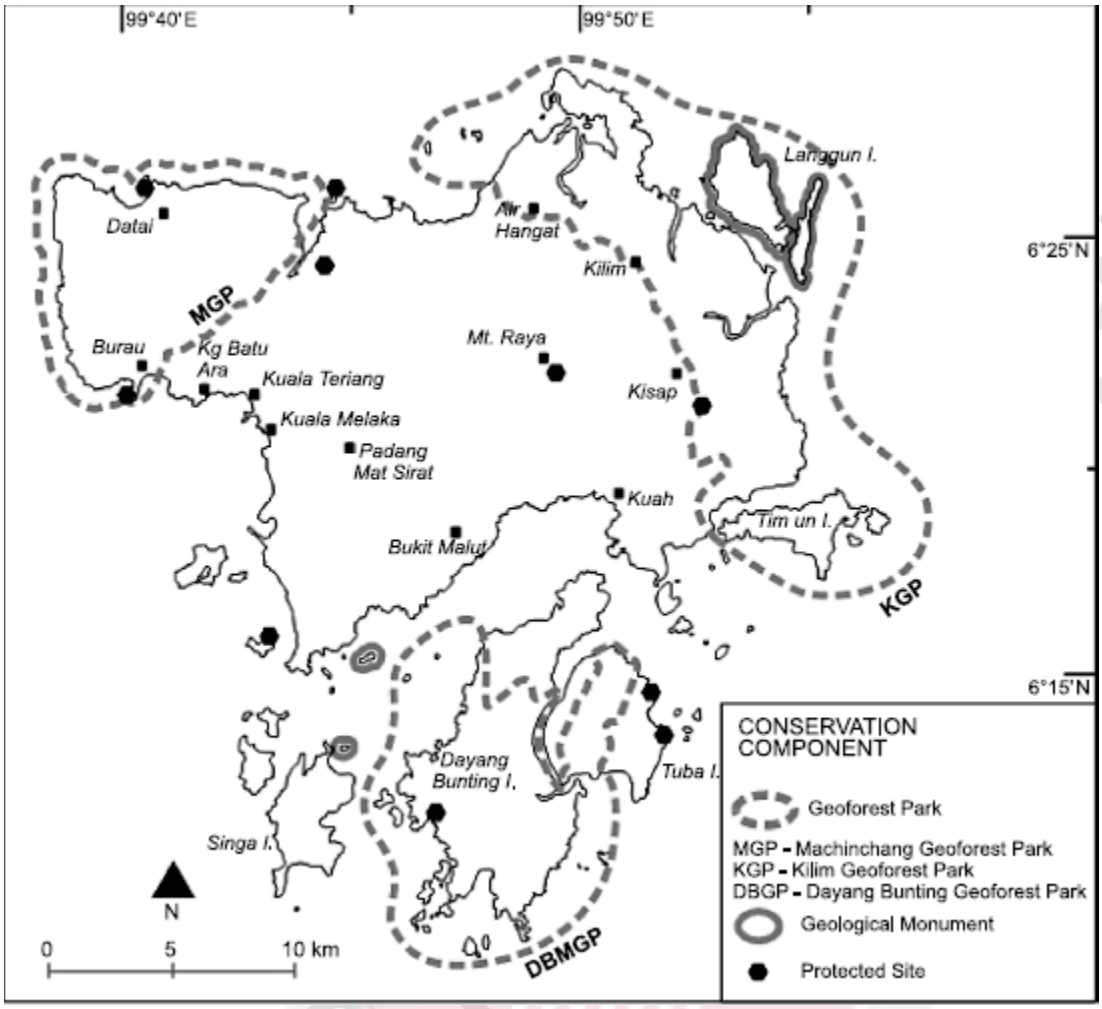

Figure 1.3. The Langkawi Global Geopark. (Source: Mohd Shafeea Leman et al., 2007)

As KKGP is one of the locations for Geopark, the tourism industry has since become more alive and broader than before. The development in that rural area has also become more productive and sustainable as can be seen in the statistic of number of tourists in KKGP that shows that the arrival of tourists has increased (see Table 1.1).

The governing body of tourism in Langkawi, Langkawi Development Authority (LADA) has incorporated Kilim and transformed the site into a modern tourist destination (Mohd Shafeea Leman et al., 2007). The tourism products provided in KKGP for visitors are mangrove tour by boat, eagle watching, sightseeing, caving, jungle trekking, kayaking, canoeing, rock climbing, fish feeding, Geopark souvenirs/crafts, food stalls with local foods, and floating restaurant with delicious seafood. The sources of income for the

local communities in KKGP have increased as there are more job opportunities in the area.

In brief, one of the five policies on rural development, as presented by Mrs. Zainon Md Nasir, the Senior Division Secretary from the Service Management Office, Ministry of Rural and Regional Development, Malaysia is that the Government will decrease the rate of poverty to 2.8% in 2010 by increasing the sources of income for the rural people in Kilim. In addition, the tourism industry in KKGP does not only give beneficial impacts to those in tourism business, but also to other local communities indirectly, for an instance through groceries and food stalls.

1.3 Problem Statements

The establishment of Geoforest Park in KKGP as a conservation area is aimed at ensuring that natural features, wildlife, and cultural heritage are protected. As a tourism site, well-managed facilities, services, and development are crucial to attract visitors. Moreover, the International Expert of UNESCO's Global Geoparks Networks, Professor Ibrahim, has explained that the term "Geopark" is used instead of "national park" because the utilisation and conservation can work out together to generate awareness and income and at the same time can maintain the resources. He said, "[I]t's a combination of heritage conservation as well as socioeconomic and community development" (Najua Ismail, 2011). The resources, the agencies (operators/ government), and the users (visitors) are playing their roles to create the best recreation experiences while protecting the resources of Geopark and generating profit in that tourism area.

Nevertheless, as use of ecosystem goods and services by humans is continuously increasing over time, it results in depreciation and causes irreversible change to the environment (Daily et al., 2000).

The gazette of KKGP to become one of the Geoparks in Langkawi prevents the extraction of any kinds of forest and fisheries products by the local communities. At first, it might be hard especially for the locals because before the site was gazetted, the mangrove forest logging activities and charcoal factory were active in that area.

Due to that, the local communities need other alternatives for their livelihood. As one of the goals of Geopark is to enhance the economy of local communities, the geotourism is introduced for helping the locals to enhance their livelihood and in the mean time can contribute to sustain the sites from any damages.

Opening KKGP to tourism generates recreational and economic values to KKGP. The information on KKGP valuation is needed by the authority to justify the development of tourism facilities in KKGP.

The Government has spent a lot in Langkawi tourism including in KKGP to develop the natural areas to become a tourism business. According to 2012's RMK10, Five Years Tourism Development Master Plan for Langkawi will be launched with RM420 million development budgets.

Therefore, it is important to assess the value of KKGP in order to reveal what value will present for KKGP. The value of KKGP may give suggestion and assist the Government in establishing policies to make better improvement and development on rural tourism in future. Thus, the results from this study might be useful information for the local government's policymakers. The undervaluation on the park may lead to inefficient allocation of the budget for tourism development.

The issue to be addressed in this study could also be viewed from the visitors' perspective. The benefits experienced from the visit to KKGP differ from an individual to another. The benefits include social, physical, psychological, and educational experiences. Tourists gain benefits or satisfaction through their experiences from the visit. These benefits are subjective and hard to measure. This is especially important as policy makers need to understand the importance of a protected area such as KKGP. Thus, a standard measurement is needed for the purpose of justification.

One of the reasons that may contribute to the discrepancies between the levels of ecosystem services enjoyed by people and the low value or attention attributed to them is primarily because these ecosystem services are not traded in the market and their economic values are not readily known.

The valuation of the geopark in monetary unit is significant to the stakeholders as there is no major source of income in KKGP after being declared as a Geopark except outdoor recreation or tourism activities as a source of income. Therefore, this study estimates the value of KKGP into a monetary unit to standardise all the values given by the visitors.

1.4 Objectives of the Study

The general objective of this study is to assess the economic value of Kilim Karst Geoforest Park, Langkawi.

More specifically, three objectives are established to achieve the general objective, as follows:

a) To determine the social demography of domestic visitors visiting KKGP.
b) To determine factors influencing visitors to visit KKGP.
c) To determine the consumer surplus in KKGP.

1.5 Theoretical Framework

Individual preferences and choices are the bases for theory of economic valuation (Khalid, 2008). People express their preferences through their choices and tradeoffs that they make, given certain constraints such as income and available time. There are several techniques to make the economic valuation on nonmarket natural resource, for instances contingent valuation method, travel cost method, discrete choice modelling method, benefit transfer method, and hedonic pricing method.

Travel cost method (TCM) is the technique employed in this study to estimate the recreational demand and economic value of KKGP. TCM is used to estimate the benefits of outdoor recreational site even though this method has several practical and theoretical problems (Chen et al., 2004). The fundamental principle of TCM is the value of a place that can be measured from the cost that people incur in travelling to the place. Costs of undertaking recreational activities include travel costs, entry fees, on-site expenditure, outlay of capital expenditure necessary for consumption, and opportunity cost of time. TCM assumes a complementarity between an environmental asset and consumption expenditure, and thus can also be applied to determine the marginal utility of quality improvements (Shammin, 1999).

Travel expenditure of tourists is used as a substitute for the price paid by tourists. According to Shammin (1999), the travel cost approach is based on the theory of consumer demand. The demand curve is the relationship between price and quantity. The quantity demanded from any goods or services is the amount of the good that buyers are willing and able to purchase.

A demand curve can be derived if a significant correlation between costs and number of visitors is found. Then, the number of visitors is simulated when

the costs increase. Using the demand travel generating demand function, the demand curve can come out with an explanation such as the difference of entrance fees with the number of visitors. Once the demand curve is estimated, the area under the curve represents consumer surplus and is therefore an estimation of the value of the area.

Consumer surplus for a product is closely related to its demand curve. The benefits that visitors gain from recreation site can be estimated by using the concept of consumer surplus, which is the difference between the market price of goods and the maximum price a consumer is willing to pay for an additional unit of the goods (Hyman, 1986). Dupuit (1844), who coins the phrase consumer surplus, postulates that the price associated with any quantity on a consumer's demand curve is the maximum price the consumer is willing to pay for the last unit consumed; hence, the demand curve is a marginal willingness to pay (Maneschi, 1996).

Besides demand, utility theory also plays the role in TCM measurements. Jules Dupuit (1844) states that, "Political economy has to take as the measure of utility of an object the maximum sacrifice which each consumer would be willing to make in order to acquire the object....the only real utility is that which people are willing to pay for."

In brief, consumer surplus is defined as the area under the demand curve and above the price line.

In consumer demand functions, it is assumed that the individuals will maximise their satisfaction or utility by consuming a bundle of goods including environmental goods and services (Silberberg, 1978). This notion is associated with the theory of utility. This assumption can be written as follows:

Maximise U (X_(1), X_2, ... X_n)
where,
X_1, ..., X_n = goods
U (X_1, X_2, ... X_n) = utility derived from the consumption of the goods.

The maximisation of the utility is however subject to the limited time and income of the consumer. Thus, the decision about the choice of the goods to be consumed must be made. A thorough review on TCM is discussed in detail in Chapter Two.

1.6 Significance of the Study

The significance of this study can be looked from four perspectives. First is from the Government's perspective, which is to know the significance of investment on developing KKGP as a tourism area worth billions of Malaysian Ringgit.

Second perspective is from the local communities, which is to show that the local communities can attain benefits from tourism sectors more than fishing and mangrove forest logging.

Third perspective is from tourism agencies. The benefits and satisfaction that can be gained by tourists have to be investigated so that the best development and services in KKGP can be provided. Tourism agencies need this kind of information to improve their quality to give high-class services to visitors.

The last perspective is from the KKGP itself as a nonmarket natural resource. The assessment of this area in terms of monetary value may avoid the argument from other parties to develop this area into logging or limestone consumption in future. Any activities that are forbidden and may destroy the geosite in KKGP can be prevented. The authority in KKGP such as LADA may keep the status of the Geopark and enhance the services and facilities according to the need of visitors. The natural resources in KKGP will be conserved and protected for the benefit of future generation. This perspective is strongly supported in a study case of Southeast Forest. The study explains that estimation of the use value is useful to evaluate the consequences of possible degradation of existing sites due to logging or mining in undisturbed forests (Wills, 2007).

1.7 Organisation of Chapters

The remainder of the thesis proceeds as follows. Chapter Two presents the relationship between natural resources and Geopark and their contributions to tourism sectors. This chapter continues with the theoretical background of environmental valuation and the literatures on various methods of valuation techniques, followed by a review of previous studies particularly empirical literatures related to the methods of travel cost. Methodological framework of travel cost, development of travel cost method survey, data collection, and survey design issues are described in detail in Chapter Three. Next, in Chapter Four, the sample descriptives are provided, and the results of travel cost are presented, analysed, and discussed. Finally, in Chapter Five, the study is concluded, and some recommendations are given.

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