UNIVERSITI PUTRA MALAYSIA

ECOVISITORS ECONOMIC VALUE IN MATANG MANGROVE FOREST RESERVE, PERAK, MALAYSIA

NURSHAZWANI BINTI AB RAZAK

FH 2018 4

ECOVISITORS ECONOMIC VALUE IN MATANG MANGROVE FOREST RESERVE, PERAK, MALAYSIA

By

NURSHAZWANI BINTI AB RAZAK

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

November 2017

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

ECOVISITORS ECONOMIC VALUE IN MATANG MANGROVE FOREST RESERVE, PERAK, MALAYSIA

By

NURSHAZWANI BINTI AB RAZAK

November 2017

Chairman : Assoc. Prof. Syamsul Herman bin Mohammad Afandi, PhD
Faculty : Economics and Management

The Matang Mangrove Forest Reserve (MMFR), Taiping, Perak is recognized as having the best management system of mangrove ecosystems globally. It is also rich in biodiversity and is one of the main ecotourism sites in the Taiping district of Perak. MMFR is one of the places developed for the purpose of ecotourism in the National Ecotourism Plan (NEP) 2016-2025 and one of the focus of the NEP is to attract local and international investors to invest in this ecotourism area. However, MMFR's value is still unknown to attract the investors. In addition, this study is to identify the factors that influence the demand for outdoor recreation by ecovisitors in MMFR. Travel Cost Method (TCM) is used to evaluate more users in MMFR as a measure of user satisfaction. This study is also as an estimate of the economic value to ecovisitors at the MMFR. The determination of these values directly represented the actual values of MMFR area in Ringgit Malaysia (RM). Data collection was done using questionnaire for the face-to-face survey session. A total of 396 questionnaires have been used in the analysis. Respondents are comprised of visitors who visit MMFR who are aged between 18 years and above. The questionnaire comprised of five parts, which were administration code, information on the mangrove forest, visit characteristics, trip expenditures and socio-demographic. An Ordinary Least Square Regression (OLS) analysis was conducted to determine the TCM values by using the Statistical Package for Social Science (SPSS). The findings of the OLS analysis showed four (4) variables significantly influencing the number of visits. Consequently, the estimated value of consumer surplus for this study was RM223.19 visit/year. The end result of this study is an estimate the economic value to ecovisitors at the MMFR of RM5 225 324.28 for 2016. From the results of this study, it can help MMFR management to attract local and international investors based on the gross the benefit of the MMFR. In addition, it will help management to further improve the quality of the services and facilities for the benefit of the visitors.

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

NILAI EKONOMI EKOPENGUNJUNG DI HUTAN PAYA LAUT MATANG, PERAK, MALAYSIA

Oleh

NURSHAZWANI BINTI AB RAZAK

November 2017

Pengerusi : Prof. Madya Syamsul Herman bin Mohammad Afandi, PhD
Fakulti : Ekonomi dan Pengurusan

Hutan Paya Laut Matang, Taiping, Perak (MMFR) diiktiraf sebagai pengurusan secara mampan terbaik untuk ekosistem bakau di peringkat global. Ia juga kaya dengan sumber biodiversiti dan menjadi salah satu tempat ekopelancongan utama di daerah Taiping, Perak. MMFR menjadi salah satu tempat yang ingin dibangunkan bagi tujuan ekopelancongan untuk Pelan Ekopelancongan Negara (NEP) 2016-2025 dan salah satu tumpuan NEP adalah untuk menarik pelabur tempatan dan antarabangsa untuk melabur di kawasan ekopelancongan ini. Walaubagaimanapun, nilai MMFR masih tidak diketahui untuk menarik para pelabur tersebut. Di samping itu juga, kajian ini adalah untuk mengetahui faktor yang mempengaruhi permintaan bagi rekreasi luar untuk ekopengunjung di MMFR. Kaedah *Travel Cost Method* (TCM) telah digunakan untuk menilai lebihan pengguna di MMFR sebagai ukuran kepada kepuasan pengguna. Kajian ini juga adalah untuk menganggarkan nilai ekonomi kepada ekopengunjung di MMFR. Penentuan nilai ini, secara tidak langsung dapat menterjemahkan nilai sesebuah kawasan khususnya MMFR dalam bentuk Ringgit Malaysia (RM). Pengumpulan data dilakukan dengan menggunakan borang soal selidik dan sesi soal jawab secara bersemuka. Sebanyak 396 borang soal selidik digunakan dalam analisis. Responden adalah terdiri daripada pengunjung yang melawat ke MMFR berumur 18 tahun ke atas. Kajian ini menggunakan borang soal selidik yang mengandungi lima bahagian iaitu, bahagian kod pentadbiran, bahagian informasi di hutan paya bakau, bahagian ciri-ciri lawatan, bahagian perbelanjaan lawatan dan sosio demografi. Analisis *Ordinary Least Square Regression* (OLS) telah digunakan bagi model TCM. Kajian ini telah menggunakan pakej *Statistical Package for Social Sciences* (SPSS). Hasil daripada analisis ini terdapat empat (4) pembolehubah mempengaruhi bilangan lawatan. Seterusnya, anggaran nilai lebihan pengguna bagi kajian ini adalah sebanyak RM223.19. Hasil akhir kajian ini adalah anggaran nilai ekonomi kepada ekopengunjung di MMFR iaitu sebanyak RM5 225 324.28 untuk tahun 2016. Daripada hasil kajian ini, dapat membantu pihak pengurusan MMFR untuk menarik pelabur tempatan dan antarabangsa setelah nilai MMFR dapat ditentukan. Selain daripada itu, dapat membantu pihak pengurusan untuk

meningkatkan lagi kualiti pengurusan dalam perspektif pelancong dan kemudahan di kawasan MMFR.

ACKNOWLEDGEMENTS

In the name of Allah, The Most Beneficent and The Most Merciful

Praise be to Allah, his majesty for his uncountable blessings, and best prayers and peace be unto his best messenger Muhammad, his pure descendant and his family and his noble companions. Firstly, I would like to thank my family (Mak, Abah, Kak Ngah, Haziq and Aisyah). Without their love and support, none of this would have been possible. They have always been there for me and I am thankful for everything they have helped me achieve.

I also would like to take this opportunity to express my deepest gratitude to my supervisor, Associate Prof. Dr. Syamsul Herman bin Mohammad Afandi who has provided me with a lot of guidances, advices and comments in the preparation and completing this research project. Not forgetting my committee members, Prof. Dr. Ahmad Shuib and Prof. Dr. Awang Noor Abd Ghani. Next, I would like to express my thanks to Encik Jusri Jusoh and all staffs at Eco Education Centre Matang Mangrove Forest Reserve, Mee Udang Mak Jah's restaurant and charcoal factory for the cooperation and assistance during the field survey.

Finally, I give my sincere thanks to my friends, Sheila, Mimi, Engku, Afifah, Kak Asilah, Poh Yee, Sophie, Nitanan Koshy, Ras, Qama, Aida and Kak Eza for being supportive throughout my study. Last but not least, thanks to all who have involved direct or indirectly towards the completion of the project.

'No one who achieves success does so without acknowledging the help of others. The wise and confident acknowledge this help with gratitude'

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

Syamsul Herman Mohammad Afandi, PhD
Associate Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

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

Awang Noor Abd Ghani, PhD
Professor
Faculty of Forestry
Universiti Putra Malaysia
(Member)

ROBIAH BINTI YUNUS, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

Declaration by graduate student

I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- there is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software

Signature: _____ Date: _____

Name and Matric No: Nurshazwani binti Ab Razak, GS44341

Declaration by Members of Supervisory Committee

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) were adhered to.

Signature:	
Name of Chairman of Supervisory Committee:	Associate Professor Dr. Syamsul Herman Mohammad Afandi
Signature:	
Name of Member of Supervisory Committee:	Professor Dr. Ahmad Shuib
Signature:	
Name of Member of Supervisory Committee:	Professor Dr. Awang Noor Abd Ghani

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

WTTC	World Travel & Tourism Council
GDP	Gross Domestic Product
TIES	The International Ecotourism Society
SEA	South East Asia
NEP	National Ecotourism Plan
MMFR	Matang Mangrove Forest Reserve
EEC	Eco Education Centre
PFD	Perak Forestry Department
WWF	World Wildlife Fund for Nature
MOTAC	Ministry of Tourism and Culture
CVM	Contingency Valuation Method
TEV	Total Economic Value
NUV	Non-Use Value
UV	Use-Value
IUV	Indirect Use Value
DUV	Direct Use Value
OV	Optional Value
BV	Bequest Value
EV	Existence Value
SP	Stated Preference
RP	Revealed Preference
CM	Choice Modelling
WTP	Willingness to Pay
TCM	Travel Cost Method
ZTCM	Zonal Methodology Cost Method
ITCM	Individual Travel Cost Method
MDT	Multi Destination Trip
AAA	Automobile Association of America
AHI	Annual Household Income
TT	Traveling Time
WHY	Working Hours per Year
OLS	Ordinary Least Square Regression
CS	Consumer Surplus
SPSS	Statistical Package for the Social Science software

AI	Attractiveness Index
NEC	Nature Education Centre
RT	Recreational Trip
FT	Family Trip
ET	Enjoyable Trip
JT	Jogging Trip
EDT	Educational Trip
OT	Organisation Trip
FST	Fishing Trip
RCT	River Cruise Trip
OST	On-site time
LM	Linear Model
SL	Semi-log Model
DL	Double-log Model
ANOVA	Analysis of Variance test
GIS	Geographical Information System

CHAPTER 1

INTRODUCTION

1.1 Tourism

Tourism has rapidly become an important industry in many countries by providing significant benefits to the development of the country's economy (WTTC, 2017). Furthermore, the Tourism industry contributes positively to other relevant sectors such as food and beverages, local transportation, accommodation, and more (Chia et al., 2015). The World Travel & Tourism Council (WTTC) in 2017, reported that the direct contribution of the tourism industry to Gross Domestic Product (GDP) globally in 2016 was US$ 2 306.0 billion. This is forecasted to rise by 3.8 % in 2017 and thereafter, rising annually by 4.0 % from 2017 - 2027 to US$ 3 537.1 billion in 2027. The tourism industry generated 108 million jobs directly in 2016 and is predicted to grow in 2017 to 110 million jobs in hotels, travel agents, airlines and other passenger transportation services. The activities of restaurant and leisure industries directly supported by tourists are not excluded. Table 1.1 shows the escalation of international tourist arrivals in each region from 2015 to 2016 (UNWTO, 2016). The table also shows that East Asia and the Pacific were the highest regions in numbers for tourist arrivals to Malaysia.

Malaysia received 13 million (13 032 775) tourists in the first half of 2016 as compared to 12.5 million (12 567 300) in 2015 (WTTC, 2017), contributing RM 37.4 billion in revenue as compared to RM 33.8 billion in 2015. This is further translated to an average per capita expenditure of RM 2 869.60 billion.

Table 1.1 : Statistics International Tourists Arrivals

Region	International Tourists Arrivals (million)	
	2015	2016
Africa	96	80
Americas	360	322
East Asia and the Pacific	22 567	23 993
Europe	1 242	1 130
Middle East	279	271
South Asia	1 163	959

(Source : The World Tourism Organization UNWTO, 2016)

The average length of stay per tourist was 5.8 nights. Among the top 10 revenue-generating markets in 2016, based on the number of tourists, were located in Singapore (6 596 452), Indonesia (1 378 699), China (992 463), Thailand (864 453), Brunei (637 369), India (359 853), South Korea (228 023), the Philippines (220 163), the United Kingdom (206 313) and Japan (198 693), (Tourism Malaysia, 2016).

One of the promising sub-industries of tourism is ecotourism. Ecotourism is defined as travelling to relatively undisturbed o uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations found in these areas (Ceballos-Lascurain, 1987). The International Ecotourism Society (TIES) defines ecotourism as responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education. The demand for ecotourism is very stringent because most visitors prefer a natural green environment that helps them to feel relaxed.

Malaysia is blessed with richness in its bio-diversity and is well-known as an ecotourism destination in South East Asia (SEA. Since ecotourism depends very highly on natural resources, Malaysia has an array of nature-based resources, ranging from mountainous areas, lakes and forest vegetation to support the development of ecotourism. While terrestrial forests are the primary destination for ecotourism, mangrove forests are fast complimenting the demand for ecotourism as well. Ecotourism is an important industry segment for Malaysia. The National Ecotourism Plan (NEP) 2016 - 2025 offered to attract investments in ecotourism, improve ecotourism marketing and develop the ecotourism cluster in Malaysia (MOTAC, 2016).

Ecotourism has a wide range to discuss which is include management, local communities and visitors. But, for this research have been focus to visitors only. Ecovisitors is a define as a visitors that travel to the ecotourism places and doing the ecotourism activities at that place.

1.2 Ecotourism in Mangroves

Mangroves are one of many natural resources that exist in public areas, rich in biodiversity. Mangroves are woody plants that grow above mean sea level as an interface between land and sea in tropical and subtropical latitudes (Kathiresan & Bingham, 2001). Approximately 15.2 million hectares of mangroves exist globally (FAO, 2014) with the most extensive mangrove area located in Asia, followed by Africa. Asia has 25 countries with mangroves living under a wide range of climatic conditions (FAO, 2007). Malaysia is recognised as the 6^{th} highest country with the largest area of mangroves, which is 505 386 hectares (Giri et al., 2011).

Mangrove forests in Malaysia presently cover 473 358.56 hectares, with 281 374.56 hectares (39.4 %) located in Sabah, 86 258 hectares (18.2 %) in Sarawak and 105 726 hectares (22.33 %) in Peninsular Malaysia (Forestry Department Peninsular Malaysia, 2016).

The mangrove areas in Malaysia are known for their ecotourism attraction due to the abundance of marine biodiversity and coastal areas. There are a several mangrove ecotourism sites in Malaysia, the Kampung Kuantan in Kuala Selangor is known for its recreational activities such as watching fireflies, river cruises and bird watching. In Kampung Klias, Beaufort, Sabah, apart from river cruising, the speciality of these areas are attributed to observing Proboscis Monkeys and enjoying the local cuisine. These activities are unique to each location and are not found or observed elsewhere. In Kilim, Langkawi, river cruises and eagle feeding are one of the many exciting recreational activities conducted. Visitors who join the recreational activities feel the ambience, satisfaction and eagerness towards learning more about nature. The satisfaction does not always show its value directly but has its own unique benefit. Outside of these areas, there is one other mangrove area being established for ecotourism which is the Matang Mangrove Forest Reserve (MMFR) located in the Northern Region of Peninsular Malaysia.

1.2.1 Matang Mangrove Forest Reserve and Ecotourism

The Matang Mangrove Forest Reserve (MMFR) is situated in Kuala Sepetang, Taiping, Perak, Malaysia of which covers an area of 40 466 hectares, and is the largest mangrove area in Peninsular Malaysia. The MMFR area is managed by the Forestry Department of Perak with 74 % of the total area gazetted as productive forests used for logging and regeneration. While, 24 % has been designated as a protected area set aside for ecotourism activities, and further 1 % kept as a virgin jungle reserved for research purposes (Roslan & Nik Mohd Shah, 2013).

The MMFR is not only a mangrove forest, but it also possesses enormous potential for ecotourism. Based on Mahmud et al., (2015), in 2014, the MMFR had more than 46 000 tourists visiting this forest. Eco Education Centre (EEC) is under the Forestry Department of Larut Matang and located in MMFR area. EEC is one of the places where visitors are in the MMFR area. The number of visitors to the EEC in MMFR, increased from 2012 to 2016 (Table 1.2), demonstrating the real potential to develop ecotourism in this area. Furthermore, the EEC has provided many facilities to accord many comforts and pleasures to those who visit. In Chapter 3, have more explanation about EEC and other spot for ecotourism activities in MMFR.

Table 1.2 : Statistics Visitor Arrivals in Eco Education Centre

Year	Visitor Arrivals
2012	10 980
2013	26 138
2014	46 889
2015	46 294
2016	46 591

(Source : Forestry Department of Larut Matang, 2016)

The distance from EEC to Batu Kurau around 34.2 km, EEC to Taiping around 16.3 km, EEC to Bukit Merah around 29.4 km, EEC toMatang around 7.6 km and EEC to Kuala Sepetang around 600 meter. The Taiping, Batu Kurau, Matang, Kuala Sepetang and Bukit Merah areas (Figure 1.1) were proposed as an ecotourism cluster in the National Ecotourism Plan (NEP) 2016 – 2025. The proposed theme for Kuala Sepetang and Matang area is ecotourism.

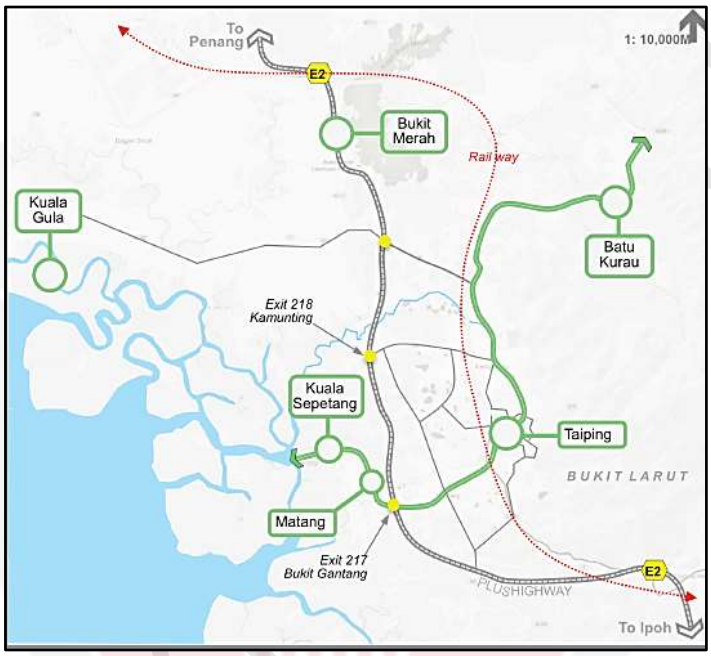

Figure 1.1 : Map of Taiping
(Source: National Ecotourism Plan 2016 – 2025)

The main activities listed in the NEP 2016 - 2025 for the MMFR include; firefly watching, river cruises, team building, bird watching and educational tours. These activities are targeted towards family leisure groups, student groups and special interest groups such as bird watchers and researchers.

1.3 Valuation of Mangroves

The economic benefit of mangroves can be divided into two-types; use and non-use values as illustrated in Figure 1.2. The 'use' value is split into three categories; direct use value, ecological value and option value. Direct use value refers to the output or services that can be directly consumed with the products classified as either 'extractive' or 'non-extractive'.

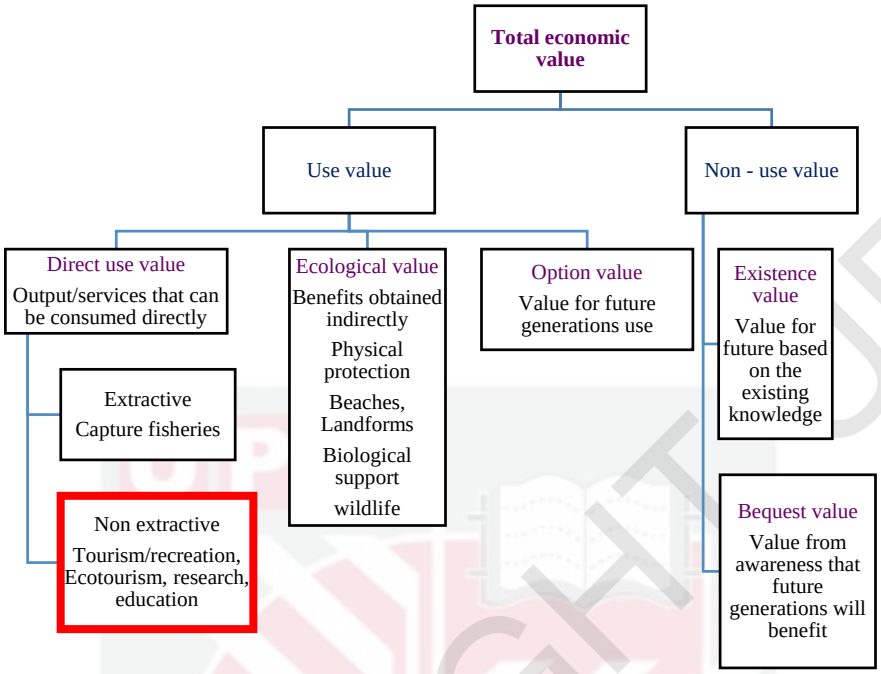

Figure 1.2 : Total Economic Value
(Source : Plottu & Plottu, 2007, Mohd Rusli et al., 2008 and Matthew, 2014)

The extractive product is used to support commercial fisheries and for charcoal production, while mangroves, as a non-extractive product, are used for recreation, ecotourism, research and education. Most people think that mangrove eco-systems only produce goods. Goods are products that have a tangible value and can be marketed. Examples of goods made from mangroves include; timber, charcoal, fish, natural cockles and poles. However, mangroves can also be categorised as services such as recreation, ecotourism, research and education as mentioned previously. Since such services have no market value, their worth is ignored by the current economic system. Examples of product services are bird sanctuaries/migratory stops, maintenance of channel depth and ecotourism.

In this era of globalisation and technology, ecotourism as a service product has the potential to contribute financially to acountry's revenue. One possible mangrove location in Malaysia that could initially provide value towards ecotourism activities is the MMFR given the location and has both natural and human-made resources. The natural resources in the MMFR are the forest itself, river and wildlife, while the human-made resources include the charcoal factory, prawn and noodle stalls and a boardwalk. When visitors visit the MMFR, they obtain benefits relating to personal satisfaction and experience. However, these advantages have not been quantified or converted into economic value.

The State Forestry Department of Perak and Municipal of Taiping have allocated financial budgets to prepare and maintain the acilities for visitors, so to maximise the satisfaction of those visiting and at the same time, to raise the level of awareness about the importance of nature, and specifically the mangrove forest. The economic value of the satisfaction of visitors can be used to determine whether the expenditure is warranted.

1.3.1 The Importance in Valuing Matang Mangrove Forest Resreve as Ecotourism Site

Presently, the MMFR is recognised as being the best managed sustainable mangrove ecosystem globally in goods market. Unfortunately, in non-market it leads to market failure. Not only that, a valuation will determine the actual value of the product, including tangible and intangible product. For example, in the NEP 2016-2025 it has been highlighted that MMFR is included on the ecotourism sector. The MMFR value obtained will be in line with NEP's intention and can be applied before 2026.

To determine the ecovisitors economic value in MMFR, there have two suggestion method that can be use which is in Contingent Valuation Method (CVM) or in Travel Cost Method (TCM). In this study, TCM has been chosen.

1.4 Theoretical Framework

The theoretical framework used in this study is based on demand theories. The demand theory forms the basis for the demand curve, which relates to price and the quantity of products and other determinants (Appendix 1). In this study, demand models are used to forecast the demand for ecotourism in the MMFR and to estimate the value of ecotourism in the MMFR. The amount of money that visitors spent to partake in the ecotourism activities will be the utility variable for this research. The value gathered from this utility can then be used to depict the demand for this activity. The more money spent by tourists for these activities, the higher the demand for these sorts of activities.

1.5 Problem Statement

1.5.1 State Level

The MMFR is one of the areas to be developed for ecotourism as reported in the NEP 2016 – 2025 report. Furthermore, the NEP 2016 - 2025 report has also identified five areas to assist in the development of this area. One of the five focus areas is to attract international and domestic investors to invest in identified ecotourism areas in Malaysia. However, there are several factors needed to convince potential investors to invest in this area. Of major concern should they ask, is, what will they get if they invest in the

MMFR? The reply to this question may be answered by highlighting the value of ecotourism in the MMFR via economic valuation analysis. However, the MMFR's economic value in ecotourism is still unknown. This economic value in this example is significant for investors to decide whether to invest.

1.5.2 The Agency Level

The State Government through the State Forestry Department of Perak (SFDP) and Municipal of Taiping have allocated budgets, resources, workforce and expertise towards the maintenance of the facilities and provision of the park's services. In 2015, the SFDP allocated RM 1 850 000.00 to all recreational forests in Perak including the Eco Education Centre (EEC), (SFDP Annual Report, 2015). However, budget constraints continued to restrict the maintenance at the Eco Educational Centre plus the lack of an infrastructure at Kuala Sepetang required to support ecotourism activities such as constructing a jetty and improving homestay remain an issue (NEP 2016 – 2025 report). The efforts made by the government are primarily to ensure that visitors obtain optimal satisfaction during their stay at the MMFR. Therefore, the findings from this study is then be able determine the benefits to visitors and to compare the appetency of financial allocation and expenditure for ecovisitors in the MMFR.

1.5.3 The Visitors Level

When visitors travel to the MMFR, they benefit from ecotourism activities, where each visitor experiences various levels of satisfaction and benefits, given that the experience is entirely subjective. The level of satisfaction and benefit received by a visitor can be measured and evaluated by using tools such as a questionnaire or 'value' form. One such approach to determine value is by using economic value to measure visitor benefits from participating in ecotourism activities.

1.5.4 Market Failure

Based on the Table 1.3, there are a few studies on non-market value in MMFR but there is no study on ecovisitors value using the Travel Cost Method (TCM). Normally, most of the researchers estimate the willingness to pay by using the Contingent Valuation Method (CVM) rather than TCM. In chapter 2 it is shown that there are previous studies in the mangrove area, however, there is no study that uses TCM in valuation of the benefits.

Table 1.3 : Previous Study in MMFR

Title of study	Author	Year
Plant biomass and nutrient flux in a managed mangrove forest in Malaysia	Wooi & Jin	1990
Biosocioeconomics of fishing for shrimps in Kuala Sepetang, Malaysia	Ahmad Adnan & Urn	1994
Ecotourism in Mangrove in Peninsular Malaysia	Mahmud et al.	2015
Willingness to Pay for the Conservation Fee in Kuala Sepetang: A Contingent Valuation Method	Zaiton et al.	2014
Recreational Values of Mangrove Forest in Larut Matang, Perak	Ahmad	2009
Socio-economic benefits of mangrove with special reference to Matang Mangrove Forests	Awang Noor	2005

1.6 Objective

i. To determine the factors that influence the demand for outdoor recreation by ecovisitors in the MMFR.
ii. To determine the consumer surplus of the MMFR as the measurement of consumer satisfaction.
iii. To estimate the economic value to ecovisitors at the MMFR.

1.7 Significance of Study

This study will contribute significantly to the State Government of Perak, research literature, tourism and local communities in the MMFR.

1.7.1 State Government of Perak

The findings from this study to determine the economic value of the MMFR will be extremely valuable to the State Government to justify future budget allocations for ecotourism development in the MMFR area. Furthermore, the findings will assist the State Government to make appropriate decisions concerning the development of ecotourism in the MMFR. The results relating to the characteristics of the visit and visiting patterns will be useful for the State Government's marketing initiatives for the MMFR. Furthermore, this study will help the management of the MMFR to manage the activities and administration more effectively and in compelling ways to aid the agency plan for the further development of ecotourism and maximise visitor satisfaction.

1.7.2 Literature

The findings from this study will add more reference sources for research especially in the field of economic valuation of mangroves in Malaysia since there remains a limited sources and research in this area. The present study will contribute towards the determination of the economic value of a specific site and increase the awareness of people towards the economic value of mangroves.

1.7.3 Visitors and Local Communities

The results of this study will also encourage visitors to increase their stay at the MMFR and help to maximise benefits based on the values associated with experience and satisfaction. Furthermore, it will provide benefits to the local communities to potentially increase their income via accommodation, cuisine and recreational activities. The study will further aim to highlight the factors that influence visitor demand which can be used by the local communities to provide additional facilities and services.

1.8 Organization of The Thesis

This research presented five Chapters, with a introduction and summary given at the end of each chapter. Thus, it is organized as follows:

Chapter 1 presented the background of the main study topic. It includes the research framework and the potential problems tha should be investigated. It also discusses the objective of the study and concludes by significance of study.

Chapter 2 reviews the general backgrounds of mangroves and concept of ecotourism and ecotourism development in Malaysia. It aso reviews the recreational demand modelling in this chapter. Then, it reviews the methodologies and past studies in valuating ecovisitors value of environment.

Chapter 3 discusses the research study area in detail. It begins with the case study area which is include climate, biologica environment, management of MMFR, main place at MMFR and ecotourism activities in MMFR. The next section, it describe the models to be constructed by the study and explain the method that be used for each selected variable in models. The sampling and survey procedures are also included.

Chapter 4 presents and discusses the results of the study. First, it presents the findings of descriptive analysis in socio dmographic profile and visit and travel characteristics. Second, it presents the attractiveness level index and the ecovisitors demand is then presented in several types of model. The best model was chosen for benefit estimation.

Chapter 5 summarises the findings of the research. This chapter consists of the conclusion, contributions, limitations of stuy and suggestions for future studies.

REFERENCES

Aaron, J. D. & Jonathan, G. T. (1997). A new model for the travel cost method: the total expenses approach. *Journal: Environmental Modelling & Software, 14* (1), pp. 81 - 92.

Abdullah, M., Awang Noor, A. G., Faridah Hanum, I., Muta Harah, Z., & Yip, H. W., (2013). Local community participatory process and intervention procedure in mangroves ecotourism of Marudu Bay, Sabah. *Pertanika Journal of Tropical Agricultural Science, 36*, pp. 173-180.

Ahmad, S. (1991). Pengaruh kos masa dalam anggaran faedah rekreasi luar. *Malaysian Journal of Agricultural Economics, 8*, pp: 41-51.

Ahmad, S. (1994). *Demand for and value of outdoor recreation in Langkawi by domestic visitors.* (Unpublished doctoral dissertation).

Ahmad, S. (2009). Recreational values of mangrove forest in Larut Matang, Perak. *Journal of Tropical Forest Science*, pp. 81-87.

Ahmad Adnan N., & Urn C. F. (1994). *Biosocioeconomics of fishing for shrimp in Kuala Sepetang, Malaysia*. Madras: Bay of Bengal Programme.

Alegre, J., & Pou, L. (2006). The length of stay in the demand for tourism. *Tourism Management, 27*(6), pp. 1343-1355.

Alkeyev, M. A., & Bazarbayeva, T. A. (2014). Recreational zoning in the degree of attractiveness of natural landscapes. *Example of the Pavlodar Region of Kazakhstan Al-Farabi Kazakh National University , Faculty of Geography and Nature Management, 29*(1), pp. 68–76.

Armbrecht, J. (2014). Use value of cultural experiences: A comparison of contingent valuation and travel cost. *Tourism Management, 42*, pp. 141-148.

Awang Noor, A. G. (2005). *Socio-economic benefits of mangrove with special reference to Matang mangrove forest* (pp. 464-494). Kuala Lumpur: Forestry Department Peninsular Malaysia.

Awang Noor, A. G., Mohd Yusrizal, H., Tuan Marina, T. I., & Syauki, M. (2009). Economic valuation of recreation benefits in Chamang Forest Recreation Area, Pahang, Peninsular Malaysia. *Malaysian Forester, 72*(1), pp. 69-86.

Ayob, A. M. (2004). *Mangroves and ecotourism: Ecological or economical*. Ohio: Southeast Asian Studies.

Beal, D. J. (1995). A travel cost analysis of the value of Carnarvon Gorge National Park for recreational use. *Review of Marketing and Agricultural Economics, 63*(2), pp. 292-303.

Beardsley, W. (1971). Bias and noncomparability in recreation evaluation models. *Land Economics*, *47*(2), pp. 175-180.

Bergstrom, J. C., Stoll, J. R., Titre, J. P., & Wright, V. L. (1990). Economic value of wetlands-based recreation. *Ecological Economics, 2*(2), pp. 129-147.

Bertram, C., & Larondelle, N. (2017). Going to the woods is going home: recreational benefits of a larger urban forest site—A Travel Cost Analysis for Berlin, Germany. *Ecological Economics*, *132*, pp. 255-263.

Bestard, A. B., & Font, A. R. (2010). Estimating the aggregate value of forest recreation in a regional context. *Journal of Forest Economics*, *16*(3), pp. 205-216.

Bin, O., Landry, C. E., Ellis, C. L., & Vogelsong, H. (2005). Some consumer surplus estimates for North Carolina beaches. *Marine Resource Economics*, *20*(2), pp. 145-161.

Bockstael, N. E., Strand, I. E., & Hanemann, W. M. (1987). Time and the recreational demand model. *American Journal of Agricultural Economics*, *69*(2), pp. 293-302.

Boo, E. (1991). Planning for ecotourism. *Parks*, *2*(3), pp. 4-8.

Bowker, J. M., English, D. B., & Donovan, J. A. (1996). Toward a value for guided rafting on southern rivers. *Journal of Agricultural and Applied Economics*, *28*(2), pp. 423-432.

Boyle, K. J. (2003). *Contingent valuation in practice. In a primer on nonmarket valuation* (pp. 111-169). Netherlands: Springer.

Brown, W. G., & Nawas, F. (1973). Impact of aggregation on the estimation of outdoor recreation demand functions. *American Journal of Agricultural Economics*, *55*(2), pp. 246-249.

Cai, Y., & Ng, P. K. (2001). The freshwater decapod crustaceans of Halmahera, Indonesia. *Journal of Crustacean Biology*, *21*(3), pp. 665-695.

Carandang, A. P., Camacho, L. D., Gevaña, D. T., Dizon, J. T., Camacho, S. C., de Luna, C. C., & Rebugio, L. L. (2013). Economic valuation for sustainable mangrove ecosystems management in Bohol and Palawan, Philippines. *Forest Science and Technology*, *9*(3), pp. 118-125.

Ceballos-Lascurain, H. (1987). The future of ecotourism. *Mexico journal*, *1*(17), pp. 13-19.

Ceballos-Lascurain, H. (1996). Tourism, Ecotourism and Protected Areas: The state of nature-based tourism around the world and guidelines for its development. Paper presented in IV World Congress on National Parks and Protected Areas, Caracas, Venezuela, 10-21 February 1992.

Cesario, F. J. (1976). Value of time in recreation benefit studies. *Land Economics*, *52*(1), pp. 32-41.

Chia, W., Ahmad, S., Sridar, R., & Syamsul, H. M. A. (2015). A comparison study between domestic and international rural tourist profile and travel expenditures in Semporna, Sabah. Paper presented in Proceedings of the International Conference on Natural Resources, Tourism and Services Management 2015, Sabah, Malaysia, 15-17 April 2015.

Chiam, C. C., Alias, R., Khalid, A. R., & Rusli, Y. (2011). Contingent Valuation Method: Valuing cultural heritage, 2-3. Retrieved September 24, 2014, from http://eprints.oum.edu.my.

Christiansen, G. (1997). *Economic Value of Recreational Use: Hartley Historic Site*. Sydney: NSW NPWS.

Clawson, M., & Knetsch, J. L. (1996). Economics of outdoor recreation. *Journal: Tourism Economics, 8* (2), pp. 131 - 147.

Crawford, G. S. (2008). The discriminatory incentives to bundle in the cable television industry. *Quantitative Marketing and Economics*, *6*(1), pp. 41-78.

Creel, M. D., & Loomis, J. B. (1990). Theoretical and empirical advantages of truncated count data estimators for analysis of deer hunting in California. *American Journal of Agricultural Economics*, *72*(2), pp. 434-441.

Czajkowski, M., Giergiczny, M., Kronenberg, J., & Tryjanowski, P. (2014). The economic recreational value of a white stork nesting colony: A case of 'stork village'in Poland. *Tourism Management, 40*, pp. 352-360.

Dehghani, M., Farshchi, P., Danekar, A., Karami, M., & Aleshikh, A. A. (2010). Recreation value of Hara Biosphere Reserve using willingness-to-pay method. *International Journal of Environmental Research*, *4*(2), pp. 271-280.

Deng, J., Ph, D., Dyre, D., & Wang, J. (2010). Perceptions of relative attractiveness of nature-based tourism asset : A comparison between CVB directorsand visitors. Paper presented in Proceedings of the 2010 Northeastern Recreation Research Symposium, Bolton Landing, NY, 11-13 April 2010.

Department of Statistics Malaysia (2014). Retrieved February, 8, 2017 from https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=120&bul_id=aHhtTHVWNVYzTFBua2dSUlBRL1Rjdz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09.

Du Preez, M., & Lee, D. E. (2016). The economic value of the Trans Baviaans mountain biking event in the Baviaanskloof Mega-Reserve, Eastern Cape, South Africa: A travel cost analysis using count data models. *Journal of Outdoor Recreation and Tourism*, *15*, pp. 47-54.

Duke, N. C. (1993). *Mangrove floristics and biogeography in tropical mangrove ecosystems* (pp. 63-100). Washington: American Geophysical Union.

Environmental Justice Foundation (2004). Retrieved April, 15, 2016 from https://ejfoundation.org/archive/p2?film-filter=&report-filter=climate.

FAO (2007). Food and Agriculture Organization. *The world's mangroves 1980 – 2005: A thematic study prepared in the framework of the Global Forest Resources Assessment 2005*. Rome: Forest Economics and Policy Div. eng.

FAO (2014). Food and Agriculture Organization Annual Report. Retrieved June, 13, 2016 from http://www.fao.org/3/a-i5055e.pdf.

Farquhar, P. H. (1977). A survey of multi attribute utility theory and applications. *Studies in The Management Sciences*, *6*, pp. 59-89.

Fish, A., & Macklin, R. (2004). Perceptions of executive search and advertised recruitment attributes and service quality. *Personnel Review*, *33*(1), pp. 30–54.

Fleming, C. M., & Cook, A. (2008). The recreational value of Lake McKenzie, Fraser Island: An application of the travel cost method. *Tourism Management*, *29*(6), pp. 1197-1205.

Fletcher, J. J., Adamowicz, W. L., & Graham-Tomasi, T. (1990). The travel cost model of recreation deman: theoretical and empirical issues. *Journal: Leisure Sciences*, *12* (3), pp. 119 - 147.

Forestry Department Peninsular Malaysia Annual Report (2016). Retrieved May, 25, 2017 from https://www.forestry.gov.my/index.php/en/2016-06-07-02-53-46/publication/annual report.

Forestry Department of Larut Matang (2016). Statistic of Visitors Arrival in Eco Education Centre (EEC).

Forest Department Sarawak Annual Report (2013). Retrieved January, 11, 2017 from http://www.forestry.sarawak.gov.my/modules/web/pages.php?mod=download&id=Annual%20Report&menu_id=0&sub_id=132.

Freeman, A. M., & Haveman, R. M. (1977). Congestion, quality deterioration, and heterogeneous tastes. *Journal of Public Economics*, *8*(2), pp. 225-232.

Freeman, A. M. (1993). *The measurement of environmental and resource values: Theory and methods*. Washington, DC: Resource for the Future.

Garrod, G. D., & Willis, K. G. (1992). Valuing goods' characteristics: an application of the hedonic price method to environmental attributes. *Journal of Environmental Management*, *34*(1), pp. 59-76.

Giri, C., Ochieng, E., Tieszen, L. L., Zhu, Z., Singh, A., Loveland, T., & Duke, N. (2011). Status and distribution of mangrove forests of the world using earth observation satellite data. *Global Ecology and Biogeography*, *20*(1), pp. 154-159.

Goodwin, H. (1996). In pursuit of ecotourism. *Biodiversity & Conservation*, *5*(3), pp. 277-291.

Google Maps (2017). Retrieved May, 1, 2017 from https://www.google.com.my/maps/place/Kuala+Sepetang,+Perak/@4.8387979,100.6227122,15z/data=!3m1!4b1!4m5!3m4!1s0x31caad3a9d72e3d9:0x448fcc74d96f896b!8m2!3d4.838438!4d100.6309462?hl=en.

Graham-Tomasi, T., Adamowicz, W. L., & Fletcher, J. J. (1990). Errors of truncation in approximations to expected consumer surplus. *Land Economics*, *66*(1), pp. 50-55.

Hanauer, M. M., & Reid, J. (2017). Valuing urban open space using the travel-cost method and the implications of measurement error. *Journal of Environmental Management*, *198*, pp. 50-65.

Hede, A., & Kellett, P. (2011). Marketing communications for special events. *European Journal of Marketing*, *45*(6), pp. 987–1004.

Hill, R. (1998). What sample size is "enough" in internet survey research?. *Interpersonal Computing and Technology: An Electronic Journal*, *6*, pp. 3-4.

Hof, J.G., & King, D.A. (1992). Recreational demand by tourists for Saltwater Beach days. *Journal: Environmental Economics and Management, 2*, pp.281 - 291.

Hotelling, H. (1947). *The economics of public recreation*. The Prewitt Report. Washington D.C: National Parks Service.

Isaac, S., & Michael, W. B. (1995). Handbook in research and evaluation. San Diego, CA: Educational and Industrial Testing Services.

IUCN. The World Conservation Union. Gland, Switzerland.

Jasmi, A. (1986). A review of avian fauna and mammals at Kuala Gula Birds Sanctuary, Perak, Peninsular Malaysia. *A Journal of Wildlife and Parks, 5*, pp. 135-142.

Kathiresan, K., & Bingham, B. L. (2001). Biology of mangroves and mangrove ecosystems. *Advances in Marine Biology*, *40*, pp. 81-251.

Kealy, M. J., & Richard C, B. (1986). Theoretical and empirical specifications issues in travel cost demand studies. *American Journal of Agricultural Economics*, *68*(3), pp. 660-667.

Kinley, T. R., Forney, J. a., & Kim, Y.-K. (2012). Travel motivation as a determinant of shopping venue. *International Journal of Culture, Tourism and Hospitality Research*, *6*(3), pp. 266–278.

Konovalova, A. A., & Vidishcheva, E. V. (2013). Elasticity of demand in tourism and hospitality. *European Journal of Economic Studies*, *4*(2), pp. 84-89.

Kuosmanen, T., Nillesen, E., & Wesseler, J. (2004). Does ignoring multidestination trips in the travel cost method cause a systematic bias?. *Australian Journal of Agricultural and Resource Economics*, *48*(4), pp. 629-651.

Landry, C. E., & McConnell, K. E. (2007). Hedonic on-sight cost model of recreation demand. *Land Economics*, *83*(2), pp. 253-267.

Law, R., Cheung, C., & Lo, A. (2004). The relevance of profiling travel activities for improving destination marketing strategies. *International Journal of Contemporary Hospitality Management*, *16*(6), pp. 355–362.

Liston-Heyes, C., & Heyes, A. (1999). Recreational benefits from the Dartmoor National Park. *Journal of Environmental Management, 55* (2), pp. 69-80.

Loomis, J., & Cooper, J. (1990). Economic benefits of instream flow to fisheries: A case study of California's Feather River. *Rivers*, *1*(1), pp. 23-30.

MacNae, W. (1968). A general account of the fauna and flora of mangrove swamps and forests in the Indo-West-Pacific region. *Advances in Marine Biology*, *6*, pp. 73-270.

Mahmud, A. I., Emiru, K. T., & Viez, E. R. (2015). Ecotourism in Mangroves in Peninsular Malaysia. *World Applied Sciences Journal*, *33*(5), pp. 699-703.

Martin, W. E., Gum, R. L., & Smith, A. H. (1974). *The Demand for & Value of Hunting, Fishing and General Rural Outdoor Recreation in Arizona*. College of Agriculture, University of Arizona (Tucson, AZ).

Martínez, E. R., Loomis, J. B., Amoako-Tuffour, J., & Hilbe, J. M. (2008). Comparing recreation benefits from on-site versus household surveys in count data travel cost demand models with overdispersion. *Tourism Economics*, *14*(3), pp. 567-576.

Matthew, N. K., Ahmad, S., Ramachandran, S., & Syamsul, H. M. A. (2013). Demand model of international visitors to the Kilim Karst Geoforest Park, Langkawi: application of ITCM model. *Journal of Applied Economics and Business*, *1*(4), pp. 51-66.

Matthew, N.K., (2014). *Rural Tourism Demand of International Visitors to the Kilim Karst Geoforest Park, Langkawi, Malaysia*, (Unpublished master's thesis), Universiti Putra Malaysia, Malaysia.

Matthew, N. K., Shuib, A., Ramachandran, S., Herman, S., Mahdzar, M., Ling, S. M., & Ahmad, S. (2015). Travel cost adjustment of international multiple destination visitors to the Kilim Karst Geoforest Park, Langkawi, Malaysia (pp. 217-224). Paper presented in Proceedings of the International Conference on Natural Resources, Tourism and Services Management 2015, Sabah, Malaysia, 15-17 April 2015.

McConnell, K. E. (1992). On-site time in the demand for recreation. *American Journal of Agricultural Economics*, *74*(4), pp. 918-925.

McConell, K. E., & Strand, I. (1981). *Measuring the cost of time in recreation demand analysis: An application to sport fishing*. USA: American Agricultural Economic Association.

Mendes, I. (2002). Travel and on-site recreation time: An empirical approach to value the recreation benefits of Peneda-Gerês National Park. Paper presented in IATUR's 2002 Conference, Lisbon.

Mendelsohn, R., Hof, J., Peterson, G., & Johnson, R. (1992). Measuring recreation values with multiple destination trips. *American Journal of Agricultural Economics*, *74*(4), pp. 926-933.

Mendez, L. J., Oubiña, J., & Rubio, N. (2011). The relative importance of brand-packaging, price and taste in affecting brand preferences. *British Food Journal*, *113*(10), pp. 1229–1251.

Michael, P., (2014). *Demand, willingness to pay, and value*. Economics 11th Ed. Pearson Education Limited (pp. 108). Global Edition: Pearson.

Mitchell, R. C., & Carson, R. T. (1989). *Using surveys to value public goods: the contingent valuation method*. Washington: Resources for the Future.

Mohd Rusli, Y., Alias, R., & Ahmad, S. (2008). A contingent valuation study of marine parks ecotourism: The case of Pulau Payar and Pulau Redang in Malaysia. *Journal of Sustainable Development, 2*(2), pp. 95.

Mohd Aswad, R., Alias, R., Mohd Rusli, Y., & Noor Azlin, Y. (2011). Willingness to pay towards the sustainability of Forest Research Institute Malaysia's (FRIM's) canopy walkway. *International Journal of Business, Management and Social Sciences, 2* (3), pp. 85-92.

MOTAC (1995). Ministry of Tourism and Culture Malaysia. *National Ecotourism Plan 1995*. Malaysia: Tourism Planning Research Group (TPRG).

MOTAC (2016). Ministry of Tourism and Culture Malaysia. *National Ecotourism Plan 2016-2025*. Putrajaya, Malaysia: Tourism Planning Research Group (TPRG).

Musamba, E. B., Boon, E. K., Ngaga, Y. M., Giliba, R. A., & Dumulinyi, T. (2012). The recreational value of wetlands: activities, socio-economic activities and consumers' surplus around Lake Victoria in Musoma Municipality, Tanzania. *Journal of Human Ecology*, *37*(2), pp. 85-92.

Nijkamp, P., Vindigni, G., & Nunes, P. A. (2008). Economic valuation of biodiversity: A comparative study. *Ecological economics*, *67*(2), pp. 217-231.

Nillesen, E., Wesseler, J., & Cook, A. (2005). Estimating the recreational-use value for hiking in Bellenden Ker National Park, Australia. *Environmental Management*, *36*(2), pp. 311-316.

Norasilah, L., Syamsul, H. M. A., & Ahmad, S. (2015). The importance of valuing marine conservation area (pp. 57-64). Paper presented in Proceedings of the International Conference on Natural Resources, Tourism and Services Management 2015, Sabah, Malaysia, 15-17 April 2015.

Nur Syuhada, C. I. (2013). *Recreational value of mountain biking at Putrajaya Challenge Park, Malaysia*. (Unpublished master's thesis). Universiti Putra Malaysia, Serdang, Selangor.

Nurul Hikmah, Z., Syamsul H. M. A., Zaiton, S., & Ahmad, S. (2013). Push and pull factors influencing domestic visitors to Kilim Karst Geoforest Park, Langkawi. *The Malaysian Forester, 76* (2). pp. 109-116.

Pearce, D., Mourato, S., Navrud, S., & Ready, R. C. (2002). Review of existing studies, their policy use and future research needs. *Valuing cultural heritage: Applying environmental valuation techniques to historic buildings, monuments and artifacts*, *15*, pp. 257-266.

Peter, K. L., & Sivasothi, N. (2001). A guide to mangroves of Singapore", mangrove ecosystem. Retrieved from http:// mangrove.nus.edu.sg/ guidebooks/teks/ 1011c.htm.

Peter, F., and W, Douglass, S., (1998). Estimating the Cost of Leisure Time for Recreation Demand Models. Retrieved January, 3, 2015 from http://ageconsearch.umn.edu/bitstream/20855/1/spfeat01.pdf.

Plottu, E., & Plottu, B. (2007). The concept of total economic value of environment: A reconsideration within a hierarchical rationality. *Ecological Economics*, *61*(1), pp. 52-61.

Ratnayake, P. U. (2012). A collaborative approach between tourism and coastal communities: a present-day need and opportunity for mangrove management and conservation in Sri Lanka. *Sharing Lessons on Mangrove Restoration*, *63*.

Richardson, L., & Loomis, J. (2008). *Total economic valuation of endangered species: a summary and comparison of United States and rest of the world estimates in Conserving and Valuing Ecosystem Services and Biodiversity: Economic, Institutional, and social challenges* (pp. 25-46). Sterling, USA: Earthscan.

Rolfe, J., & Gregg, D. (2012). Valuing beach recreation across a regional area: The Great Barrier Reef in Australia. *Ocean & Coastal Management*, *69*, pp. 282-290.

Roslan, A. & Nik Mohd Shah, N.M. (2013). *A Working Plan for the Matang Mangrove Forest Reserve, Perak*. State Forestry Department of Perak: Malaysia.

Sabah Forestry Department Annual Report (2015). Retrieved January, 11, 2017 from http://www.forest.sabah.gov.my/annual-reports/2015.

Salleh, M., & Hanim, N. (1999). *Valuing outdoor recreational resources: A case study at Taman Negara, Pahang Darul Makmur*. (Unpublished doctoral dissertation). Universiti Putra Malaysia, Serdang, Malaysia.

Seller, C., Stoll, J. R., & Chavas, J. P. (1985). Validation of empirical measures of welfare change: a comparison of nonmarket techniques. *Land Economics*, *61*(2), pp. 156-175.

Shrestha, R. K., Seidl, A. F., & Moraes, A. S. (2002). Value of recreational fishing in the Brazilian Pantanal: a travel cost analysis using count data models. *Ecological Economics*, *42*(1), pp. 289-299.

Smith, V. K., & Kopp, R. J. (1980). The spatial limits of the travel cost recreational demand model. *Land Economics*, *56*(1), 64-72.

Smith, V. K. (1993). Nonmarket valuation of environmental resources: An interpretive appraisal. *Land Economics*, pp. 1-26.

Smith, F. G., Debruine, L. M., Jones, B. C., Krupp, D. B., Welling, L. L. M., & Conway, C. A. (2009). Attractiveness qualifies the effect of observation on trusting behavior in an economic game. *Evolution and Human Behavior*, *30*(6), pp. 393–397.

State Forestry Department of Perak Annual Report (2015). Retrieved May, 29, 2017 from http://www.perakforestry.gov.my/index.php/en/pusat-sumber/terbitan-jpnpk/laporan-tahunan-2015.html.

Stoeckl, N., & Mules, T. (2006). A travel cost analysis of the Australian Alps. *Tourism Economics*, *12*(4), pp. 495-518.

Stynes, D. J., Peterson, G. L., & Rosenthal, D. H. (1986). Log transformation bias in estimating travel cost models. *Land Economics*, *62*(1), pp. 94-103.

Syamsul, H. M. A., (2010). *Valuing recreational benefits of Perlis State Park, Malaysia using travel cost method*. (Unpublished doctoral dissertation). Universiti Putra Malaysia, Serdang, Malaysia.

Syamsul. H. M. A., Ahmad, S., Ramachandran, S., & Mohd Rusli, Y. (2013). Recreational economic value of the Perlis State Park, Malaysia: An application of zonal travel cost model. *Pertanika Journal of Tropical Agricultural Science, 36*(S), pp. 295-310.

Taylor, J. G., & Douglas, A. J. (1999). Diversifying natural resources value measurements: The Trinity River study. *Society & Natural Resources, 12*(4), pp. 315-336.

The International Ecotourism Society (TIES). Retrieved April, 20, 2016, from http://www.ecotourism.org/what-is-ecotourism.

Timmins, C., & Murdock, J. (2007). A revealed preference approach to the measurement of congestion in travel cost models. *Journal of Environmental Economics and Management, 53*(2), pp. 230-249.

Tomlinson, P. B. (1986). *The botany of mangroves*. United Kingdom: Cambridge University Press.

Tourism Malaysia (2016). Annual Report. Retrieved June, 29, 2017, from http://www.tourism.gov.my/activities/view/tourism-malaysia-2016-annual-report.

Tourkolias, C., Skiada, T., Mirasgedis, S., & Diakoulaki, D. (2015). Application of the travel cost method for the valuation of the Poseidon temple in Sounio, Greece. *Journal of Cultural Heritage, 16*(4), 567-574.

UNWTO, S. (2016). Annual Report 2016. Retrieved December, 15, 2017, from https://www.e-unwto.org/doi/pdf/10.5555/unwtotfb0458010020122016201709.

Vannucci, M. (1997). Supporting appropriate mangrove management. *International News Letter of Coastal Management-Intercoast Network, 1*, pp. 1-3.

Vo, Q. T., Kuenzer, C., Vo, Q. M., Moder, F., & Oppelt, N., (2012). Review of valuation methods for mangrove ecosystem services. *Ecological Indicators, 23*, pp. 431-446.

Ward, F. A., & Beal, D. (2000). *Valuing nature with travel cost models*. Cheltenham, United Kingdom: Edward Elgar Publishing.

Windle, J., & Rolfe, J. (2013). Estimating nonmarket values of Brisbane (state capital) residents for state based beach recreation. *Ocean & Coastal Management, 85*, pp. 103-111.

Witell, L., Löfgren, M., & Gustafsson, A. (2011). Identifying ideas of attractive quality in the innovation process. *The TQM Journal*, *23*(1), pp. 87–99.

Wooi K. G., & Jin E. O. (1990). Plant biomass and nutrient flux in a managed mangrove forest in Malaysia. *Estuarine, Coastal and Shelf Science, 31* (5), pp. 519-530.

WTTC (2017). Travel and Tourism Economic Impact 2017. Retrieved June, 11, 2017, from https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2017/world2017.pdf.

WTTC (2002). Travel and Tourism Economic Impact 2017. Retrieved June, 11, 2017, from https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2017/world2017.pdf.

Zaiton, S. (2008). Willingness to Pay in Taman Negara: A Contingent Valuation Method. *International Journal of Economics and Management*, *2*(1), pp. 81-94.

Zaiton, S., Syamsul, H. M. A., Alias, R., & Mohd Rusli, Y. (2012). Willingness to pay for conservation fee at Penang National Park. *Malaysian Forester*, *75*(1), pp. 41-50.

Zaiton, S., Hazandy, A.H., & Syamsul H. M. A. (2014). Willingness to pay for the conservation fee in Kuala Sepetang: A contingent valuation method. Paper presented at International Antalya Hospitality Tourism and Travel Research conference proceedings, Antalya, Turkey, 9-12 December 2014.

Zewdu, B., & Yemesrach, A. (2003). *Willingness-to-pay for protecting endangered environments: The case of Nechsar National Park. Addis Ababa*. Ethiopia: Organisation for Social Science Research in Eastern and Southern Africa.

Zikmund, W.G., Barry, J. B., Jon, C. C., & Mitch, G. (2009). *Business Research Methods, 8e*. United States: South-Western College Pub.