UNIVERSITI PUTRA MALAYSIA

RECREATIONAL AND CONSERVATION BENEFITS AT THE KAPAR BIRD SANCTUARY, SELANGOR, MALAYSIA

SEDDIGHEH ARAB AMIRY

FEP 2009 1

RECREATIONAL AND CONSERVATION BENEFITS AT THE KAPAR BIRD SANCTUARY, SELANGOR, MALAYSIA

By

SEDDIGHEH ARAB AMIRY

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

July 2009

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

RECREATIONAL AND CONSERVATION BENEFITS AT THE KAPAR BIRD SANCTUARY, SELANGOR, MALAYSIA

By

SEDDIGHEH ARAB AMIRY

July 2009

Chairman : **Mohd Rusli Ya'cob, PhD**

Faculty : **Economics and Management**

This study is done to determine willingness to pay (WTP) of recreational resources in Kapar Bird Sanctuary. The relevant values are estimated by utilizing dichotomous choice form of contingent valuation method (CVM). The logit models are used to analyze the data collected using the dichotomous choice survey design. The open-ended question is used to induce respondents to state their true WTP, and the OLS model is employed to determine the WTP values.

On one hand ash produces in the process of electricity production may have pollution on environment on the other hand these are chosen by birds as sanctuary. Now should area be preserved as sanctuary or yet to be exploited for short- term profits. Perhaps economic valuation is one way that this area properly expressed in monetary units, but

economic valuation of KBS that have no market, no entrance fee to be charge and have intrinsic value may problems arise.

For the purpose of this study the population consists of the residents of Kapar town and the visitors to the recreational site, making a total sample size of 440 that was exactly a split. They were asked their WTP for the conservation of KBS as an excitement place for recreation site. As it is customary to do in most CVM studies, positive respondents with respect to sample groups i.e. among the local residents, 208 of them are selected as respondents, the number of visitors in the study amounts to 198.

The results of the analyses show that the mean willingness to pay for local residents ranges from RM4.02 to RM43.23, and for visitors it ranges from RM12.06 to RM60.94. The median WTP is found to be less than the mean WTP, the median for local resident ranges from –RM21.24 to RM42.63, while for visitors it ranges from-RM 14.36 to RM41.09. The WTP estimation from the open-ended question is conditional on the dichotomous choice question. Nonetheless, the combinations of open ended and dichotomous choice model results in WTP values which meet the criteria of consistency and construct validity for CVM study.

The OLS model is employed to estimate the annual economic benefit because of the difficulties relating to econometric constraints and inconsistencies. With the local total population of 22,819, the aggregated value or benefit of the Kapar Bird Sanctuary ranges

from RM0.291 million to RM0.334 million. Using the social discount rate of 5%, the present value of the benefit is equal to RM5.823 million to RM6.672 million for the local community. If the number of visitors is assumed to the total of 1500 per year, the aggregated WTP ranges from RM0.022 million to RM0.028 million; and using the 5% social discount rate, the annual benefit ranges between RM0.447 million to RM0.550 million.

Also this study implies that non-use value should be considered in policy making associated with recreational resources. The findings of this study are important in assists policy maker in management and development of recreational sites in Malaysia.

Abstrak tesis yang dikemukakan kepada senat Universiti Putra Malaysia sebagai memenuhi sebahagian keperluan untuk Ijazah Master Sains.

FAEDAH REKREASI DAN KONSERVASI DI KAWASAN PERLINDUNGAN BURUNG KAPAR, SELANGOR, MALAYSIA

Oleh

SEDDIGHEH ARAB AMIRY

Julai 2009

Pengerusi : **Mohd Rusli Ya'cob, PhD**

Fakulti : **Ekonomi dan Pengurusan**

Kajian ini dibuat untuk menentukan kesanggupan membayar (WTP) sumber rekreasi di kawasan Perlindungan Burung Kapar. Nilai-nilai yang relevan diukur dengan menggunakan pemilihan *dichotomous* dalam bentuk kaedah penilaian kontinjen (CVM). Model-model logit digunakan untuk menganlisis data yang dikumpulkan melalui pemilihan reka bentuk tinjauan *dichotomous*. Soalan terbuka digunakan untuk mendorong responden menyatakan kebenaran WTP mereka, dan model OLS digunakan untuk menganggarkan nilai WTP.

Abu yang terhasil dalam proses pengeluaran elektrik mungkin menyebabkan pencemaran kepada persekitaran, namun burung-burung tersebut masih memilih tapak tersebut. Kini, adakah perlu kaswasan ini dilindungi sebagai sebuah santuari atau

dieksploitasi bagi kenutungan pada angka pendek. Mungkin penilaian ekonomi adalah satu cara bagi merealisasikan kawasan ini iaitu dengan memberi nilai kewangan, namum, nilai ekonomi KBS sebenarnya tiada nilai pasaran, tiada bayaran masuk dikenakan dan masalah nilai intrinsik mungkin wujud.

Bagi tujuan kajian ini, populasi sample kajian merangkumi penduduk di sekitar kapar dan pelawat ke kawasan rekreasi, iaitu berjumlah 440 responden yang merupakan sebuan pembahagian. Sebagai kebiasaan dibuat dalam kebanyakan kajian CVM responden-responden positif dengan mengambil kira kumpulan sampel responden seperti penduduk tempatan, 208 telah dipilih sebagai responden, jumlah pelawat di dalam kajian adalah 198 responden.

Keputusan analisis menunjukan purata kesanggupan membayar penduduk tempatan dari julat RM4.02 hingga RM43.23, dan untuk pelawat dari julat RM12.06 hingga RM60.94. Di dapati median WTP adalah lebih besar berbanding min WTP, median penduduk tempatan adalah dari julat –RM21.24 hingga RM42.63, manakala untuk pelawat dari julat -RM 14.36 hingga RM41.09. Anggaran WTP daripada soalan terbuka adalah bersyarat pada pemilihan soalan *dichotomous*. Walaubagaimanapun, kombinasi soalan terbuka dan pemilihan model *dichotomous* dalam nilai WTP yang memenuhi kriteria ketepatan dan membina kesahihan untuk kajian CVM.

Model OLS juga digunakan untuk mengukur nilai faedah ekonomi tahunan kerana kerumitan yang berkait dengan kekangan ekonometrik dan ketidaksejajaran. Dengan jumlah populasi tempatan 22,819 orang, nilai agregat atau faedah kawasan Santuari Burung Kapar adalah dari julat RM0.291 juta hingga RM0.334 juta. Dengan menggunakan kadar diskaun sosial 5%, faedah nilai semasa bersamaan dari RM5.823 juta hingga RM6.672 juta untuk komuniti tempatan. Jika bilangan pelawat diandaikan berjumlah 1500 setiap tahun, jumlah agregat WTP adalah dari julat RM0.022 juta hingga RM0.028 juta; menggunakan 5% kadar diskaun sosial, faedah tahunan berada di antara julat RM0.447 juta hingga RM0.550 juta.

Kajian ini menunjukkan bahawa "non-use value" patut diberi pertim bangan didalam menggubal polisi yang berkaitan dengan sumber-rekreasi. Hasil kajian ini amat penting di dalam membantu penggubal polisi di dalam di dang pengurusan dan pembangunan semua tapak rekreasi di Malaysia.

ACKNOWLEDGEMENT

First and foremost, my praise to Allah Jalla Jalaloh, who blessed me with patience, courage, consistency and good health during this study; I would like to express my thanks to the chairman of my supervisory committee Dr. Mohd Rusli Bin Ya'cob. My most gratitude goes to the members of supervisory committee, Professor Dr. Ahmad Bin Shuib for his kind guidance and never ending support and also Dr. Alias Radam who continued to support and follow my progress and gave me great guidance, suggestion and encouragement; moreover, I will be indebted to Dr. Zaiton Samdin another committee member who did for me whatever she could.

I also thank the responsible staff in Kapar Power Station, especially Mr. Hj. Abd Rahman Marhaban, Chief- Executive Officer in Kapar Power Station who allowed me to have a suitable and enough time to visit and make data collection in several times and Mr. Lokman Bin Mohammad, senior engineer in Kapar Power Station; and I would like to be grateful to all visitors who helped me in collecting data.

My gratitude also goes to Tourism Center office in Kuala Lumpur that is a section of Ministry of tourism in Malaysia. The staff of this center helped me, by giving some information about all natural parks and bird sanctuaries in Malaysia. Furthermore, I should be thankful to the statistical government organization in Putrajaya for obtaining the statistical information about population of Kapar town in Kelang District, Selangor.

Moreover, I am thankful to the staff in the faculty of Economics and Management; especially Professor Dr. Khalid Abd Rahim Deputy Dean of the faculty who helped me to be able to continue this study. Not to forget I thank the library of Universiti Putra Malaysia for providing the necessary materials and allowing me to use the facilities.

My appreciation also goes to Mr. Mohd Shahmi Bin shamsouddin and his group (undergraduate students in the U.P.M) helped me in the process of collecting data and making more communication with resident people.

I would like to extend my thanks to the kind Moslem people in Kapar town and the villages around which provided me with a beautiful sense and memory by contacting them. They gave me encouragement for continuing the project.

Finally, it is needed to express the heartfelt thanks to my family for their constant support, patience, care and encouragement during the study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CVM	Contingent Valuation Method
DC	Dichotomous Choice
KBS	Kapar Bird Sanctuary
KPS	Kapar Power Station
KEV	Kapar Energy Ventures
TNB	Tenaga Nasional Berhad
MW	Mega Watts
NFI	North Forest of Iran
NOAA	National Oceanic Atmospheric Administration
OLS	Ordinary Least Square
RM	Ringgit Malaysia (Unit of current money in Malaysia)
WTA	Willingness to accept
WTP	Willingness to pay
hr	Hour

CHAPTER 1

INTRODUCTION

1.1 Background

Malaysia has a tropical climate because it is located near the equator; and also due to its position near the South China Sea. It also has abundant of rain fall and a humid climate throughout the year. This has been caused by trees that grow tall and the ground which has been wooded from vast expanses of rainforests or at least plantations. In general, Malaysia has three types of forests, including lowland rainforests, coastal mangroves and mountain forests, where it is the home to many species of exotic birdlife, which include some extremely rare ones. In addition, due to its location on the flyway path, it can introduce the birds to the lowland forests, cool hill stations and coastal mangroves. These allow Malaysia to appear as a bird watching haven and bird watching activity which is available throughout the year (About-Malaysia, 2006).

In general there are eight broad Migratory Bird Flyways in the world including, Mississippi American Flyway, Pacific American Flyway, Atlantic American Flyway, East Africa West Asia Flyway, Central Asia Flyway (covering India, Srilanka, etc), East Asia Australian Flyway and Black Sea / Mediterranean Flyway. Birds in their fly path from north to south at the East Asia Australian Flyway pass from Malaysia (Figure 1.1) (House, 2003; Ramakrishna and Li, 2004; Boere *et al.*, 2006).

Peninsular Malaysia has Thailand as its neighbor in the north and Singapore in the south. This area is 50,810 square miles (131,598 square kilometers). The majority of the economy and population of Malaysia are concentrated in this area which includes 11 states. Selangor is in the central region in Peninsular Malaysia (UNEP, 1997) (Figure 1.2). In comparison with the east coastal area, the coastal plain of the west coast of the Peninsular Malaysia is well protected from strong winds and wave erosion (Jasmi, 2003). Although the rainy season is somewhat unpredictable, the heaviest rain fall is from September to December while from December to February is a distinct monsoon in Peninsular Malaysia; In April and October migratory birds travel to Sumatra pass from west coast flyway of Malaysia (About-Malaysia, 2006).

Kapar is a town in the Kelang district in the state of Selangor in Peninsular Malaysia. Sultan Salahuddin Abdul Aziz Power Station or Kapar Energy Ventures (KEV) is a joint venture company between Tenaga Nasional Berhad (TNB) with an equity holding of 60% and Malakoff Berhad with an equity holding of 40%. This coal powered power station is located in Kapar which is not far from town. Tenaga Nasional Berhad (TNB) is the largest electricity utility company in Malaysia. Based on survey of world's top 250 Energy Company conducted by the United Stated-based Platts in Asia in the 2007, TNB ranked 32nd; Globally, Platts ranked TNB to be 42nd among the top electricity utility companies (Kapar Energy Ventures, 2007; TNB, 2008).

One of the most important sites for the migratory shorebirds is Kapar Bird Sanctuary (KBS) Ash Ponds; every year thousands of shorebirds from August to February return to coastal wetland for winter while having journeyed from the northern breeding area. The only join shorebird site network in Malaysia in 2003 is KBS (Kaat, 2004). Therefore, there is a definite need to develop, conserve and maintain the unique feature in this bird sanctuary. Hence, to avoid irrational decisions about these precious resources, a proper assessment of the environmental goods and services provided by the bird sanctuary is essential.

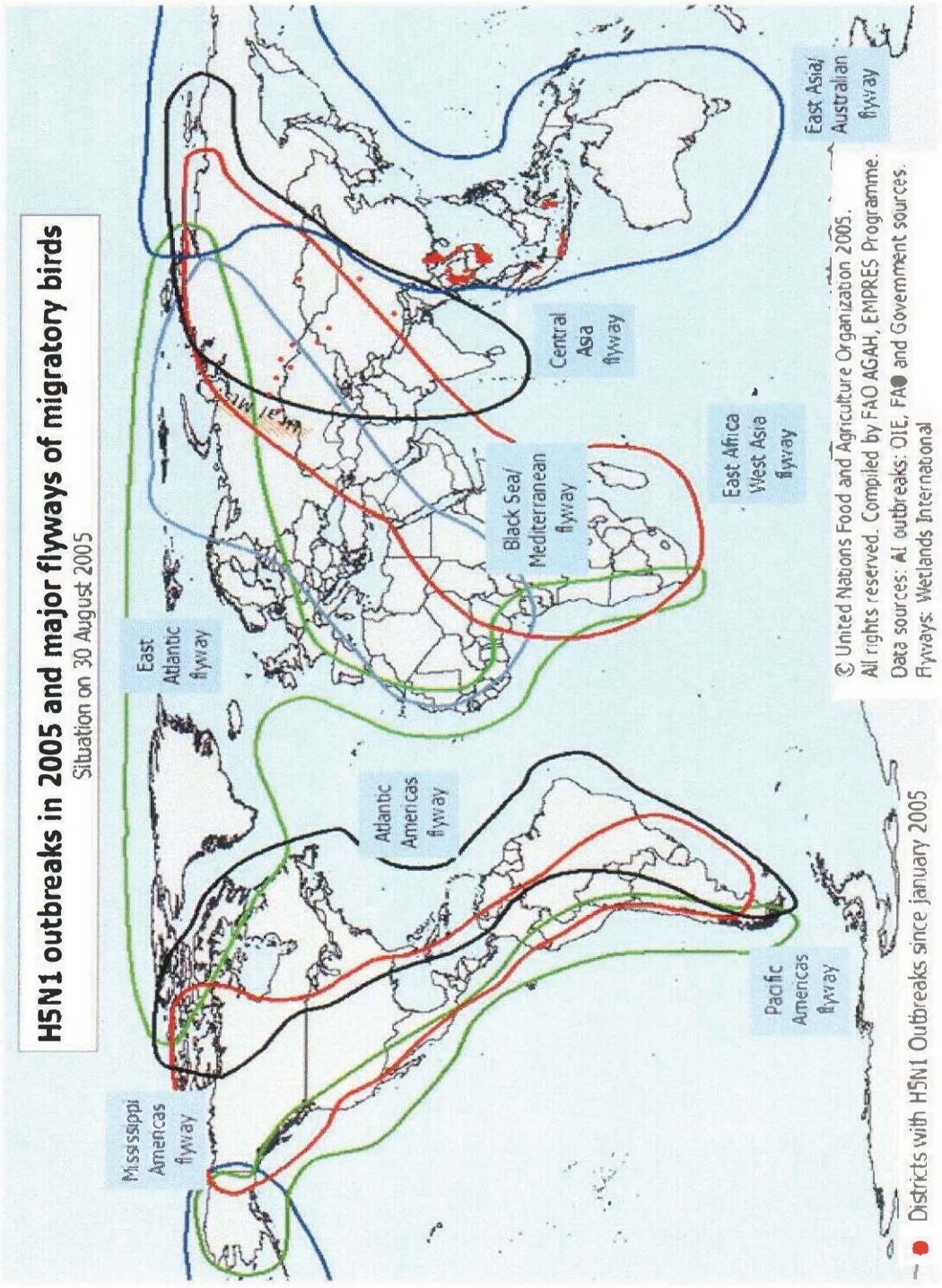

Figure 1.1: The Global Flyway Map
(Source: Ramakrishna and Li, 2004; Boere *et al.*, 2006)

Figure 1.2: The Location of Malaysia

1.2 Wildlife Conservation and Protection

Conservation is the use of natural resources for the greatest good of the greatest number for the longest time (Pinchot, 1947). Wildlife habitat is an environmental good which is known as one of the unique and non-renewable natural resources. The importance of conserving and protecting the wildlife and habitat can be viewed by the following perspectives: These resources are, generally, not only the common properties of all people, but also include the generation yet to come. Also contributing to the human welfare are the local, national and global levels such as creation of opportunities for recreation by leisure trips. Expenditure by visitors of wildlife will create connection and multiplier effects to the economy. For instance, it helps to the development of economy spending by providing returns to operators and businesses and economic sectors at the origin of the visit site. Clean water and air, scenic, historical and aesthetic value of environment are the rights of people. The government and people, as trustees of these resources, shall conserve and maintain them for the benefit of all the people of today and the future.

Many areas in Malaysia have been established as parks and wildlife reserves, so that their precious natural heritage can be safeguarded. Conservation of wildlife bird and marine life, nature reserves with natural forest management together are established through a network of protected area. Almost one and a half million hectares of conservation area are by legislation (About-Malaysia, 2006).