



UNIVERSITI PUTRA MALAYSIA

***A CHOICE EXPERIMENT TO ESTIMATE VISITOR PREFERENCES FOR
ECOTOURISM ATTRIBUTES AT KENYIR LAKE, MALAYSIA***

WAN NORHIDAYAH W MOHAMAD

FEP 2013 8



A CHOICE EXPERIMENT TO ESTIMATE VISITOR
PREFERENCES FOR ECOTOURISM ATTRIBUTES
AT KENYIR LAKE, MALAYSIA

WAN NORHIDAYAH W MOHAMAD

MASTER OF SCIENCE

UNIVERSITI PUTRA MALAYSIA

2013



**A CHOICE EXPERIMENT TO ESTIMATE VISITOR PREFERENCES FOR
ECOTOURISM ATTRIBUTES AT KENYIR LAKE, MALAYSIA**

By

WAN NORHIDAYAH W MOHAMAD



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

March 2013

COPYRIGHT

All material contained within the thesis, including without limitation text, logos, icons, photographs and all other artwork, is copyright material of Universiti Putra Malaysia unless otherwise stated. Use may be made of any material contained within the thesis for non-commercial purposes from the copyright holder. Commercial use of material may only be made with the express, prior, written permission of Universiti Putra Malaysia.

Copyright © Universiti Putra Malaysia



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

**A CHOICE EXPERIMENT TO ESTIMATE VISITOR PREFERENCES FOR
ECOTOURISM ATTRIBUTES AT KENYIR LAKE, MALAYSIA**

By

WAN NORHIDAYAH W MOHAMAD

March 2013

Chairman : Associate Professor Alias Radam, PhD

Faculty : Economics and Management

Kenyir Lake is one of the popular ecotourism destinations in Malaysia which offers spectacular scenic beauty to the visitors. Water transportation is the main method of travel here and the popular water transportation is the house boat service. Tourism industries at Kenyir Lake generate large financial income from house boat attractions, and therefore improvement of these services and the determination of relevant policies for management and maintenance are vital for future development.

The objectives of this research are to evaluate the attitude and perception of the visitors towards the recreational aspects of Kenyir Lake and to evaluate the visitors' preferences for house boat services attributes at Kenyir Lake. Data was obtained by using questionnaires as part of a face-to-face interview with the visitors who rented house boats during their vacation at Kenyir Lake. A total of 285 respondents were interviewed over

January to March 2012. The results show that most of the visitors are satisfied with the ecotourism resources and services at Kenyir Lake. Many of them are first time visitors to the lake while the rest have visited more than once.

The data was analysed by using descriptive analysis and the choice experiment method (CE). Descriptive analysis is used to analyse the socio-economic profile of the visitors and the attitude and perception of the visitors towards the ecotourism services at Kenyir Lake. The visitors' preferences for house boat services were estimated by using a Choice Experiment. In the CE part, five categories of non-market values of house boat services were defined including: tourist guide, safety equipment, communication system, activity packages and extra package prices.

The results demonstrated the respondents positive willingness to pay (WTP) for three attributes of house boat services, namely the tourist guide, safety equipment and premium package activities with averages of WTP of 8.98%, 23.85% and 26.8% respectively. These findings indicate that respondents are willing to pay for an improvement from the status quo to a better level of services. The findings of this study may guide and assist policy makers, authorities and local managers to better consider the consequences of maintaining the current condition of the services provided to the visitors.



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

**KAEDAH EKSPERIMENT PILIHAN UNTUK MENGANGGARKAN
KEUTAMAAN PENGUNJUNG BAGI ELEMEN EKOPELACONGAN DI TASIK
KENYIR, MALAYSIA**

Oleh

WAN NORHIDAYAH W MOHAMAD

Mac 2013

Pengerusi : Professor Madya Alias Radam, PhD

Fakulti : Ekonomi dan Pengurusan

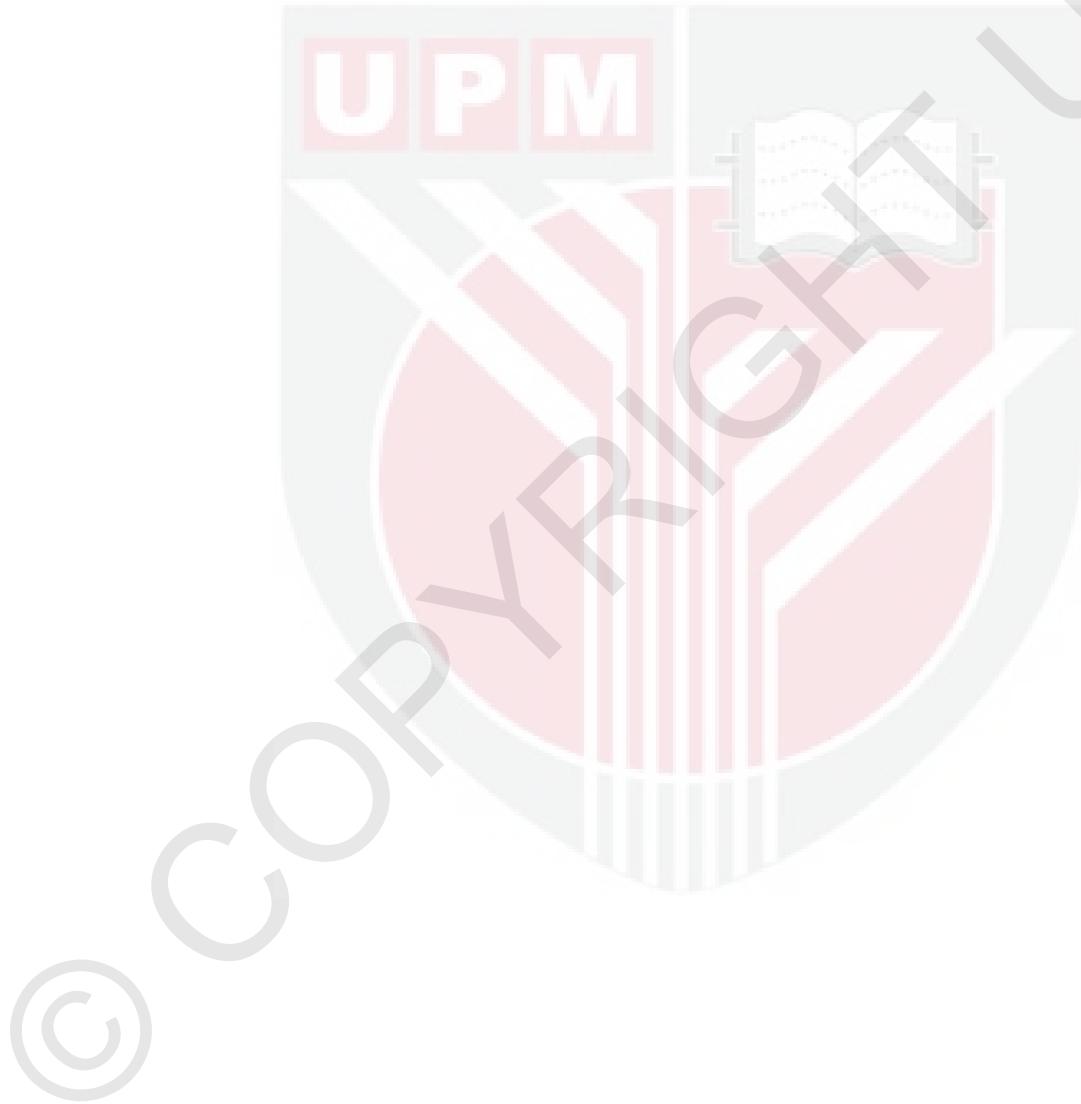
Tasik Kenyir merupakan salah satu kawasan ekopelancongan terkenal di Malaysia yang menawarkan keindahan pemandangan yang menakjubkan kepada pengunjung. Pengangkutan air merupakan kaedah pengangkutan utama di sini dan pengangkutan air yang popular adalah rumah bot. Sektor pelancongan di Tasik Kenyir telah menjana pendapatan yang lumayan daripada tarikan perkhidmatan rumah bot. Oleh itu, penambahbaikan dalam perkhidmatan dan penentuan dasar-dasar yang berkaitan untuk pengurusan dan penyelenggaraan adalah penting untuk pembangunan di masa depan.

Objektif kajian ini adalah untuk menilai sikap dan persepsi pengunjung terhadap aspek rekreasi dan menilai keutamaan pengunjung bagi elemen atau sifat-sifat perkhidmatan rumah bot di Tasik Kenyir. Data diperolehi dengan menggunakan soal selidik dalam temubual bersemuka dengan pengunjung yang menyewa rumah bot sepanjang percutian mereka di Tasik Kenyir. Sebanyak 285 responden telah ditemubual daripada bulan Januari hingga Mac 2012. Hasil kajian menunjukkan kebanyakan pengunjung berpuas hati dengan sumber dan perkhidmatan ekopelancongan di Tasik Kenyir. Kebanyakan pengunjung pertama kali melawat Tasik Kenyir manakala selebihnya telah melawat lebih daripada sekali.

Data dianalisis dengan menggunakan analisis deskriptif dan Kaedah Eksperimen Pilihan (CE). Analisis deskriptif digunakan untuk menganalisis profil sosio-ekonomi pengunjung serta sikap dan persepsi pengunjung terhadap perkhidmatan ekopelancongan di Tasik Kenyir. Manakala keutamaan pengunjung untuk perkhidmatan rumah bot telah dianggarkan dengan menggunakan kaedah eksperimen pilihan. Di dalam bahagian CE, lima kategori nilai bukan pasaran rumah bot didefinisikan termasuk: pemandu pelancong, peralatan keselamatan, sistem komunikasi, pakej aktiviti dan tambahan pakej harga.

Keputusan menunjukkan kesanggupan membayar (WTP) pengunjung adalah positif untuk tiga elemen rumah bot, iaitu pemandu pelancong, peralatan keselamatan dan pakej aktiviti premium. Purata-purata kesanggupan membayar adalah 8.98%, 23.85% dan 26.8% untuk pemandu pelancong, peralatan keselamatan dan pakej aktiviti premium.

Penemuan ini menunjukkan bahawa responden bersedia untuk membayar peningkatan dari status quo ke tahap perkhidmatan yang lebih baik. Kesimpulannya, hasil daripada kajian ini mungkin boleh membantu penggubal dasar, pihak berkuasa dan pengurus tempatan ke arah pertimbangan yang lebih baik berdasarkan keadaan semasa perkhidmatan yang disediakan kepada pengunjung.



ACKNOWLEDGEMENTS

First and foremost, my praise to Allah S.W.T, the most Gracious and Merciful, for giving me the strength and determination to finish this thesis, and for blessing me with patience, courage, consistency and good health during this study.

I wish to thank all those who made the completion of this study possible, specifically, Associate Professor Dr Alias Radam, my supervisor, who provided guidance, support, and a lot of understanding during this process. His calm, positive attitude and his guidance through regular progress meetings are most appreciated. I would also like to take this opportunity to thank my committee member, Dr Mohd Rusli Yaacob for his invaluable suggestions, time and support and for being very helpful to me.

Special thanks go to En. Mohd Faiq, Assistant Manager of Tourism and Kenyir Lake Development, the house boat operators and the local residents for supporting me and offering a helping hand. Without their help and co-operation, the data collection would have been difficult, as well as time and cost consuming.

Most importantly I would like to express my deepest thanks to my lovely husband and my dearest family for their constant support, encouragement and motivation during my study. Thank you for all the patience, care and sacrifices you made for me. I also wish to express my sincere thanks to all the friends, lecturers and staff at the Faculty of Economics and Management, Universiti Putra Malaysia for their advice and invaluable suggestions.

I certify that a Thesis Examination Committee has met on 29 March 2013 to conduct the final examination of Wan Norhidayah Binti W Mohamad on her thesis entitled “A Choice Experiment To Estimate Visitor Preferences For Ecotourism Attributes At Kenyir Lake, Malaysia” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

Members of the Thesis Examination Committee were as follows:

Shaufique Fahmi Ahmad Sidiqe, PhD

Senior Lecturer

Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

Khalid Abd. Rahim, PhD

Professor

Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

Zaiton Samdin, PhD

Associate Professor

Faculty of Forestry
Universiti Putra Malaysia
(Internal Examiner)

K. Kupperan Viswanathan, PhD

Professor

Faculty of Economics
University Utara Malaysia
(External Examiner)

NORITAH OMAR, PhD

Associate Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 23 May 2013

This thesis was submitted to the Senate of 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 follows:

Alias Radam, PhD

Associate Professor

Faculty of Economics and Management

Universiti Putra Malaysia

(Chairman)

Mohd Rusli Yaacob, PhD

Senior Lecturer

Faculty of Environmental Studies

Universiti Putra Malaysia

(Member)

BUJANG BIN KIM HUAT, PhD

Professor and Dean

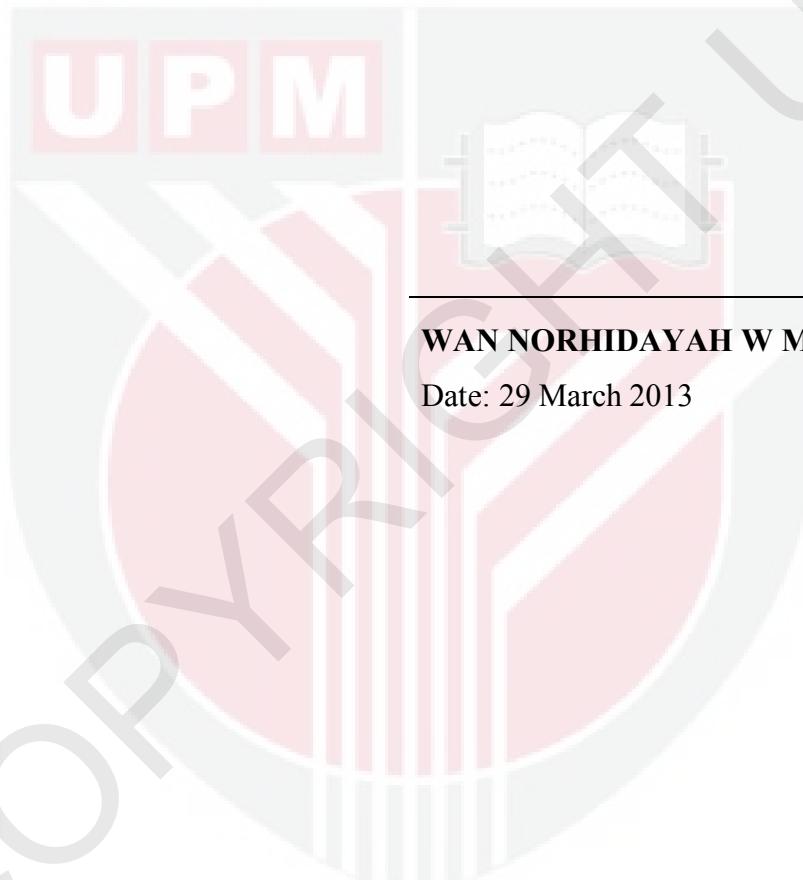
School of Graduate Studies

Universiti Putra Malaysia

Date:

DECLARATION

I declared that the thesis is my original work except for quotation and citations which have been duly acknowledged. I also declared that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.



WAN NORHIDAYAH W MOHAMAD

Date: 29 March 2013

TABLE OF CONTENTS

	Page
ABSTRACT	ii
ABSTRAK	iv
ACKNOWLEDGEMENT	vii
APPROVAL	viii
DECLARATION	x
LIST OF TABLE	xiv
LIST OF FIGURE	xvi
LIST OF ABBREVIATIONS	xvii
CHAPTER	
1 INTRODUCTION	
1.1 Tourism in Malaysia	1
1.2 Ecotourism in Malaysia	5
1.3 Ecotourism in Terengganu	8
1.4 Problem Statement	11
1.5 Objectives of Study	15
1.6 Significance of Study	15
1.7 Organization of Thesis	16
2 THE BACKGROUND OF KENYIR LAKE	
2.1 Introduction to Kenyir Lake	18
2.2 The Attractions of Kenyir Lake	21
2.3 The Accommodation at Kenyir Lake	24
2.4 Management of Kenyir Lake	25
2.5 House Boat Information at Kenyir Lake	26
2.6 Summary	27
3 LITERATURE REVIEW	
3.1 Ecotourism	28
3.1.1 Concept and Definition	28
3.1.2 Impact of Ecotourism	31
3.2 Measuring Environmental Value	33
3.2.1 The Hedonic Pricing Method	35
3.2.2 The Travel Cost Method	35
3.2.3 The Contingent Valuation Method	36
3.2.4 The Choice Modeling Method	37
3.3 Choice Modeling Alternatives	38
3.3.1 Contingent Ranking	39
3.3.2 Contingent Rating	40
3.3.3 Paired Comparison	40

3.3.4	Choice Experiment	41
3.4	Welfare Measurement	44
3.5	Related Previous Studies	49
3.6	Summary	51

4 METHODOLOGY

4.1	Introduction	52
4.2	Analysis	53
4.2.1	Descriptive analysis	53
4.2.2	Economic Valuation Analysis	53
4.3	Source of Data	54
4.3.1	Sample size	55
4.3.2	Study Area	57
4.4	Pilot Test	58
4.5	Choice Experiment Questionnaire Design	59
4.5.1	Choice of Attributes and Levels	60
4.5.2	Experimental Design	65
4.5.3	Construction of the Choice Set	66
4.5.4	Example of Questionnaire	68
4.6	Derivation of Conditional Logit Model	70
4.6.1	The Limitations of Conditional Logit Model	76
4.7	Derivation of Mixed Logit Model	77
4.8	Summary	80

5 RESULTS AND DISCUSSION

5.1	Descriptive Analysis	82
5.1.1	Socio-Economic Profile of the Respondents	82
5.1.2	Visitors' Attitudes and Perception	91
5.1.2.1	Resources at Kenyir Lake	93
5.1.2.2	Interesting Activities around Kenyir Lake	93
5.1.2.3	Facilities at Kenyir Lake	94
5.2	Choice Experiment Analysis	95
5.2.1	Descriptive Analysis of the Main Attributes	96
5.2.2	The Simple Conditional Logit Model	98
5.2.3	The Final CL Interaction Model Results	99
5.2.4	The Simple Mixed Logit Model	103
5.2.5	Results for the Final ML Interactions Model	106
5.2.6	Marginal Willingness to Pay	108
5.2.6.1	Marginal Value for Conditional Logit Model	109
5.2.6.2	Marginal Value for Mixed Logit Model	110
5.2.6.3	Effects of Marginal Values	112
5.3	The Odds Ratios	117
5.4	Summary	119

6 SUMMARY AND CONCLUSIONS

6.1	Summary	121
6.2	Policy Implications	125
6.3	Limitations of the Study	127
6.4	Suggestions for Future Research	128
6.5	Conclusions	130

REFERENCES

131

APPENDIX A

143

BIODATA OF STUDENT

156