WILLINGNESS TO PAY FOR AN ENTRANCE FEE: A CASE OF MARDI AGRO TECHNOLOGY PARK, LANGKAWI

FAIRUZ BIN PUASA

MASTER OF ECONOMICS

UNIVERSITI UTARA MALAYSIA

February 2014

WILLINGNESS TO PAY FOR AN ENTRANCE FEE: A CASE OF MARDI AGRO TECHNOLOGY PARK, LANGKAWI

By

FAIRUZ BIN PUASA

A Project Paper Submitted to

Othman Yeop Abdullah Graduate School of Business,

Universiti Utara Malaysia,

in Partial Fulfillment of the Requirement for the Master of Economics

PERMISSION TO USE

In presenting this dissertation/project paper in partial fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this dissertation/project paper in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my dissertation/project paper. It is understood that any copying or publication or use of this dissertation/project paper parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my dissertation/project paper.

Request for permission to copy or to make other use of materials in this dissertation/project paper in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business

Universiti Utara Malaysia

06010 UUM Sintok

Kedah Darul Aman

ABSTRACT

This study assesses the Willingness to pay (WTP) for an entrance fee in MARDI Agro Technology Park, Langkawi. The main objective 1) to identify the demographic characteristics of respondent' to MARDI Agro Technology Park, 2) to estimate WTP for additional facility namely Health and Spa Centre through entrance fee, 3) to assess the differences of WTP between local and foreign visitors, 4) to identify the level of visitors' satisfaction that come to MARDI Agro Technology Park. The data were collected through questionnaire among local and foreign visitors (n = 100) separately. Contingent Valuation Method (CVM) technique was used to determine willingness to pay where the Single Dichotomous Choice Method was used to analyze data. The results of the CVM approach reveal that 59% of the foreign respondents and 56% of the local respondents were willing to pay for additional facility namely Health and Spa Centre. The bid amount and income were a common factor which influenced the Willingness to Pay of both local and foreign respondents. The researchers estimate the mean of WTP for local and foreign visitors are which additional for entrance fee is RM6.35 and RM7.20. Finally, the study yields several recommendations for development and improvement of available facilities and service those involved in MARDI Agro Technology Park. The study also proves that an increment of budget outlays for construction Health and Spa Centre is feasible while providing forums to communicate with regulatory bodies to maximize the revenue and visitor attraction in future generation

KEYWORDS: contingent valuation method (CVM), Health and Spa Centre, willingness to pay (WTP), MARDI Agro Technology Park

ABSTRAK

Kajian ini menilai kesanggupan membayar (WTP) untuk bayaran masuk di Taman Agro Teknologi MARDI. Objektif utama 1) untuk mengenalpasti ciri-ciri demografi respondent di Taman Agro Teknologi MARDI, 2) menilai WTP untuk penambahan kemudahan yang dinamakan Pusat Kesihatan dan Spa melalui bayaran masuk, 3) menilai perbezaan WTP antara pelancong tempatan dan asing dan menilai tingkat kepuasan pelancong yang datang ke Taman Agro Teknologi MARDI. Data dikumpul dengan kaji selidik antara pengunjung tempatan dan asing (n = 100) secara berasingan. Teknik Kaedah Penilaian Kontingen (CVM) telah digunakan untuk menentukan kesanggupan membayar di mana Kaedah Pilihan Dikotoni Tunggal (*Single Bounded Dichotomous Choice Model*) digunakan untuk menganalisis data. Hasil pendekatan CVM mendedahkan bahawa 59% daripada responden asing dan 56% daripada responden tempatan bersedia membayar untuk pembinaan Pusat Kesihatan dan Spa. Jumlah tawaran dan pendapatan merupakan faktor utama yang mempengaruhi Kesanggupan Membayar (WTP) untuk responden tempatan dan asing. Penyelidik menganggarkan min WTP bagi pelancong tempatan dan asing untuk penambahan bayaran masuk-masuk kira-kira RM6.35 dan RM7.20. Akhir sekali, kajian ini menghasilkan beberapa cadangan untuk pembangunan dan penambahbaikan kemudahan dan perkhidmatan yang sedia ada di Taman Teknologi Agro MARDI. Kajian ini juga membuktikan bahawa peningkatan perbelanjaan bajet untuk pembinaan Pusat Kesihatan dan Spa boleh dilaksanakan sambil menyediakan forum untuk berkomunikasi dengan badan-badan peraturan untuk memaksimumkan hasil dan tarikan pengunjung pada generasi akan datang.

.KATA KUNCI: kaedah penilaian kontingen (CVM), Pusat Kesihatan dan Spa, Kesanggupan membayar (WTP), Taman Agro Teknologi MARDI.

ACKNOWLEDGEMENTS

Assalamualaikum Warahmatu'llahi WaBarakatuh.

Dengan nama Allah Yang Maha Pemurah Lagi Maha Mengasihani.

Alhamduliilah Was Salatu Was-salam 'ala Rasulillah Wa 'ala 'ahlik Wa Sabbihiajma'in

Alhamdulillah. Firstly, I am most thankful and grateful wish to the almighty Allah S.W.T in allowing and gave the strength in the preparation and successfully of this project paper on time it submitting.

Secondly, I would like to express my greatest appreciation and gratefulness to my supervisor, Dr. Siti Aznor binti Haji Ahmad for her interest, invaluable advise, comment and guidance during preparation and completion of this project paper.

Special appreciation to both of my lovely parents, Puasa bin Ibrahim and Norjanbi binti Mohd Rawter for their support and motivation that enable complete this project paper.

I am also indebted to MARDI Agro Technology Park especially to the visitors for giving the help and experience for my research. Thank you also for the management at MARDI Agro Technology Park especially Mr Hashim bin Mat as a station manager and Mr Abdul Kadir bin Din as tourism supervisor in MARDI Agro Technology Park and Langkawi Development Authority (LADA) for their help in collecting the data and information for my research.

Finally, I would like express my gratitude to all friends for the co-operation and moral support in making this project paper possible. May Allah bless all of us

Wassalam

TABLE OF CONTENTS **PAGE**

CHAPTER 5: EMPIRICAL RESULT

LIST OF TABLE **PAGE**

LIST OF FIGURE **PAGE**

LIST OF ABBREVIATIONS

CVM: Contingent Valuation Method

WTP: Willingness to Pay

WTA: Willingness to Accept

LADA: Langkawi Development Authority

MARDI: Malaysian Agricultural Research and Development Institute

IAT: Institute of Animal Technology

GDP: Gross Domestic Product

EV: Equivalent Variation

ES: Equivalent Surplus

CV: Compensating Variation

CS: Compensating Surplus

USD / US$: United State Dollar

OE: Open Ended

DCS: Discrete Choice Single

DCM: Discrete Choice Multiple

PC: Payment Card

TEV: Total Economic Value

RM: Ringgit Malaysia

MPA: Marine Protected Area

VND: Vietnamese Dong

RP: Rupiah

TNGP: Taman Negara Gunung Gede Panegrango, Indonesia

SPSS: Statistical Package for the Social Science

LBD: Log Bid Amount

CHAPTER 1

INTRODUCTION

1.1 Background of study

MARDI Agro Technology Park, Langkawi is the government agency which functions as a centre for technology transfer and information dissemination for the Malaysian agro-industry. Currently, it functions as an agro tourism place and is an example of one of the parks that is most often associated with open spaces. Open spaces, by definition are areas of land that are put aside for multiple reasons including for recreational purposes (Gibberd, 1982; Elliot, 1988)

In 1928, the United States of America defined a park as any area of land or water set aside for outdoor recreational purposes. These include both active and passive activities and at least part of this recreation is expected to come from the park's appearance. Gibberd (1982) defines a park as an enclosed piece of ground, within or near a city or town, ornamentally laid out and devoted to public recreation. Meanwhile, Elliot (1988) describes parks as lands intended and appropriated for people's recreation by means of their rural, sylvan, and natural scenery and character. In Malaysia, parks refer to areas of open space where recreational activities are held (Town and Country Planning Department Peninsular Malaysia, 2002)

According to the National Recreation and Park Association in the United States of America, parks may be classified into four types: mini parks, neighbourhood parks;

community parks and special used parks. The features of the different categories of parks are described in Table 1.1.

Table 1.1: Classification Systems of Parks

Type of park	Target visitors	Size area	Facilities
Mini Park	To serve people who live or work within 0.4 km radius.	0.13 to 0.30 hectare	Small scales facilities for children
Neighbourhood Parks	To serve people who live or work within 0.8 km radius	0.61 to 2 hectares	Picnic areas, open grass, outdoor sports courts and sports fields.
Community Parks	To serve two or more neighbourhoods within a radius up to 5km	8.1 – 40.5 hectares (the land needed depends on the actual needs)	Facilities are provided in large scale capacity
Special Use Parks	It consists of broad ranges of parks and activities. However it must be used for a single-purpose use. The size area and facilities provided depends on the demand of parks		

Source: National Recreation and Park Association, United States of America.

Agro Technology Park or Agricultural Technology Park is categorized as a special used park based on the classification given in Table 1.1. It focuses on technological processes used in agriculture on the open space or park to create an understanding of how processes, equipment and structures are used with people, soil, plants, animals and their products to use the environment, to sustain and maintain quality of life and to promote economic, aesthetic and sound cultural values, (Doss, 2001). Agro technology

Park has been a primary factor contributing to increases in farm productivity in developing countries over the past half-century and has attracted e visitors who wish to gain knowledge about farm productivity. Although there is still widespread food insecurity, without current technology development, the situation would be much worse (Doss 2001).

In Agro Technology Park, Langkawi, researchers apply technological process to identify, investigate, design, make, evaluate and communicate by using skills to carry out practical projects, operate, repair and maintain equipment and design and construct structures in the agricultural environment as applicable to people, plants, animals, soil and their products. The Malaysian Agriculture Research and Development Institute (MARDI) has been given the task to introduce modern technologies to the industry. MARDI has helped smallholders gain access to genetically improved seeds, such as those for aerobic and hybrid rice, fruits as well as the chemicals needed to manage pests and diseases. The transfer of technology can give more the knowledge for the planting and establish Agro Technology Park.

MARDI Agro Technology Park is an example of agro tourism, which is one product of tourism that has been defined as, "an economic activity created when tourists actively seek out farms and farm products during their vacations" (Kidston, 2002). Agro tourism is a style of vacation in which hospitality is offered on farms or can be described as "the act of visiting a working farm or any agricultural, horticultural, or agribusiness operation for the purpose of enjoyment, education or active involvement in the activities of the farm operation" (Lobo, 2001). Agro tourism is also viewed as "an alternative enterprise

that links value-added or non-traditional agricultural production or marketing with travel to a farm or ranch" (Maetzold, 2002). This may include the opportunity to assist with farming tasks during the visit, described by Che et al (2003) as "any agricultural operation that caters directly to the general public with retail sales and/or the provision of services, involving food, fiber, flowers, trees, shrubs, and other farm products and conducting sales at the production location".

Agro-tourism is tourism-related activities based on crop agriculture, livestock, fisheries and Institute of Animal Technology (IAT). Focus of countries that the development of agricultural activities has opened a new chapter for agro-tourism sector in particular activities. This situation has provided employment opportunities as well as increases the income of farmers and the rural population. Among the activities in agro-tourism are visits to orchards and farms, agriculture and research centers, homestays and more.

Many new agricultural technologies have been developed over the past century. These range from techniques for modifying plants to methods of irrigation and tillage to harvesting, storage and transportation technologies. Visiting agricultural/agro technology settings for recreation is a popular and increasing activity in many countries. Despite such increased popularity, there is not a shared understanding on either a definition or an exact label of this activity. As a case in point, terms such as "agro-tourism", and "farm tourism", among others, are used interchangeably. Agro-tourism is the form of tourism which capitalizes on rural culture as a tourist attraction. It is similar to ecotourism except that its primary appeal is not the natural landscape but a cultural landscape. If the attractions on offer to tourists contribute to improving the income of

the regional population, agro-tourism can promote regional development. To ensure that it also helps to conserve diversity, the rural population itself must recognized agro-biodiversity as valuable and worthy of protection.

Willingness (and ability) to pay is the foundation of the economic theory of value. The idea is if something is worth having, then it is worth paying for. The idea extends to environmental resources like water quality and natural resources like trees. The key assumption is that environmental values are anthropogenic. Whatever people think the environment is worth is what it is worth. Economic methods can be used to attach estimates of willingness to pay to changes in the level of environmental quality and natural resource use.

1.2 Problem Statement

The tourism industry in Malaysia is expanding since 2000, as shown by the increase in income and number of tourist arrivals to Malaysia. Currently, the tourism industry is one of the catalysts for growth and a major contributor to GDP. In the period from 2000 to 2009, the number of tourist arrivals increased from 10.2 million to 23.6 million, an increase of 131%. Meanwhile, total income from the tourism industry increased from RM17 billion to RM53.4 billion during the same period, (Government of Malaysia "10th Malaysia Plan").

Langkawi Geopark is a one of the popular tourism sites in Malaysia. It receives many tourists especially from foreign countries. These tourists spend a lot of money to visit

this place. With spend a lot of money, they must satisfied and enjoy when visit Langkawi Geopark.

Table 1.2: Number of visitor in Langkawi Geopark (2005 – 2013)

Year	Total of visitor
2005	1,835,287
2006	2,161,937
2007	2,304,362
2008	2,333,098
2009	2,442,692
2010	2,498,466
2011	2,815,178
2012	3,059,070
2013	3,414,391

Sources: Langkawi Development Authority (LADA)

Langkawi Geopark receives millions of visitors every year. According to the statistics recorded by LADA, from 2005 l to 2013, there has been an increase in the number of visitors to Langkawi Geopark. In 2005, the number of visitors were 1,835,287 while in 2013 the number increased to 3,414,391, increase of 86%.

Langkawi which is also known as an agro-tourism area can attract local and foreign visitors by offering them the opportunity to explore and experience the uniqueness of rural activities. The MARDI Agro Technology Park is listed as ten most popular places for agro tourism in Malaysia. The major attractions include technology information centre, tropical fruit farms, sheltered hi-tech vegetable farms and naturally conserved surrounding areas for recreational purposes. Besides MARDI Agro Technology Park,

other agro tourism sites include Langkawi Wildlife Park, Underwater World, Hebwalk in Langkawi, Crocodile Farm, Buffalo Park, Rice Museum and Laman Padi.

MARDI Langkawi started its operation during the Sixth Malaysia Plan on August 4th, 1990 with a temporary office (store house), located in Langkawi Park,. The current administration offices opened in February 1992 and the inauguration ceremony was carried out by the head of MARDI YB Tan Sri Datuk Dr. Haji Mohd Yusuf B. Hashim on December 18th,1993. The original objective was the establishment of a horticulture unit for the production of fruits, vegetables, and flowers to cater to the needs of the population in Langkawi Island. In 1995, the station was named as Langkawi Agro Park by MARDI Director-General YB Dato Dr. Mohd Sharif B. Ahmad and thus serves as a tourism destination for agriculture.

On July 4th, 2005, the station was launched as Agro Technology Park by YB Dato Seri Haji Mohd Shariff B. Omar, Deputy Minister of Agriculture and Agro-based Industries. This puts the station as a tourism destination for agro technology. To maintain the park for agro tourism, MARDI Agro Technology Park management uses the money collected from entrance fee for visitor as RM800,000. The objectives of MARDI Agro Technology Park include (1) to attract visitors through agricultural activities programme; (2) to establish a centre for research and/or educational activities about planting; (3) to provide a sizeable green area for visitors who want to enjoy nature

In 2006, the management started to charge an entrance fee to visitors. For foreign visitors, the fee charged is RM20.00 for adults and RM10.00 for children. For local

visitors, the fee charged is only RM6.00 for adults and RM3.00 for children. MARDI Agro Technology Park is open every day from 8:15 am to 5:00 pm except on Friday. For taxi drivers and tour guides who bring foreign visitors to the park, they will be paid a commission of RM3.00 for adults and RM1.00 for children. This commission is to encourage them to bring visitors to MARDI Agro Technology Park.

Table 1.3: Statistic of visitor in MARDI Agro technology Park Langkawi

Year	Local Visitor	Foreign Visitor	Total of visitor
2006	3349	5857	9206
2007	7055	11,765	18820
2008	6966	17,156	24122
2009	8804	23,500	32304
2010	7150	37,886	45,036
2011	9117	47,236	56,353
2012	9232	51,387	60,619
2013	14,632	61,245	75,877

Sources: MARDI Agro Technology Park Langkawi

For the period 2006 to 2013, visitors to MARDI Agro Technology Park have increased from 9206 to 75877. From 2012 to 2013, there was a 25% increase in visitors. (25% increase from 2012 to 2013). These figures indicate that the presence of agro tourism in Langkawi has attracted visitors to MARDI Agro Technology Park Langkawi. This situation has encouraged the park management to think that could be used to make sure that more visitors to the park.

However, the influx of visitors to the park entails continuous effort from the management to develop and improve all available facilities and services including the

car parks, public toilets, watch tower, sales centre. They must also upgrade the landscape, technology information centre, access for disabled persons, and farm vehicles. At the same time, they have to plan for new facilities or services as well as activities to make sure that the park continues to attract visitors in the future.

When MARDI develops the Agro Technology Park, it needs to determine how much should it charge visitors to the park.. Based on the 2013 statistics , 75,877 people visited the park. Therefore, on average, the park receives 250 visitors daily. The high number of visitors implies that several issues need to be addressed. These issues are the need to develop attractive tourism products, improve the maintenance of currently available agro technology parks facilities, adding more public facilities and services to increase visitors' satisfaction, and implement continuous promotion to attract visitors in the future.

According to Rust, Moorman and Dickson (2002), price fairness is a very important issue that leads toward satisfaction. Charging fair price helps to develop customer satisfaction. Martin-Consuegra, Molina and Esteban (2007) state thata customer's decision to accept a particular price has a direct bearing on his satisfaction level and indirectly on his loyalty. Price usually has a negative relationship with a consumer's satisfaction level (Sirdeshmukh, Singh and Sabol, 2002). This means, a lower price can incur a higher consumer's satisfaction level while a higher price will result in a lower satisfaction level. According to Herrmann et al. (2007), customer's satisfaction is directly influenced by price perceptions and indirectly influenced through the perception of price fairness.

This research will discuss about the willingness to pay (WTP) of visitors to MARDI Agro Technology Park. Do they feel happy when they visit MARDI Agro Technology Park? Are those who are satisfied when they visit MARDI Agro Technology Park will spend additional money on other attraction in the park that require visitors to pay fee? This research intends to measure the willingness to pay (WTP) and determine the factors that influence visitors' perceptions toward the construction of a Health and Spa Center among visitors to MARDI Agro Technology Park. This can increase visitor attraction to come in MARDI Agro Technology Park.

1.3 Research Objective

The general aim of this study is to calculate the environmental service in MARDI Agro Technology Park, Langkawi. In this study, four specific objectives will be addressed:

i) To identify the demographic characteristics of visitors to MARDI Agro Technology Park;

ii) To estimate the WTP for an additional facility in MARDI Agro Technology Park, namely Health and Spa Centre;

iii) To assess the difference between the between local and foreign visitors' WTP;

iv) To measure the satisfaction level of visitors to MARDI Agro Technology Park.

1.4 Significance of Study

Based on the findings of this study, the researcher will know the number of visitors who are willing to pay for a hypothetical facility, namely the Health and Spa Centre. At the same time, this research wants to determine factors that affect the willingness or unwillingness to pay among visitors for the Health and Spa Centre and the development of available facilities and services in the park. This research will estimate the mean WTP of local and foreign visitors. This can help the management of the park to set the entrance fee for local and foreign visitors when adding the new facility, namely the Health and Spa Centre.

In addition, this study also evaluates visitors' satisfaction level towards the services and facilities' condition at the park. This will help the management in providing improved facilities and services to visitors with the aim of increasing the number of visitors to the park.

1.5 Scope of study

This study will be conducted in MARDI Agro Technology Park, located in Langkawi, Kedah Darul Aman. Visitors to the were selected as respondents after they have completed their recreational activities in the park. The total number of respondents selected were 200, consisting of 100 local visitors and 100 foreign visitors. The

researcher took three weeks in May 2014 to do the survey. As expected, the researcher managed to get more respondents during the weekends.

1.6 Study area

The area of the study is MARDI Agro Technology Park, situated in Langkawi Island in the State of Kedah Darul Aman. The park is located at the panoramic Gunung Raya hillside, a tropical forest adjacent to Lubuk Semilang Recreation Centre, the biggest water catchment area in Langkawi. It is 12 kilometres or 20 minutes away from Kuah Town. From the Langkawi International Airport, it is 9 kilometres or 15 minutes away. The park has 20 over species of seasonal and non-seasonal fruit trees and its controlled environment vegetable farm (hydroponics and fertigation). They are part of a high technology system being introduced at the park. In addition, an 8 hectare of undisturbed natural tropical forest is one of the tourist attractions to the park.

The park is one of ten popular destinations of agro tourism in Malaysia. Visitors have the opportunity to visit local fruits farm, herbs garden and vegetable farm, in addition to enjoying the fresh fruits and produce. There are 20 types of fruits that are planted at different maturity. The fruits are categorized into seasonal and non-seasonal varieties such as durians, rambutans, mangoes, star fruits, and grapes. The fruit orchard is the main attraction to visitors where they are allowed to pickthe fruits and experience a real farm atmosphere. In addition, the park also offers activities such as camping and jungle trekking.

Figure 1.1: Langkawi map, Resource map from Google.com

1.7 Process of study

To facilitate the flow of research, the research framework has been divided into four stages as follows:

i. Stage 1

In the first stage, an initial investigation is conducted. This includes the formation of purpose of the study, background of the study, problem statement, research objectives, research questions, scope of the study, limitations of the study and the

research methodology. Based on the initial investigation, the researcher chosed to do willingness to pay study. The location of the study was determined to be at MARDI Agro Technology Park, Langkawi Island, Kedah Darulaman.

ii. Stage 2

In the second stage, at the researcher carried out the data collection at MARDI Agro Technology Park, Langkawi These data were gathered from two sources as described below:

a) Primary Data

Most data from this study come from primary sources. A survey was conducted on visitors to the park. The survey on visitors was done based on a structured questionnaire. In addition, interviews were carried out with the management of the park and the management Langkawi Development Authority (LADA)

b) Secondary Data

In addition to primary data, the researcher also collected secondary data to strengthen and support the willingness to pay survey at the park. The secondary data came from books, magazines, newspapers, journals and the internet.

iii. Stage 3

The third stage is the process of analyzing the data and information obtained from the visitors at the park through the survey questionnaire. The data from the questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 20.0 and STATA version 12.0.

iv. Stage 4

In the last stage, the conclusions and recommendations of the study are formed. All the opinions and conclusions that have been collected from the respondents at MARDI Agro Technology Park were analyzed in this stage. From the analysis, the recommendation and conclusion about the willingness to pay at MARDI Agro Technology Park are done.

1.8 Organization of the report

This thesis will be divided into six parts. The first part is the introduction chapter describes the problem statement and objectives significance of the study; the research questions; scope of study; and process of study. In the second part is theoretical background, will represent the concepts of willingness to pay, contingent valuation method and economic valuation of environmental resources. In the third part, the literature reviews from past studies are focusing on case study carried out in Malaysia and Southeast Asia. In the fourth part is methodology chapter, this chapter will be

described the methods used to investigate, questionnaire design, data collecting procedure, data analysis such as descriptive statistics and contingent valuation method technique with single bounded dichotomous choice model . The fifth part is the results chapter; the results from empirical survey will be explained with willingness to pay among visitor. Without tourist willingness to pay, managers will not know about the quality of visitors who participate in the recreation activities. Therefore, it can become a financial burden for the park to construct a Health and Spa Centre at the park MARDI Agro Technology Park. The last part is the discussion and conclusion of this project paper.

CHAPTER 2

THEORETICAL BACKGROUND

2.1 Introduction

This chapter focuses on the literatures on the investigation of the WTP among visitors. In the theoretical background, the researcher discuss the topic relate to the concept and method analysis of willingness to pay (WTP), welfare economics and welfare management, contingent valuation method (CVM), definition of agro technology park and visitor satisfaction.

2.2 Willingness to pay (WTP)

Lusk and Hudson (2004) described willingness to pay (WTP) as the price or dollar amount that someone is willing to give up or pay to acquire a good or service. It could also be defined as the maximum amount of money that may be contributed by an individual to equalize a utility change. The WTP function identifies the price an individual is willing to pay for a given level of quality, q, given specific levels of price (P) and utility (U)

According to King and Mazzota (2005) WTP is the amount an individual is willing to pay to acquire some good or service. This may be elicited from stated or revealed preference approaches. These indicators can be used to prioritize and compare

agrotourism on the basis of their relative economic value and are based on the six factors that determine aggregate willingness to pay, which are:

a) The expected mix and level of services provided by the agrotourism;

b) The number of people who benefit from these facilities and service;

c) Their incomes;

d) Their preferences;

e) The cost of gaining/keeping access to the services; and

f) The availability and cost of substitutes

Preferences are subjective values expressed in relative terms such that one thing is deemed to be more desirable or important than another. Even through protected area's goods and services have no market prices, and no close replacements or substitutes, they frequently have a high value to people. Contingent valuation techniques refer the value that people place on goods and services by asking them their willingness to pay for them (or willingness to accept compensation for their loss) under the hypothetical scenario that they would be available for purchase. Contingent Valuation techniques are one of the few methods that can be used to assess option and existence values. One of example is Contingent Valuation was used to estimate the value of Kenya's elephants. A survey was administered to visitors to major national parks and lodges asking such as "Would you be willing to pay $100 (or more, or less) to contribute towards elephant conservation?" and "How much would the cost of your safari have to be reduced by if elephant populations decreased by a hall?" Tourist consumer surplus accruing from viewing elephants was thus calculated (Brown and Henry 1989).

In addition, the economists have decomposed the total economic value conferred by resources into three main components which are use value, option value and non-use value. Use value can be explained as the direct use of the environment resources for instance fish harvested from the sea and timber harvested from the forest. By the way, the option value means the value of people place on a future ability to use the environment or in other words the willingness to preserve an alternative to use the environment in the future even if one is not currently using it. Differs from other non-use value is common observation that people are more than willing to pay for improving or preserving resources that they will never use. The combination of all the three categories has produced the total willingness to pay (WTP).

Willingness to pay is based on the principle that the maximum amount of money an individual is willing to pay for a commodity is an indicator of the value to him or her of that commodity. It is a crucial determinant of the incentives for product innovation using emerging health information, (Unnevehr, 1999) and an important concept for benefit cost analysis.

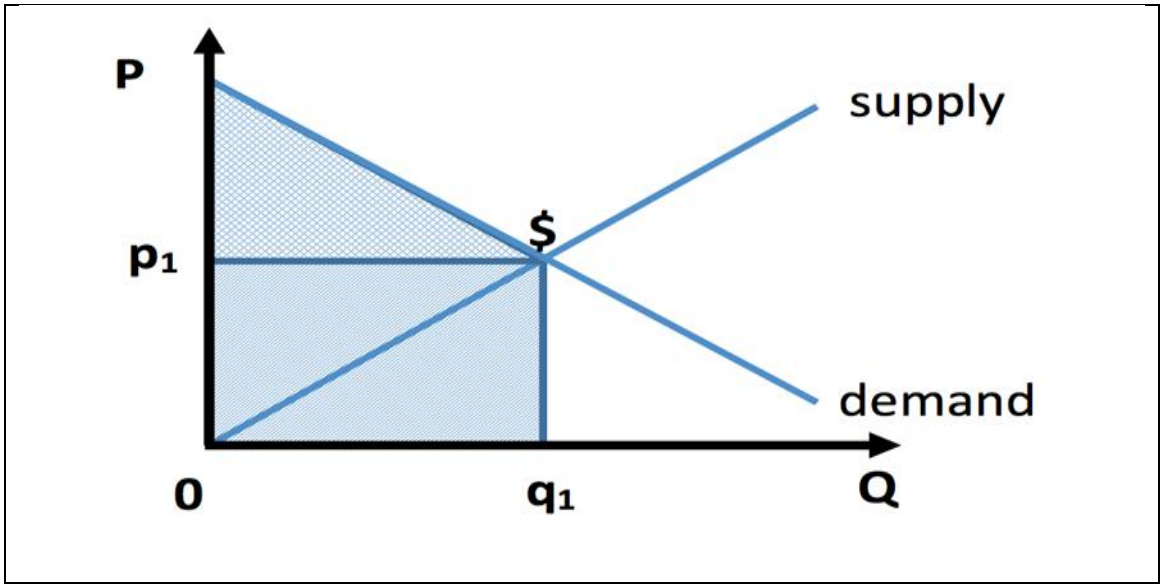
2.3 Welfare Economics and Welfare Measurement

For welfare Economics and Welfare Measurement, consumer surplus will be explained in Section 2.3.1. Section 2.3.2 and 2.3.3 discuss about the visitor satisfaction and utility theory. Section 2.3.4 discusses the axioms of choice and utility in terms of the utility function. Finally, section 2.3.5 discusses the utility maximization.

2.3.1 Consumer surplus

Consumer surplus is the difference between the value to buyers of a level of consumption of a good and the amount the buyers must pay to get that amount. Consumer surplus is the welfare consumers get from the good. The concept of consumer surplus and welfare will be illustrated using numerical examples with the aid of diagrams below

Figure 2.1: Consumer surplus



Sources: Willing (1976)

The shaded parts of the graph show consumer surplus. The market equilibrium price is P_1 at which producers are willing to sell Q_1 amount of produce and similarly consumers are willing to buy the amount. The area $P\$P_1$ is the consumer surplus, whereas $0P_1\$$ is the producer surplus. Consumers are willing to pay the area $P\$Q_10$, however, the actually payment is only $0P_1\$Q_1$ leaving a benefit for the consumers the size of area $P\$P_1$. Similarly, producers are willing to accept $0\$Q_1$ but they actually receive a size of an area $0P_1\$Q_1$, leaving a benefit of area size of $P_1\$0$. The stated gains usually vary as

the demand and/or supply changes. Mostly the gains to consumers and producers are related with the elasticity of demand and supply.

2.3.2 Visitor satisfaction

Satisfaction is primarily referred to as a function of pre-travel expectations and post-travel experiences (Pizam et. al 1978). According to Oliver (1997), satisfaction is the consumers' fulfillment response. It is a judgment that a product or services features, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under-or over fulfillment. When experiences compared to expectations result in feelings of gratification, the tourist is satisfied (Reisinger and Turner, 2003) and leave that destination with their good memory. Even, they agree to pay more for this service. However, when they result in feelings of displeasure, the tourist is dissatisfied (Reisinger and Turner, 2003). This is a reason to explain why tourism industry is determined to highlight a destination in order to enhance the satisfaction of visitors.

Pizam et.al (1978) stated that it is important to measure consumer satisfaction with each attraction of the destination, because consumer satisfaction or not with one of the attraction leads to satisfaction or not with the destination. Here, pleasurable implies that fulfillment gives or increases pleasure, or reduces pain, as when a problem in life is solved. Note that satisfaction has been explained with references to fulfillment as if this latter concept were more basic. In like manner, the notion of fulfillment requires further elaboration. More specifically, it implies that a goal exists, something to be filled. Thus,

fulfillment (and satisfaction, as explained later) can only be judged with references to a standard. The standard forms the basic for comparison.

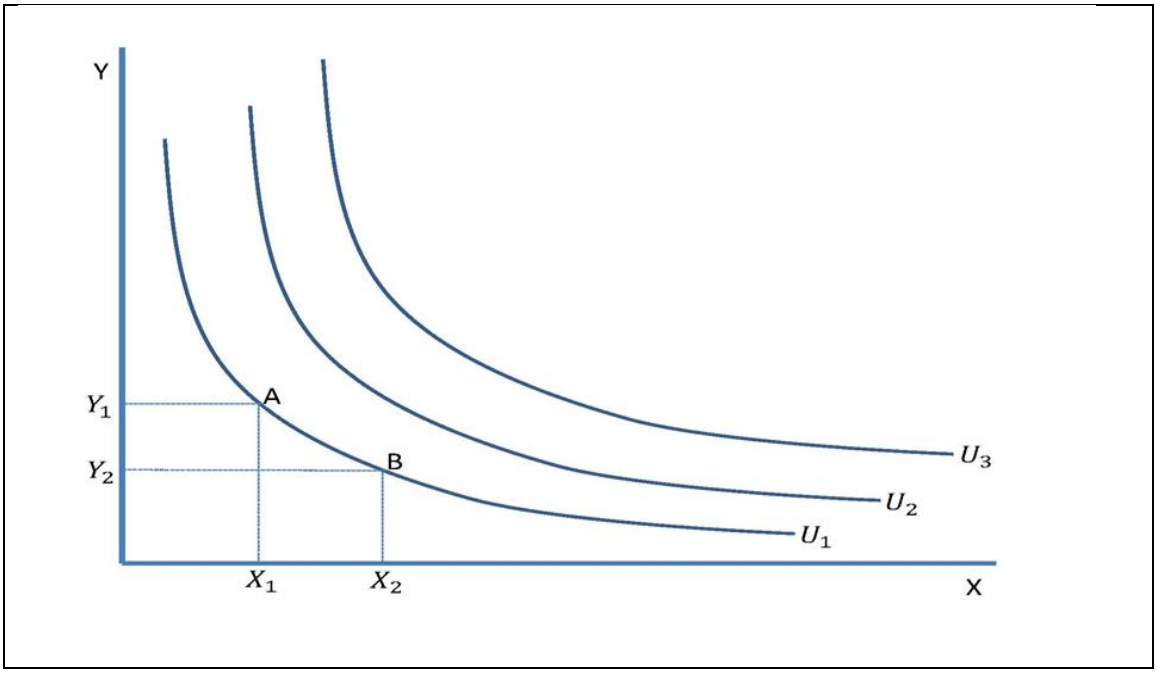
2.3.3 Utility Theory

Utility indicated the level of enjoyment or preference attached by this consumer to this market basket. Utility can defined as a property in an object which tends to produce benefit, pleasure, good and happiness (Warnock, 2003). Utility give benefits consumers obtain from the goods and services they consume. The concept of scale of preference is one concept of the utility. The consumer prefer the higher utility compare the lower utility when given two set of good such as X and Y where this example namely as a scale of preference

$$U = f\{ x, y\}$$

Indifference curve is one of the concept of a scale of preference. Indifference Curve (IC) contains points representing market baskets among which the consumer is indifferent (Lancaster, 1998). When the indifference curve rise, the utility also rises as well and vice versa where the utility in indifference curve is the same line such as figure below:

Figure 2.2: Indifference curve



Sources: Lancaster, 1998

The graph show that only two good available: X and Y. Point A shows the consumption bundle consisting X_1 and Y_1. Moving from point A to point B, we are willing to give up ($Y_1 - Y_2$) to get X_2. Total utility is the same at point A and point B. Combination of goods along an indifference curve reflect a constant level of total utility. Each indifference curve represents a different level of utility. Each consumer has a unique indifference map based on their preferences. Curves further from the origin represent higher levels of utility. Total utility along U_2 higher than along U_1 and U_3 higher than along U_2.

2.3.4 Axioms of Choice

There are six axioms to be discussed: (1) reflexivity; (2) completeness; (3) transitivity; (4) continuity; (5) non – satiation; (6) convexity (Dealton and Muellbaucer, 1980). For this purpose, the symbol ≥ is used to mean at least as good as', and the symbol – as indifferent to. While subscripts on a vector such q_1 refers to a vector of commodity 1. Any good can be characterized as a bundle of its attributes (Lancaster, 1966).

Axioms 1: Reflexivity

Each bundle is as good as itself. For instance, for any good q, q ≥ q. this axioms is less important if a choice is properly defined (Dealton and Muellbaucer, 1980)

Axioms 2: Completeness

This axiom explains that consumers can compare any two bundlesin the economy, $q_1 \geq q_j$ or $q_j \geq q_i$. to reiterate, when facing a set of choices consumers can decide which bundles they prefer or which bundles they are indifferent to (Johansson, 1991)

Axioms 3: Transitivity

The third axiom is that preferences on bundles are transitive. If $q_1 > q_2$ and $q_2 > q$, then $q_1 > q_3$ (Russell and Wilkinson, 1979). This axiom is also known as the consistency axiom because it tests whether or not consumers behave in a consistent manner.

Axioms 4: Continuity

The following axiom explains that two bundles of goods in the economy are close to each other. For example, if $A(q_1) = (q \; I \; q \geq q_1)$ and $B(q_1) = (q_1 \; I \; q_1 \geq q)$; it explains that one bundle shares its boundaries with another bundle (Deaton and Muellbaucer, 1980).

Axioms 5: Non – satiation

This axiom explains that the utility received by consumers from a commodity increases if the commodity increases. This happens because the more consumers perceive that they have of those goods, the more satisfied they are (Johansson, 1991).

Axioms 6: Convexity

Based on the neo – classical assumption, convexity explains that the choice exhibits diminishing marginal rates of substitution (MRS) (Varian, 1992). The concept of MRS will be explained in the following sections. With the explanation of these axioms utility theory can be presented in terms of the utility function.

2.3.5 Utility Function

The existence of the utility function is subject to the axioms of choice because the latter is a sufficient condition for the former (Johansson, 1987). Utility function is defined with reference to consumption during a period of time (Henderson and Quandt, 1980). Graphically, the simple case of the consumer purchase behavior is only based on two commodities that are good X and Y and general form of utility function can be shown by

U(x,y). The level of satisfaction consumed of the goods depends on length of period the consumer consume the combination of goods.

Therefore, the ordinal utility function is:

$$U = f (q_1 , q_2)$$

However, they are other factors each as freedom and capabilities that will go into the utility function. Freedom is the ability to have a quality of life (Sen, 1999). Freedom is needed to enhance the ability to help individual to be social effective. Freedom encompasses fulfilling material and spiritual needs. Capabilities focus on what a person is able to do have a good life. Deprivation of capabilities will lead to poverty.

2.3.6 Utility Maximization

A rational consumer will maximize his or her utility. He or she will purchase the combination of q_1 and q_2 to maximize his level of satisfaction. However, the income or resources that be has is limited. Therefore, the consumer's budget constraint is:

$$y^0 = p_1q_1 + p_2q_2$$

where:

y^0 = fixed income

p_1 = price of product q_1

p_2 = price of product q_2

2.3.7 Theory of Welfare Economics

Measurement of economic welfare through consumer surplus was proposed by Marshall's consumer where is more popular. The Marshallian curve is based on a smooth demand function. The Marshallian demand function explains that the quantity demanded for a good is a function of its price and consumers' income levels. According to Marshall, the demand curve will be derived by connecting points for goods where consumer maximize their utility levels without considering changes in income. Hence, Marshall's demand curve does not allow income to change to compensate for changes price. This is a reason why Marshall's demand function is known as uncompensated demand function. This function has combined together the effect of price and income changes. The differences between the uncompensated Marshallian demand curve and the price line that consumer pay is identified as the consumer surplus.

Consumer utility also divided by Hicksion where two types of welfare measurement when utility is constant at some specified alternative level: Equivalent Variation (EV); and Equivalent Surplus (ES). The analyst also suggested two types of measurement when utility is constant at the initial level; Compensating Variation (CV); and Compensating Surplus (CS) (Mitchell and Carson, 1989).

In Hicksion analysis, the difference between Variation and Surplus is due to the limitation of the quantity of goods that consumers can buy in the market. Mitchell and Carson (1989) suggested using Hicksian Variation if the consumer is free to buy any quantity of goods in the market. Otherwise, Hicksian Surplus should be used.

Since consumers are free to buy any quantity of goods, Hicksian Variation is appropriate for the analysis of any potential benefits. Benefits have the potential to increase or decrease. If consumers are willing to obtain an increase in benefits, they have to pay for it (WTP or EV). Otherwise they would rather to receive compensation (WTA or CV) if they are willing to allow a decrease in benefits (Mitchell and Carson, 1989).

To reiterate, EV is the amount of money that must be taken away from consumers to restore their original utility after a price has been reduced (Johansson, 1987). CV refers to the amount of money that must be given to consumers to restore their original utility after a price has been increased (Johansson, 1987).

The paper on welfare measurement by Willig (1976) recommended a solution to the issues of WTP and WTA. In this paper, the author aims to determine the value of error bounds when the Marshallian consumer surplus is used as a proxy to WTP or WTA (Johansson, 1987). Willig found that the Marshallian consumer surplus lies between WTP and WTA (Mitchell and Carson, 1989). The author also demonstrated that the difference between WTP and WTA is not apparent.

2.4 Economic Valuation of Environmental Resources

In environmental valuation, two techniques emerge that are use value and non-use value where can be distinguished through the either placing direct (receiving or avoiding) or

indirect use value. It also classified into two categories that are use value or non-value, as shown the table 2.1:

Table 2.1: Types of environmental values

	Use Values (Consumption of commodities)			Non-Use Values (Non-consumption of commodities)	
	Present Use Value		Future Use values		
Name	Direct use value	Indirect use values	Optional use values	Bequest values	Existence values
Description	Generated by direct consumption of commodities	Generated by indirect consumption of commodities	Generate by option to consume commodities directly or indirectly in future	Generate by conserving of consumption opportunities for future generations	Generated by preserving existence of biological resource from ethical viewpoint
Examples	Food, fiber, timber, recreation	Maintenance of ecological systems	Use of genes in increasing future agricultural productivity	Preserving unique habitats, species	Preserving endangered habitats, species

Source: adapted from Gotoh and Ahmed (2006)

As a name entails, use value mean as the value that individuals place on environmental goods and service they actually consume such as bird watching, hunting and fishing while non-use value referred to value that is no associated with the actual consumption

of the environmental goods and services. From the table above, use value include direct, indirect, option, bequest and existence. Direct use values contribute to consumer satisfaction or producer profits. For example, a restored wildlife preserve along a river creates values for those who visit the site to view wildlife or those who harvest natural products such as barriers and fish to be sold to others. Indirect use values are those that contribute to production or consumer utility by supporting other direct activities or avoiding damages to those direct activities. For example, if the restored wildlife area also acts as a temporary floodwater storage site, then flood damage to damage to downstream residential and commercial properties can be reduced. Option values are the value that people place on having the ability to enjoy something in the future, even though they may not currently use it. For example, a resident in a nearby community may not currently visit the restored wildlife area, but may plan to do so in the future. Bequest value is the value that people place on something knowing that future generations will have the option to enjoy it. For example, another resident may not be planned on visiting the site, but it has value because to them because their children may be able to visit the site in the future

2.5 Theoretical Method of valuation Methods

Valuation methods divided to two types namely revealed preference method and state preference method. The stated preference method divided to contingent valuation method (CVM) and Choice Modeling whereas the revealed preference is divided into three method such as hedonic pricing model, travel cost method and advertising behavior method.

2.5.1 Three Method of Revealed Preference Method

There are three method of Revealed Preference Method such as Hedonic Pricing Method, Travel cost method and Averting Behavior Method

2.5.1.1 Hedonic Pricing Method

The hedonic pricing approach uses the variation of property values to estimate the value of local environmental benefits (i.e. the value of a local lake). If higher property values exist due to a local environmental advantage, this information could be used to reflect what people are willing to pay for that environmental benefit, (Pearce, 1990).

2.5.1.2 Travel Cost Method

The travel cost method attaches an economic value to an environmental site based on the willingness to pay for travel to that particular environmental site. Carr and Mendelsohn, for example, estimate that annual recreational benefits of the Great Barrier Reef in Australia are between USD 700 million to USD 1.6 Billion depending on the definition of travel cost (i.e. actual cost versus travel agent cost) and the functional form used in the model, (Carr, 2002).

2.5.1.3 Averting Behavior Method

Averting Behavior Approach assesses the value of non-marketed commodities such as cleaner air and water, through the amounts individuals are willing to pay for market goods and services to mitigate an environmental externality, or to prevent a utility loss from environmental degradation, or to change their behavior to acquire greater environmental quality, (Garrod and Willis, 1999).

2.5.2 Two method of State Preference Method

Two method of state Preference Method include Contingent Valuation Method and Discrete Choice Modeling

2.5.2.1 Contingent valuation method (CVM)

The contingent valuation method asks people directly what they are willing to pay for an environmental benefit, or what they are willing to receive by way of compensation to accept environmental damage, (Pearce, 1990). A major advantage of the CVM method is that it should, technically, be applicable to all circumstances. This method is primarily the main technique to estimate willingness to pay for environmental issues, (Pearce, 1990).

2.5.2.2 Discrete Choice Modeling

Discrete Choice Modeling have individuals need to make decision involving trade-offs between the sum of money and the changes of the environment (Garrod and Willis, 1999). Discrete Choice Modeling normally can be used to evaluate the changes of the environment.

2.6 Contingent Valuation Method (CVM)

CVM is 'a tool to place an amount or value on goods and services that are typically not exchanged in the market place', (Ajzen and Driver, 1992). The CVM tool has been the subject of methodological research and applied in estimating both use values and non-use values of environmental goods, (Mitchell and Carson, 1989). It is called 'contingent' because respondents are asked how they would act if they were placed in certain situations. CVM is a questionnaire-based approach that is designed to estimate the economic value of non-market goods, (Mitchell and Carson, 1989).

2.6.1 History of Contingent Valuation Method

Even though economists have largely focused on market prices as the indicator of economic value and according to (Clark, 1915) state clearly saw that much of an individual's utility was driven by unpaid costs and uncollected benefits and that "market prices" did not exist for many of the more interesting quantities to economist. A theory of public goods developed through the work of economists such as Lindahl helped

formalize the notion of an equilibrium set of shadow prices for public goods and the difficulties involved in obtaining them. Other economists such as Pigou began to articulate environmental harm as unpriced externalities that drove a wedge between social cost and private cost making market prices suspect for some purposes.

Bowen (1943); Wantrup (1947) were the first to propose the use of specially structured public opinion surveys to value what Bowen called "social goods" and Wantrup (1947) "collective, extra-market goods", goods such as "beautification of the landscape" (Bowen, 1943) or soil conservation Wantrup (1947) that "cannot easily be sold to individual consumers and the quantities available to different individuals cannot be adjusted according to their respective tastes" (Bowen, 1943). Both Bowen (1943) and Wantrup (1947) saw that a distinctive feature of these goods was that, while individuals would have their own distinctive demand curves for these goods, the aggregate demand curve is "obtained by adding the marginal rate of substitution (expressed in money) of the various individuals at each possible quantity of the social good (vertical addition)" (Bowen, 1943). The practical problem was to estimate the individual marginal rate of substitution curve "since it requires the measurement of preference for goods which, by their nature, cannot be subject to individual consumer choice." Bowen (1943) suggested voting as "the closets substitute for consumer choice" and he noted the possibility of using "polls, questionnaires, interviews" as a means to implement this. "If polls are based on a representative sample of the population, and if questions are put in the same way as if the entire citizenry were voting, the results can, of course, be interpreted in exactly the same way." Wantrup (1947) covered the same ground and develops the same argument in the context of addressing the difficulties of measuring the benefits of soil

conservation programs, and he reiterated his call for use the “direct interview method” in his influential book Resource Conservation: Economics and Policy (1952), which is often considered the first text book on environmental and resource economics. One major obstacle to Bowen and Ciriacy-Wantrup’s calls for the use of surveys to measure benefits of public goods was that they soon clashed with Samuelson’s seminal paper (Samuelson, 1954). In this paper, Samuelson points out the problem of potential strategic behavior when aggregating over individual agents to get the benefit of providing a public good. Samuelson notes it is the selfish interest of each person to give false signals, to pretend to have less interest in a given collective activity than he really has.

2.6.2 Format of CVM

Different kinds of formats are available for analysts to elicit the WTP. Formats that have frequently been used in the CVM include open – ended (OE) formats, payment cards (PC), discrete choice single bounded (DCS) formats, and discrete choice multiple bounded (DCM) formats.

2.6.2.1 Open-Ended Format

The OE is a straight forward format and it is very informative for analysts. The format, however is considered unfriendly to respondent because it is not always easy for them to determine their own WTP (Mitchell and Carson, 1989). This is certain for goods that they have

never used or purchased. Consequently, this format is susceptible to high non-response rates and protest response (Mitchell and Carson, 1989). The difficulties respondents face in dealing with this format is known in the literature as their “cognitive burden”.

2.6.2.2 Payment Cards Format

The PC is a format whereby respondents are shown cards outlining various payment scenarios to help them decide on their WTP for good or service In question. Respondents are then asked question such as, “Based on the prices listed on this card, are you willing to pay?” According to Mitchell and Carson (1989), analysts use this format for two reasons: to maintain a direct approach for obtaining the WTP, and to increase response rates.

One of the drawbacks of this format is that respondents are more likely to state low WTP values (Blaine et al., 2005). This occurs because respondents are shown a series of WTP amounts, and they are free to choose whichever WTP they prefer. Because of this freedom, it is argued that some respondents will choose the lowest level available.

2.6.2.3 Discrete Choice Single Bounded Format

The DCS format is also known as referendum CV. This format was introduced into the CV literature by Bishop and Heberlein (1979). In this format, respondents are asked whether or not they would be willing to pay certain amounts of money for particular changes to environmental goods. The amounts of money proposed to the respondents are known as bid values.

The DCS format is less of a burden to respondents than the OE approach, because in this case, the analysts determine the survey's bid values. Therefore, the cognitive burden faced by respondents in other formats (i.e. OE) may be reduced. This format is also similar to respondents' everyday lives, because they must make 'yes or no' decisions for the CVM questions (Garrod and Willis, 1999). Based on these advantages, use of DCS may reduce non-response rates and WTP outliers.

2.6.2.4 Discrete Choice Multiple Bounded Format

The DCM format is an extension of the DCS format. This format, as its name implies requires respondents to state their WTP for more than one bid value by Bishop and Heberlein (1979). The subsequent bid values in this format are subject to respondents' reactions to the initial bid value. If respondents agree to the initial bid value, the subsequent bids must be

higher than the initial bid value. Otherwise, the subsequent bids must be lower than initial bid value. The bidding process may be repeated several times, but normally only two responses are required.

The results of the study showed that respondents were likely to agree with the subsequent value if they agreed with the initial value. Respondents were also likely to say no to the subsequent value if they said no to the initial value. The results for the starting point effect, however, were uncertain. Finally, the analysts explained that the problems existing in DCM were inherited compounded from the DCS format.

2.6.3 Phases in CVM Procedure

Following Hanley and Spash (1993), there are 6 steps in establishing the contingent valuation method, as follows.

Phase 1: Construction of a hypothetical market

It is still usually hypothetical for the respondents being interviewed. In most cases there will namely not be a direct link between the answers of the respondents being interviewed in the CVM survey, and a possible decision to implement or not implement the environmental change to be valued. Provide a hypothetical description of the terms under which the good or services is to be offered to the respondent. This description

seeks to present sufficient information for the respondent to consider carefully the value of the proposed good or service.

Phase 2: Make preliminary decision to obtained data

The researchers select a limited sample of the underlying population, and let this sample go through an interview (or possibly a sequence of interview sessions). The survey can be conducted by personal interview, mail questionnaire (with follow-ups) and telephone interview between visitor surveys using a structured questionnaire.

Phase 3: Estimating average WTP

Respondents will asked the minimum willingness to pay (WTP) for an improvement in environmental quality including development of entrance fee. The respondents will asked straightforward with open-ended and bidding-game formats. Kriström, (1990a) stated that in a dichotomous choice format experiment the mean is obtained by calculating the expected value of the dependent variable (WTP or WTA).

Phase 4: Estimating bid vehicle

Logit regression model was used to estimate the likelihood of a "yes" response based on the following function:

Define bid curve for individual i as:

WTP(i) = *f {Y(i), E(i), A(i), X(i), Q, U(i), e(i)},*

where *Y* = income, *E* = education, *A* = age, *Q* = environmental service quality, *X* = vector of other background variables we want to include, U = individual use of the environmental asset/object, e = random disturbance. This bid vehicle is important as funds will be raised and to ensure that WTP bids can be collected

The estimates of the parameters (β_1) were obtained by running the logistic regression procedure as provided in the Statistical Package for Social Sciences (SPSS) software. The estimation of a bid curve is important in order to:

(i) Establish statistical relationship or models that can be used in the aggregate of sample responses to apply to the overall population under the study.

(ii) To see whether respondent's answers are consistent with theory and common sense.

If a dichotomous payment format has been used then a logit approach is required, relating the probability of a yes answer to each suggested sum to the explanatory variables listed above (Cameron and James, 1987).

Phase 5: Aggregate the WTP amount of the data

The mean of WTP must be aggregated across total population to obtain the total economic value (TEV) of WTP. Utilize derived bids and bid functions for benefit transfer. Thus the estimated demand curve of the environmental good is derived. CVM also offers the possibility of disaggregating the bids into use, option and existence values. Mitchell and Carson (1989) give four techniques to achieve this:

(i) Asking each respondent to bid separate amounts for each part of the benefit being valued.

(ii) Asking the respondent to bid in the normal way, followed by asking them to split the WTP amount he/she stated into values for one or more benefit components.

(iii) Confronting the respondent with two or more scenarios or, ideally presenting different scenarios to separate sub-samples. The scenarios differ only in respect to the specific benefit measure under investigation and the difference between the total WTP for each scenario yields an estimate of the WTP for that measure.

(iv) Through asking respondents if they use the site, individuals can be divided into user and non-users. No extra questions are asked, but the WTP given by the non-users is an expression of option value and existence value. The advantage of this technique is that it circumvents the fallacy of motivational precision.

Phase 6: Appraisal

This phase tries to question whether the evaluation or estimate using CVM in this study is valid and reliable, or not. To answer the question posed in stage 6 we need to consider the technical acceptability of the evaluation estimates produced by CVM. This is because some respondent give extra value them what interviewer asked. There are four facets of method acceptability; Technical (are the evaluation estimates valid and reliable such as theoretical and methodological acceptability); Institutional (can decision makers incorporate the method into their framework of analysis); User (do analysts sufficiently comprehend the technique so as to put it into practice); and Financial (is the cost of application reasonable) (Bateman and Turner, 1995). This paper concerns itself only with issues of technical acceptability. However, while analysts and academics may see this of prime interest, it should be noted that the other acceptability issues may in the event prove as important in the selection of an evaluation method.

2.6.4 Bias Issues in CVM

CVM preferred by researchers because this technique can be applied to a variety of environmental goods and services (and also because it can evaluate the existing value and use value). However, since this approach was developed based on the hypothetical model it is constrained to a number of biases specializing in putting the real value of WTP. Callan et al (2004) discussed in the three classifications biases, namely General Biasses, Survey Instrument Biasses and Procedural Biasses such as table 2.2

Based on the potential existence of bias in CVM, a number of changes and improvements have been made by researchers. The researcher can provide more complete information in the hypotactic model and diversify the survey instruments that used such as the use of maps and photos for illustration scene, commodity type and boundaries of the study area (Brookshire and Crocker, 1981).

Table 2.2: Classification of Biasses in CVM survey

General Biases	
Strategic bias	Individuals have an incentive to not give the real WTP of environmental goods to influence certain outcomes. This bias exists from the problem of free users, particularly for public goods
Hypothical bias	If the information on the commodities studied were incomplete, the response of individual WTP may not be equivalent to the value of their real WTP
Information bias	Caused the market in the hypothetical form, respondents saw question expressed are not realistic, then WTP budget response also not realistic.
Survey instrument biases	
Payment vehicle bias	Most of the survey instruments suggests the offer to lower prices followed a higher price. The Bid initial price offered to the respondent could influence the answer and final WTP value of respondents.
Starting point bias	To get a more accurate response, certain payment methods will be used such as an increase in taxes or utility bills. Preferred payment method used may influence the WTP response of the respondents.
Procedural biases	

Sampling bias	Problems could exist depending on the nature of the sampling procedure used by researchers
Interviewer bias	Responses (answers) of respondents may be influenced by the interviewer who asked the question

Sources: Adaption from Smith and Desvousges (1986)

2.7 Conclusion

In chapter 2, the information regarding on the tourist willingness to pay are interesting. The information was collection of sources which has been listed in the reference such as willingness to pay (WTP), contingent valuation method (CVM), agro- tourism and quality services. This input was important for complete in literature review and research might be good. Through this chapter, the researcher understood on the characteristic of paying and any differences WTP among visitor that fulfill the tourist WTP in MARDI Agro technology Park.

CHAPTER 3

LITERATURE REVIEW

3.1 Overview CVM case in Malaysia and Southeast Asia

To see how far developing countries had applied the approaches on valuation of environmental goods and service, this chapter is going to present past studies that applied the CVM especially in Malaysia and the ASEAN countries in general. Studies that are reported here are studies using various valuation methods done on Malaysia and some Southeast Asia countries that are hardly published.

Nik Mustapha (1993) has carried out a study on Tasik Perdana recreational area in Kuala Lumpur using the dichotomous choice CVM in the logit and probit models. Then result indicated that the mean of willingness to pay ranged from RM84 to RM106 from both models while the median ranged from RM109 to RM36. Median WTP measures was argued to be more robust than the mean WTP, and in this study he concluded that the median WTP figure for the outdoor recreational resources in Tasik Perdana about RM36. Nik Mustapha (1995) also estimated the benefit beach recreation at Port Dickson, Malaysia also using Dichotomous Choice Model to estimate the CVM. The mean range with use logit model from RM63.83 to RM620.58 and the probit model from RM71.74 to RM597.48 for mean income of RM404.56 to RM3933.30

Othman (2000) used an open-ended CV questions with face-to-face interviews to assess the conservation values, especially the total non-use or passive values, of the Matang Mangroves Forest located in Perak, Malaysia. This forest is mainly for environmental protection and conservation functions. The mean and median of WTP are found to be RM17.00 and RM10.00 per year respectively. The WTP was strongly influenced by income and relevant attitudinal variables such as environmental awareness, and have the expected sign after running appropriate regression. The coefficient for age was found to be insignificant. The coefficient for the Malay dummy was surprisingly negative and significant meaning the Malays are less likely to agree to pay for the conservation of the Matang Mangroves forest. Othman concluded that this might be because of the income for the Malays is substantially lower relative to their non-Malay counterparts. A profile check shows that the average monthly income for the Malays is RM991 while the non-Malays is at a higher figure, RM2,383.

Ayob et al. (2002) estimated the value of preserving the natural beauty of Pulau Payar, one of the marine parks in Langkawi, using the CVM single-bounded dichotomous choice model for both users and non-users respondents. Using a Logit model, this study estimated a use-value of WTP of RM12.00 and RM26.00 for local visitors and foreign visitors respectively; which are higher than the RM5.00 imposed by the authority at present. Non-user value was estimated at RM13.00 for all respondents. Non-user value is calculated from surveys to respondents that do not visit Payar Marine Park at the time the survey was conducted. They showed that the significant variables when regressed with the probability of saying yes to the amount shown to respondents are card value, income, age, gender and year of schooling. This means that the probability of the

respondent saying yes to the amount shown on the bid card depends on various demographic factors of the respondents.

The other literature is Alias et al (2002) has conducted a study on Local Tourists to Pay for Conservation of Tourism Sports in the Damai District Sarawak. He also used the dichotomous choice of Contingent Valuation Method (CVM) to users as randomly. Results has shown that a per person median value of RM11.64 WTP for the preservation of Damai, using the logit model. Alias and Ruhana (2003) used the dichotomous choice CVM to the outdoor-recreational resources of the Malaysian Agricultural Park, Bukit Cahaya Seri Alam, Selangor. The WTP figure derived from the model shows that visitor are willing to pay higher fees than present fees charged.

Jamal and Shahariah (2003) has studied on Paya Indah wetlands in Kuala Langat; Selangor also used that approach to estimate the non-marketed benefits of conserving the wetland from the perspective of non-users, in particular among urban households in Selangor. The results show that the mean willingness to pay, which reflects the non-use values of wetlands, accumulate to urban non-user households in Selangor ranges from RM28-RM31 annually.

Recently, the CVM has done to estimate the individual WTP for conservation of outdoor recreational places. Dayang, Alias and Baizura (2006) studied on the Bako National Bako, Kuching, Sarawak. The approach used in this case study is dichotomous choice that conducted through questionnaires. This is to identify the factors that affect the visitors/respondent WTP, estimating the maximum and minimum level they are willing

to pay for conservation and preservation motive and at what price level they are capable of paying on the average. Furthermore, the Logit model also is used to analyze the data and the maximum likelihood estimates of this model is encouraging. As a result, the median value of WTP for preservation of Bako National Park is estimated to be RM7.765 per person. The CVM also applied towards protecting bird sanctuary at Fraser Hill to bird watcher and non-birdwatcher where are the result shows that bird watcher has higher willingness to pay than non-birdwatcher, although non birdwatcher are willing to pay a positive amount for such protection even through their main interest are in other activities.

Radam and Abu Mansor (2000) used the CVM to assess the net economic values of recreational resources in Manukan Island, located in Tunku Abdul Rahman Marine Park, Sabah, Malaysia. They raised the same issues as our paper, which are first, to impose entrance fees to capture the benefits from ecotourism, and using that money to maintain and enforce environmental regulations. Secondly, to reduce visitation in areas that suffer from overuse and accompanying ecological damage. This paper used a single bounded referendum format question for the WTP, and the models are estimated using the Logit and Probit techniques. Both the Logit and Probit model gave them about the same mean WTP of RM5.00 which is more than the current rate of RM 1.00 to RM2.00.

Zaiton (2008) used dichotomous choice Contingent Valuation Method to assess the net economic values of ecotourism resources in Taman Negara National Park (TNNP). Based on the estimation results, Willingness to Pay (WTP) measures were calculated using logit and probit models. The calculated mean WTP ranged from RM11.01 to

RM18.27 for the logit model, and for the probit model ranged from RM19.00 to RM30.32. The probit model performed slightly better than logit model in terms of McFadden R2. Therefore, the mean WTP obtained from the probit model would be a more reliable measure; RM23.36.Thus, estimation of the net benefit of TNNP for the year 2009 for visitors of 86,674 is RM2,024,704.64. This study also shows that visitors are willing to pay more for entrance permit; compared to current entrance permit (RM1).

Raziah et.al (2008) studied about WTP for conservation of rare fruit species in MARDI Serdang, Selangor by CVM with use 218 of local respondents. They used an open-ended CV questions with face-to-face interviews to assess the conservation of rare fruit. Majority of respondents (74.31%) show that they willing to pay with the difference fund. Multiple regression analysis show that the dependent variable where the actual contribution rate is influenced by gender, age and individual education level. Both the Logit and Probit model gave them about the WTP mean which is RM47.13 for one tree per year with the median and mode are RM50.00 for one tree per year. So that, the economy value of each species is RM750 per year. This result can become user for the government to make policy to fund preservation effort of the rare fruit species.

Yacob and Radam (2009) used dichotomous choice survey design-contingent valuation method (CVM) to investigate empirically the willingness to pay (WTP) of the visitors for ecotourism resources in two selected marine parks in Pulau Redang and Pulau Payar. Hence, the environmental economic tool which focuses on contingent valuation method of WTP is used to estimate the value of ecotourism resources. It uses Logit and Probit models to estimate the visitor's WTP responses for conservation based on 215 and 153

respondents in Pulau Redang and Pulau Payar. The results in Pulau Redang indicate that visitors are willing to pay for conservation about RM7.8 and RM10.6 per year for local and international visitors in Pulau Redang. Meanwhile, in Pulau Payar, the result has shown that local and international visitors are willing to pay about RM7.30 and RM8 respectively. The findings may provide guideline to marine parks and to help develop management policies that enhance ecotourism contribution to sustainable development and conservation in marine parks in Malaysia.

Siti Aznor (2009) used double-bounded dichotomous choice method in contingent valuation model estimates how much visitors are willing to pay for two separate issues which are to reduce the damages due to crowding effect and to reduce the damages due to inland development, of three marine parks in Malaysia; Payar, Redang and Tioman Marine Park. A total of 650 questionnaires were distributed to the respondents. The crowding effect issue the respondents were presented with a hypothetical situation in which the park authority wanted to reduce the damage to the corals by limiting the number of visitors. For the inland development issue, an increase in the entrance fee is intended for the authority to hire more people to monitor and enforce rules, to treat sewage and to implement coastal zone management and planning. The willingness to pay (WTP) per person per visit to moderate the environmental impact of inland development is RM23.79, which is lower than the WTP to reduce crowding, RM31.59. In addition, when both data were combined to estimate the differences between the WTP of foreign and local visitors, we found that the WTP of foreign visitors was much higher than the WTP of locals at RM39.11 and RM19.52, respectively.

Seenprachawong (2001) used double-bounded dichotomous choice model and estimated the annual consumer surplus to improve coral reef quality at Phi Phi Island, Thailand. While using the CVM, he obtained the mean maximum WTP per visit of USD7.17 for domestic visitors and USD7.15 for international visitors. Seenprachawong also raised methodological issues on the CVM where he suggested a double-bounded dichotomous approach since the approach gave more information than the single bounded approach.

Pham and Tran (2001) also study about the CVM while they used the single-bounded referendum method for the CVM. Their study was to estimate the recreational value of the coral-surrounded Hon Mun Islands in Vietnam. Using the contingent valuation method, the WTP for funding an MPA project for the Hon Mun Islands was estimated to be VND6.0 billion annually. When they use a Tobit model, the WTP for local visitor to be VND17 956 and per foreign visitor VND26 786. These WTP values are relatively low compared with WTP values estimated for other recreational sites in the world.

Arin and Kramer (2002) explored the demand by local and international divers for dive trips to protected coral reef areas in three locations in the Philippines. Arin and Kramer use the payment card in which respondent were asked to choose a value given or to specify another value. Although exploratory CVM, the respondent willing to pay US$ 3.70/diver/day on Mactan Island, US$5.50/diver/day on Anilao and US$3.40/diver/day in Alona Beach. Estimated annual potential revenues range from US$0.85–1 million on Mactan Island, from US$95–116 thousand in Anilao and from US$3.5–5.3 thousand on Alona Beach. The purpose of valuation WTP for entrance fees to marine sanctuaries where fishing was prohibited.

Nuva (2007) used dichotomous choice method in CVM to determine the willingness to pay (WTP) at Gunung Gede Pangrango National Park (TNGP), West Java, Indonesia. The economic benefit of conservation of the ecotourism resources at TNGP was measured using the visitors' willingness to pay (WTP) for higher entrance fee to the park. A logit regression model was used to determine visitors' willingness to pay. The results indicate that income, gender (male) and residential (urban) were the significant factors that influencing the visitors' willingness to pay for the entrance fee to TNGP. The mean willingness to pay (WTP) is found to be RP 7629.77 per visit. It is estimated that in 2004 the benefits of conservation of the ecotourism resources in TNGP amounts to RP 452 million.

Asafu – Adjaya and Tapsuwan (2008) study the economic benefits associated with scuba diving in Mu Ko Similan Marine National Park, Thailand which is estimated using a single- and double-bounded dichotomous choice contingent valuation survey design. The results indicate that divers are willing to pay about US$27.07–62.64 per person per annum on average, resulting in aggregate benefits of between US$932,940 and US$2.1 million per annum. The present value of these aggregate benefits ranges between US$31 and US$71 million, using a social discount rate of 3%.

3.2 Conclusion

In this chapter, we presented past studies on willingness to pay (WTP) using the CVM. Focusing on case studies carried out in Malaysia, particularly on the subject of recreation sites and other studies that are relevant to our studies, in other ways. Discussion on case studies done on Malaysia is critical as to convince the policy makers that valuation on environmental goods are viable and should be adopted in considering the approval of any projects that have the potential to incur impact upon the environment in any way.

CHAPTER 4

METHODOLOGY

4.1 Introduction

This chapter aims to explain the methodology used to achieve the objective of the willingness to pay among visitor at MARDI Agro technology Park. This section will be discussing on methodology of CVM, which encompasses the theoretical framework of the study. The methodology begins with discussion of definition of CVM and explanation of the concept of total economic value in the context of agrotechnology park. It also presents how CVM can be conducted such as a research design, collecting data, selection of sampling and data analysis procedures that get from visitor at MARDI Agro technology Park.

4.2 Research Design

This study relied on survey research using questionnaire. The selected visitors in MARDI Agro Technology Park were request to answer in this questionnaire. Sekaran (2000) claimed that the questionnaires are the most useful instrumentation data collection method, especially when a large numbers of visitor are to be reached in different geographical regions. Further, questionnaires are a popular method of collecting data because the researchers can obtain data easily, and the questionnaire responses are easily coded.

In this research, the researcher chooses quantitative to do this research because these ways suitable to measure the result, gain answer, also to achieve the objective. Quantitative research gains the data in the form of numerical data. The numerical data is come from the respondents that answer the question at MARDI Agro technology Park. This research needs the primary data by questionnaires ways. The respondent is visitors that come at MARDI Agro technology Park. They will answer the question about the factor influence the visitor to pay and level of satisfaction in differences term in WTP among visitors

4.3 Source of data

There are two categories of data that been used in this study for willingness to pay for entrance fee, which is primary and secondary data.

4.3.1 Primary data

To collect the data and information in this research, researcher will use types of interview as a strategy to get the data with opened. The researcher interview with management at MARDI Agro technology Park and Langkawi Development Authority (LADA).The uses of this interview can helps researcher to get valid and reliable data for complete this research .The interview also can the researcher get more information about agro tourism in Langkawi especially MARDI Agro technology Park. The researcher made observations on the facilities, services, activities and environmental value

provided to the visitor at MARDI Agro Technology Park. Own researchers visited MARDI Agro Technology Park and observe for a week.

The questionnaire is designed to meet research objective and to answer the research questions. The question that design and give from researcher to the public have cover and answers the first, second and third objective of this research that is to identify the visitor pay and determine the factor that influences willingness to pay for construction and usage of Health and Spa Center in MARDI Agro Technology Park, and to identify the difference in WTP between foreign and local visitor in MARDI Agro Technology park. Researcher must ensure that it can collect the precise data that researcher require to answers research questions and also can achieves researcher objectives in doing this research. With collect the perfect data it can help researcher to make a successfully research.

4.3.2 Secondary Data

Several materials the researcher can be chose to get information at MARDI Agro Technology Park such as pamphlets or broachers, previous related research, articles, journal, magazine, books, internet and newspaper through literature review process. Other information is in the form of published compilations available in the library or on the computerized records. The place to get information about MARDI Agro Technology Park include Center Langkawi tourism, collection brochure in Langkawi, Langkawi Development Authority (LADA) and internet articles

4.4 Population

Population is a kind of collecting data and information in research methodology which is contribute individuals, families, groups and organizations that can give benefit to researcher to collect the data and information to complete this research. In this research, researcher would like to know the willingness to pay of visitor and factor that influences them to pay include service and facility condition in MARDI Agro technology Park. Mostly, every year in MARDI Agro technology Park have visitors come to travel here. With the statistic that records by MARDI Agro Technology Park in 2006 to 2013 have an increase of visitors come which is in 2006 total of per year visitor come is 9,206 and in 2013 is 75,877 of visitors.

4.5 Selection of sample

Most of the researchers agree that 30 is the minimum number that required making a meaningful statistical interpretation (Bailey, 1987). However, Bailey noted that researchers often use a minimum of 100 cases. One of the reason is that researchers often want to examine a number of sub-populations in a competitive / number of variables to be controlled in one time. (Lazerwitz,1968). In fact, Bernard Lazerwitz also suggests that in the design of stratified sampling the researcher should use at least 100 cases.

In the case of WTP studied, where researchers make comparisons between local and foreign visitor need twice as many respondents than if only one of the visitor variable

who want to study. So, an appropriate and accurate method of sampling is choosing to achieve the objectives in this research. There are 200 respondents are suitable chosen to answers the questionnaire because the limited time and budget constraints. At the same time, one of each characteristic that are to research have an enough sample number. In stratified random sampling, the selection of one individual is choose base of 100 respondents of local visitor and 100 respondents of foreign visitor and the selection is independent of the selection of another individual that come to MARDI Agro Technology Park.

4.6 Questionnaire design

The structure of the questionnaire was designed to meet an answer research question outlined at the beginning of this chapter. The questionnaire is guided by the research and it is the data collection tool. Questionnaire designs very clear, not confusing, and complete are needed to attract and encourage respondent to give a precise answers with the research motives. In designing questionnaire, researcher will divide the questionnaire into four parts that is part A, part B, part C, and part D

In part A, the questions 1 to 7 are about the general demographic such as gender, age, marital status, nationality, occupation, monthly household income and level of education.

In part B, the questions ask the information about the view about MARDI Agro Technology Park to the visitors that come. The questions are from 8 to 13. In question 14, the question is to evaluate the level of satisfaction among visitor in term of the facilities and services condition in MARDI Agro Technology Park. Likert scale question have selected in this part by researcher

Part C is prepared answers the objective of this research as mentioned in chapter 1. This section tries to elicit the willingness-to-pay of the respondents to MARDI Agro Technology Park. The first thing done in this section is the set-up of the hypothetical market for this park. The hypothetical market is to construct Health and Spa Exhibition Center in MARDI Agro Technology Park and it is important for the respondents to understand the issues in the hypothetical market so that they know what they are paying for. The hypothetical market is stated in the questionnaire as below:

MARDI Agro Technology Park functions as a center for technology transfer and information dissemination concerning agro-industry. After this park is being upgraded as agro-tourism attraction. It gaining the visitor attention with increment from 9206 in 2006 to 75,877 in 2013.

Currently, main attraction in the park is taking photograph with a variety of visitors who come can pose with a variety of tropical fruit trees, hi-tech vegetable farm, deer park, flower and herb garden. In addition, visitors have the opportunity to taste and buy fresh tropical fruits and the hi-tech vegetables at the sales center.

Assume that the agro technology park management intends to build Health and Spa Exhibition Center. The center will fully utilize the entire herb grown in

MARDI Agro Technology Park. This will allow visitors to experience the advantages and benefits of herb grown in the park such as Tongkat Ali, Kacip Fatimah, Sireh, Kunyit, Serai Wangi, limau purut, Avokado and stevia. This center will also become a platform to popularize Malaysia herbs to the world.

Currently, an entrance fee is charged at RM 5 for local visitor and RM20 for foreign visitor. Park management plan to increase the entrance fee to accommodate of expenditure the Health and Spa Center that can be enjoyed by all visitors.

The statement is followed in question 15 as below:

If the entrance fee is increased to RM_____, are you willing to pay for this amount?

( ) Yes

( ) No

The above questions are to give current scenarios and the hypothetical situations to the respondents. So, if they said "yes", they know what they are paying for; that is paying to construct Health and Spa Exhibition Center in MARDI Agro Technology Park. The discrete choice nature of the question provides respondents with a straightforward option of "yes" or "no". Fewer burdens is placed on respondents because they are not required to determine their exact maximum willingness to pay, rather only whether they are willing to pay at least the amount asked. There are 5 different bids given to different respondents randomly. Each respondent only have to say yes or no to the bid posed to them. 5 bids were selected for uses are RM5.00, RM10.00, RM15.00, RM20.00 and RM25.00.

The charges are chosen based on the pilot study done by researcher. First question survey distributed to 20 students in the School of Economics, Banking and Financing. From the responses received, the survey question changed again. After that, the survey questions were tested on 30 other visitor at the MARDI Agro Technology Park before the actual study done. In a pilot study on 50 respondents, researcher listed possible payment that respondents might be willing to pay start the current fee (RM5.00). The lists are as below and the respondents needed only to circle the highest payment they agreed to pay:

3 5 8 10 15 18 20 23 25 28 30 32 35 38 40

The study reviewed the questionnaire and to strengthen the validity of questions, In the pilot study, the lowest WTP circled was RM5 and the highest WTP circled was RM30. However, only three respondents circled RM30. Therefore, RM5 and RM25 were chosen as the lowest and highest WTP respectively. The main purpose of this pilot test also is to ensure that questions can be understood and answered by the response.

The vehicle payment is important to decide in constructing the questionnaire. There are many different possible bid vehicles namely income tax, value added or sales tax, trust fund payments, property taxes, changes in utility bills and entry charges. Certain bid vehicles are only suitable and viable in a certain given situation. According to Garrod and Willis (1999) the chosen bid vehicle should have a plausible connection with the amenity it is being used to value, and also be perceived to be ‘fair’ and ‘equitable’ in its incidence and in relation to those deriving benefits for the proposed good. In this study,

the vehicle payment used is the entry fee to construct Health and Spa Centre in MARDI Agro Technology Park. This vehicle is used because the park has charged RM5.00 per adult since early 2006.

This section also tried to capture the reasons the respondent were willing to pay the bid posed to them if they say YES to either first bid or second bid and the reasons they do not want to pay if they say NO to both bids. Reasons for not willing to pay at all are as below:

1. I don't like spa
2. Current entrance fee is already sufficient
3. The cost should be provided by Malaysian Government
4. Health and Spa Center is not suitable to be built in MARDI Agro Technology Park
5. Other (please specify)

The last reason (other) will also capture protest bids. The respondent can choose only one answer. The reason for respondent's willingness-to-pay is as below:

1. Agree with the plan to build the Health and Spa Center
2. Will increase knowledge about usage of herbs available in Malaysia
3. It can help MARDI Agro Technology Park to expend its service

4 I love health and spa service

5. Others (specify)

Part D is to study the suggestion to improve the facilities / service in MARDI Agro Technology Park that popular for visitor to visit and do the recreation activities. From that particular, researcher needs the opinion from the visitor to think the available answers about the question.

4.7 Data analysis

For data analysis the researcher uses the descriptive statistics and also the contingent valuation method to know willingness to pay among visitor for entrance fee in MARDI Agro Technology Park. We analyze foreign visitors and local visitors separately. This is due to the fact that there are differences in independent variables within these subgroups that can influence the dependent variable, and, we expect, differences in behavior and preferences.

4.7.1 Descriptive Statistics

Descriptive statistics is uses to show the characteristics of the sample (De Vaus, 2002). It also helps to simplify the data info frequency table that consists of frequency, percentage form and probability (Rani, 2004; Mason and Lind, 1990). The results of mean, minimum value, maximum value and standard deviation values are presented in descriptive analysis.

4.7.2 Contingent Valuation Method

The idea of CVM is to create a hypothetical market for construction on Health and Spa Center to promote the herb garden as the health resource in MARDI Agro technology Park and then to ask respondents what they would be WTP for construction on Health and Spa Center in MARDI Agro technology Park.

The CVM is chosen for the uniqueness it has in capturing the total economic value (TEV) of an environmental resource. There are two components in TEV, namely use-value and non-use value. For this research, Use-values are typically those that are most likely to be observable in markets. Market-observable benefits and costs of an agro technology park can be relatively straightforward to calculate. Benefits, for example, can come from revenues generated from tourism, whereas the costs can include construction and development of the tourism infrastructure. Use value in calculating the environmental benefit would understate the total economic value and therefore would severely understate the benefit generated by environmental resources.

4.7.3 Discrete Choice Single Bounded Format

This CVM study will use a standard approach to the discrete choice single-bounded format for WTP elicitation. In this analysis, the dichotomous dependent variable is "being willing or not willing to pay" the value shown on the card value, coded 1 if response is "Yes" and 0 if "No" while the independent variables include the value shown in the card, monthly household income, higher education attained, age,

occupation and gender. Five values are used on the card, beginning with RM5 and increasing in steps of RM5 to RM25.

To actually undertake the estimation, we use the STATA computer package, using both Logit and Probit routines that estimate the parameters σ and β and provide "probability values" to test the hypotheses that the vector of parameters β equal zero.

In the logit model, an index of behavior, the "log of the odds" of saying "yes" is created, which is specified to be a linear function of a set of K explanatory variables X's (one of which is the bid value). The model can be written as:

$$\text{Log}\,(P_i / 1 - P_i) = \sum_{i=1}^{K} \beta_i X_i$$

Where P_i is the probability that the respondent will say "Yes" to the bid value (WTP), the β's are coefficients to be estimated from the sample data, and the X's are the explanatory variables collected during the interviews.

The index then transformed into a probability of WTP, by applying a cumulative density function, which then results in logistic function of the form:

$$P_i = F(Z_i) = F(\sum \beta x) = 1 / (1 + \exp (\sum \beta X))$$

The Probit model is a bit more complicated. It uses a cumulative distribution function (CDF) of standard normal distribution

$$n_i = probit\ (p_i) = ø^{-1} p_i$$

where

$$ø(n_i) = \int 1/\sqrt{(2\pi)}\ exp(-1/2u^2)du$$

or

$$p_i = ø(\ \sum_{i=1}^{K}\ \beta_k\ X_{ik})$$

where p_i = probability of saying "yes" to the bid amount

β_k = coefficients to be estimated

x_{ik} = variables that influence the probability including the bid amount

The expected value or mean of WTP and the median are calculated using formula from Hanemann (1984);

Mean WTP = $\ln[1+\exp(\beta_0)]/|\beta_1|$

Median WTP = $\beta_0/|\beta_1|$

where β_1 is the coefficient estimate on the bid amount and β_0 is the estimated constant or the grand constant calculated as the sum of the estimated constant plus the product of the other independent variables times their respective means.

The variables used in our study are as listed below:

WTP = Dependent variable with 1 if respondent is willing to pay for the amount asked to them, 0 otherwise

LBD = Log of bid amount offer to respondents. There are 5 sets of bid; RM5, RM10, RM15, RM20, RM25

SEX = 1 if male, 0 if female

AGE = age range of the respondent, where 1 = < 20, 2 = 20 – 29, 3 = 30 – 39, 4 = 40 – 49, 5 = 50 – 59, 6 = ≥ 60

STATUS = 1 if married, 0 if single

DUMOCC = 1 if the respondent is in employment, 0 otherwise

INCOME = income range of the respondent, where 1 = ≤ RM3000, 2 = RM3001 – RM6000, 3 = RM6001 – RM9000, 4 = RM9001 – RM12000, 5 = RM12001 – RM15000, 6 = > RM15000

DUMEDU = 1 if respondent received college degree or higher, 0 otherwise

TMEVISIT = times respondents have visited the park where 1 = First Time, 2 = 2 time, 3 = 3 time, 4 = More than three time

PARKING = respondent's satisfaction on the number of parking space where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

TICKET = respondent's satisfaction on short queue at the ticket counter where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

ROAD = respondent's satisfaction on safety in – farm road where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

NGUIDE = respondent's satisfaction on the number of tourist guide where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

PREST = respondent's satisfaction on the position of resting area where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

NREST = respondent's satisfaction on the number of resting area where 1 = extremely

disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

TECHNOLOGY = respondent's satisfaction on the number of comfortable information technology centre where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

CAFÉ = respondent's satisfaction on the comfortable cafeteria where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

SALE = respondent's satisfaction on the condition of sales centre where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

NTOILET = respondent's satisfaction on the number of public toilet where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

FRUIT = respondent's satisfaction on fruit variety where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

VEG = respondent's satisfaction on vegetable variety where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

HERB = respondent's satisfaction on flower and herb variety where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

NTRAM = respondent's satisfaction on the number of tram where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

SIGN = respondent's satisfaction on clear and readable signboard where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

WTOWER = respondent's satisfaction on safety of watch tower where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

CAMP = respondent's satisfaction on camping site position where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

LANDSCAPE = respondent's satisfaction on beautiful landscape where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

WTIME = respondent's satisfaction on waiting time for tram where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

TRAMCON = respondent's satisfaction on tram condition where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

FARMVISIT = respondent's satisfaction on farm visit period where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

CLNTOILET = respondent's satisfaction on cleanliness of toilet where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

CLNPARK = respondent's satisfaction on cleanliness of park where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

CREATIVE = respondent's satisfaction on creativity on tourist guide where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

FRIENDLY = respondent's satisfaction on friendliness and hospitality of tourist guide where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

INFO = respondent's satisfaction on information by tourist guide where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

FRUITTST = respondent's satisfaction on variety of fruit testing where 1 = extremely disatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = extremely satisfied

4.8 Conclusion

This chapter explains the methods useful by the researches to collect and analyze the data. The realization and the collection of appropriate methodology are essential to make sure that the research study can complete or achieve its objective. After the research method has been decided, it will be easier for the researcher to plan instrument that will be utilized to get the respond of the study. The analysis of the result will be based on the objectives in the chapter 1. The information and analysis are important elements in understanding the subject being studied. Thus all data and information gathered need to study carefully.

The results from the analysis of the study will enable the researchers to assess the demographic characteristics of visitor' WTP to MARDI Agro Technology Park, to estimate WTP for an increase of entrance fee to MARDI Agro Technology Park, to assess the differences of WTP between local and foreign visitors and to identify the level of visitor satisfaction that come to MARDI Agro Technology Park. The results of this study are expected to be used by the MARDI Langkawi manager to improve and develop agro technology infrastructure and fulfill the visitor need for recreation activities, environmental value and construct Health and Spa Centre in MARDI Agro Technology Park.

CHAPTER 5

EMPIRICAL ANALYSIS

5.1 Introduction

This chapter begins with the report on the profile of the visitors to MARDI Agro Technology Park, followed by a discussion the view of visitor about MARDI Agro Technology Park, activity interest and level satisfaction among visitor about facilities and service condition in MARDI Agro Technology Park. This is then followed by an analysis of visitors' willingness to pay (WTP) for entrance fee toward construction of Health and Spa Centre in MARDI Agro Technology Park. Finally, visitors' views on questionnaire are revealed.

5.2 Profile of MARDI Agro Technology Park visitors

A total of 200 questionnaires were usable for analysis. From this total, 100 were collected for local respondents and 100 for foreign respondents. This section will cover the gender and age of the respondents, marital status, their origin, occupation, monthly household income, education background and occupation for all demographic questionnaires. The highest proportion of foreign respondents are from Singapore (15%) followed by Oman and Australia (11%). The highest local respondents are from Kedah (24%) followed by Selangor (16%).

Of the total number of 200 respondents, 62 percent are males and 38 percent are females. A majority (33%) of the respondents are in the 20 – 29 years age group, signifying that agro tourism park is a "youthful activity. Only 5.5% are over 60 years old. The over 50 year of age respondents are mostly foreigners (29%) compared to only 23% locals (refer to Table 5.1). This study also found that more than half of the respondents (73%) are highly educated. Only 3.5% has a minimum of primary education, all of them are local respondents as shown in Table 5.1.

As for occupation, the highest number or 50% of the respondents report working in the professional / management. The second largest respondents are self-employed (25%) followed by technical (10.5%). The percentage of housewives and unemployed are higher among the local visitors compared to foreign in Table 5.1.

Table 5.1: Demographic Characteristics of Local and Foreign Visitors

Variable	**Local N=100**	**Foreign N=100**	**Total N=200**
Gender: Male (%)	62	62	62
Female (%)	38	38	38
Age: 20 – 29 (%)	35	31	33
30 – 39 (%)	21	29	25
40 – 49 (%)	21	11	16
50 – 59 (%)	18	23	20.5
≥ 60 (%)	5	6	5.5
Marital status: Single (%)	28	19	23.5
Married (%)	72	81	76.5

Occupation: Professional / Management (%)	42	58	50
Technical (%)	10	11	10.5
Clerical (%)	12	2	7
Self-employed (%)	28	22	25
Student (%)	4	6	5
Housewife / Unemployed (%)	4	1	2.5
Monthly household income:			
≤ RM3000 (%)	16	8	12
RM3001 – RM6000 (%)	35	19	27
RM6001 – RM9000 (%)	32	26	29
RM9001 – RM12000 (%)	10	20	15
RM12001 – RM15000 (%)	5	16	10.5
> RM15001(%)	2	11	6.5
Highest education: Primary school (%)	7	0	3.5
Secondary school (%)	35	12	23.5
Higher Institution (%)	58	88	73

From the figure 5.1 below, the higher percentages of male and female respondents are found in the age range of 20 to 29. Less respondents can also be seen for the age above 60 where only 5.5% respondents come to MARDI Agro Technology Park.

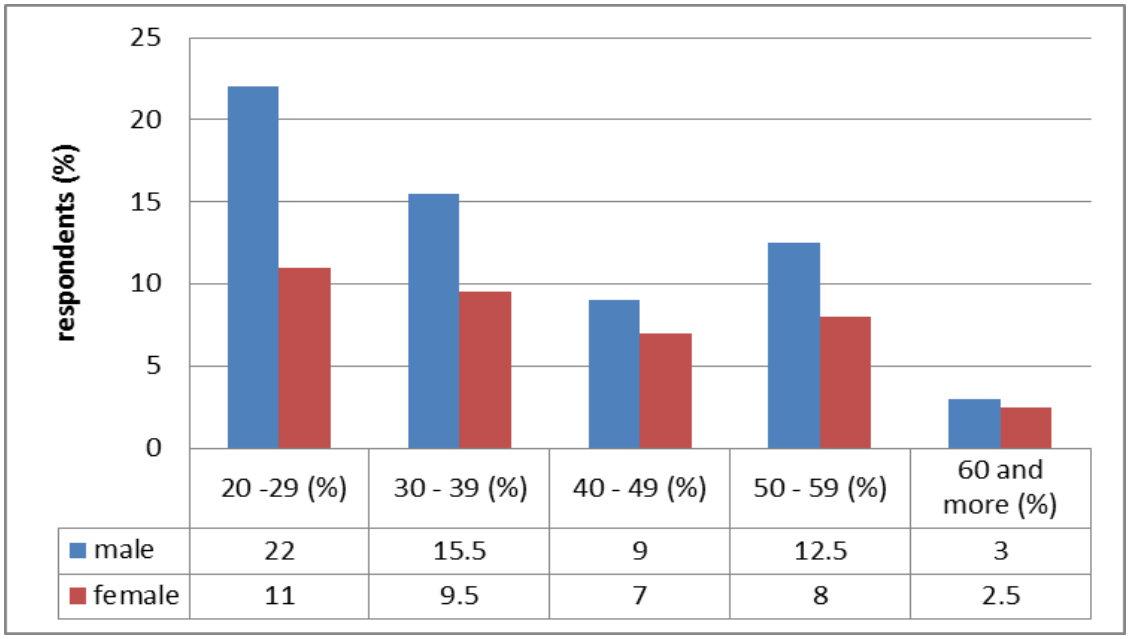


Figure 5.1: *Age group distribution between Gender*

From the Table 5.2 below, the highest frequencies of respondents in the age range of 20 to 29 years old are found which is 23 frequencies have income range RM3001 – RM6000 and RM6001 – RM9000. Visitors who have level of income less than RM 3000 mostly suddenly stand up to students and housewife who visited MARDI Agro Technology Park with their family. According to the table below, the increase of the age for respondent also can increase the monthly household income when they work include professional / management, technical, clerical, and self - employed.

Table 5.2: Income group distribution between age

Age	**Income (RM)**					
	≤ 3000	3001-6000	6001 – 9000	9001 - 12000	12001-15000	> 15000
20 to 29 years	15	23	23	4	1	0
30 to 39 years	2	18	20	7	3	0
40 to 49 years	3	4	8	12	5	0
50 to 59 years	3	8	5	7	9	9
≥ 60 years	1	1	2	0	3	4

5.3 The view about MARDI Agro Technology Park

This section cover the view about MARDI Agro Technology Park include source of information, number of time visit, transportation used to visit, way of visit and purpose to visit to MARDI Agro Technology Park.

From Table 5.3, the highest source of information is tourism agent and internet which are 29.5%. The higher percentage source of information for local respondents is tourism agent which is 29% and internet is the higher percentage source of information get for foreign respondents which are 34%. Television / radio is the lowest (1%) which means in the 21st century television / radio not provide the best advertising as the source of information. Instead, the source of information has been taken over by internet that provides the highest percentage of foreign tourists especially.

Most of respondent are a first timer. The percentages of first time are higher in foreign respondents (95%) compared to local respondents (65%). About 22% of local stated that this is their 2nd visit to MARDI Agro Technology Park compared to foreign respondents.

With regard to transportation to MARDI Agro Technology Park, most respondents visited with car (78%) and bus (15.5%), whereas only 6.5% of respondents visited by motorcycle and other transport. Most of respondents come by car with family and partner because they can enjoy the trip together in MARDI Agro Technology Park.

Family is the highest percentages recorded which is 43.5%. Partner / spouse and in group is the second and third higher that come to MARDI Agro Technology Park which is 35% and 17.5%. The highest percentage of family get caused MARDI Agro Technology Park as agro tourism place is very suitable for family to spend their leisure time together with visit and do many activities that has provided at MARDI Agro Technology Park.

From the table, about 25% of foreign visitors and 37% of local visitors give sightseeing as their purpose to visit in MARDI Agro Technology Park. The highest percentage for sightseeing is caused MARDI Agro Technology Park is the natural resources and interesting to attract visitor to see the beautiful environment and landscape such as tropical fruit farm, hi tech vegetable, flower and herb garden and also to see the petting zoo such as deer that have at MARDI Agro Technology Park.

Table 5.3: The view about MARDI Agro Technology Park

Variable	**Local N=100**	**Foreign N=100**	**Total N=200**
Source of Information: Newspaper (%)	2	2	2
Internet (%)	25	34	29.5
Magazine (%)	6	2	4
Television / Radio (%)	1	1	1
Friends / Family (%)	28	17	22.5
Tourism agent (%)	29	30	29.5
Others (%)	9	14	11.5
Number of time visit: First time (%)	65	95	80
Second time (%)	22	5	13.5
Third time (%)	9	0	4.5
More than three time (%)	4	0	2
Transportation to visit: Car (%)	76	80	78
Motorcycle (%)	1	8	4.5
Bus (%)	22	9	15.5
Others (%)	1	3	2
Membership in group: In group (%)	26	9	17.5
Partner / spouse (%)	30	40	35
Alone (%)	1	4	2.5
Family (%)	42	45	43.5
Others (%)	1	2	1.5
Purpose to visit: Relaxing (%)	8	10	9
Sightseeing (%)	37	25	31
Enjoying the natural beauty (%)	17	21	19
Farm visit (%)	25	31	28
Recreational activities (%)	8	7	7.5
Study /Research (%)	3	6	4.5
Others (%)	2	0	1

5.4 Activity of interest at MARDI Agro Technology Park

This section covers activities of interest at MARDI Agro Technology Park. In the questionnaire, the researcher asked respondents to choose only five main activities that interest them to do in MARDI Agro Technology Park which give the ranking for those activities. Type of activities that have include farm visit, sightseeing, shopping, jungle tracking, fruit testing, camping and photography.

Table 5.4: Respondents' rating of activities in MARDI Agro Technology Park.

Type of activity	**Rating of activities in MARDI Agro Technology Park**					
	1	**2**	**3**	**4**	**5**	**Total**
Farm visit	131	40	16	9	4	200
Sightseeing	25	33	18	39	55	170
Shopping	11	2	0	8	36	57
Jungle tracking	6	0	12	13	6	37
Fruit testing	5	97	61	28	8	199
Camping	2	0	0	1	2	5
Relaxing	4	2	27	58	52	143
Photography	15	26	66	43	39	189

1= Main activity
2= Second activity
3= Third activity
4= Fourth activity
5= Low activity

According to the table 5.4, the most popular activity of interest chosen by the respondents in MARDI Agro Technology Park is farm visit with the highest participation in this activity which is 100% or 200 respondents. The second in line is fruit testing (99.5%) and the third is photography (94.5%) which chosen by respondents.

The activity that receives the main rating activity is the farm visit. Only 2% rate it as the lower activities while 65.5% rate it as the main activities. This is because all the visitors that come to MARDI Agro Technology Langkawi have the opportunities to visit the fruit farm activity which use the tram as the main transportation.

The second activity is fruit testing which is 99.5%. Although the percentages of fruit testing is not large than farm visit, Fruit testing get the second rating activities get 97 responses compared to farm visit of activity. This is because the visitors that come to visit farm only can test a fresh fruit in testing fruit corner.

The third activity is photography which is 189 because the good environment and the fresh air are suitable for visitor to take photo. Photography get the third rating which is 66. The visitors assume that with the farm visit, they can know the good place to take photo when they visit the farm with the tram.

A large number of respondents are not applicable to camping and jungle tracking. Thus, 163 or 81.5% from the respondents not choose jungle tracking and only 2.5% from the respondents choose the camping as the activities. This is because when they want to do the jungle tracking and camping activities, the visitor have to pay more to joint that activities where both activities normally participate by visitors that comes in group such as government and non-government sector in Malaysian and international agencies.

5.5 Level of satisfaction on facilities and service condition

Table 5.5 show the level of satisfaction on facilities condition among respondents who visited MARDI Agro Technology Park. In this research, researcher put five level of satisfaction such as very not satisfied, not satisfied, neutral, satisfied and very satisfied. The table also shows the overall mean scores for the facilities condition range from 3.62 to 4.61

The highest mean scores for facilities condition is availability of beautiful landscape (4.61). This is because the beautiful landscape can attract the visitor to come with the beauty of the environment that has not been explored by the pollution. So that, the visitor extremely satisfied (65.5%) and hope the landscape and natural resources can be preserved for future generation at MARDI Agro Technology Park during do the recreation activities.

The result showed many respondents stated satisfied in facilities condition. The facilities that visitor "satisfy" and "extremely satisfied" include number of parking car (93%), short queue at the ticket counter (97%), safety in – farm road (83%), number of tourist guide (75.5%), position and enough resting area which are 87% and 90%, number of public toilet (64.5%), clear and readable signboard (83%) and number of tram (70.5%). Although there is facilities condition that respondent give the higher percentages of dissatisfied and extremely dissatisfied which are 14% on comfortable cafeteria. Many visitors on holiday or peak season make the cafeteria are not comfortable for visitor and they have to find another place in MARDI Agro Technology Park to eat.

The mean score for variety of planting such as vegetable (3.91) and herb garden (3.93) show that the mean not reached at 4 and is almost the same mean. This shows that the diversity of crops especially vegetables and herb should be increased to ensure that visitors are satisfied with the diversity of crops grown. Many of planting such as hi tech vegetable and variety of flower and herb can attract the visitor to come in MARDI Agro Technology Park and get more knowledge about technology that use for planting in vegetable, herb and flower.

The table below also shows the camping and watch tower give the lowest mean which is 3.62 and 3.68. Some of the respondents give the higher percentage on neutral in comfortable information technology center, safety watch tower and camping site position which are 38.5%, 41.5% and 46.5%. This is because some of the visitor that comes in MARDI Agro Technology Park not visits that place because they not have time or tired.

Table 5.5: Level satisfaction of visitors on facilities condition

Facilities Condition	**Not very satisfied**	**Not Satisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Mean**
Number of parking space	1	6	7	101	85	4.32
	0.5%	3%	3.5%	50.5%	42.5%	
Short queue at the ticket counter	2	3	4	111	83	4.32
	1%	1.5%	2%	55.5%	41.5%	

Safety in farm road	1	17	16	94	72	4.10
	0.5%	8.5%	8%	47%	36%	
Number of tourist guide	0	2	47	78	73	4.11
	0%	1%	23.5%	39%	36.5%	
Position of resting area	1	2	23	97	77	4.24
	0.5%	1%	11.5%	48.5%	38.5%	
Number of resting area	1	3	16	113	67	4.21
	0.5%	1.5%	8%	56.5%	33.5%	
Comfortable information technology center	2	5	77	62	54	3.81
	1%	2.5%	38.5%	31.5%	27%	
Comfortable cafeteria	3	25	34	86	52	3.80
	1.5%	12.5%	17%	43%	26%	
Condition of sales center	0	11	43	93	53	3.94
	0%	5.5%	21.5%	46.5%	26.5%	
Number of public toilet	1	6	64	86	43	3.82
	0.5%	3%	32%	43%	21.5%	
Fruit variety	0	10	20	114	56	4.08
	0%	5%	10%	57%	28%	
Vegetable variety	3	5	33	113	46	3.91
	1.5%	2.5%	16.5%	56.5%	23%	
Flower and herb variety	0	6	50	96	48	3.93
	0%	3%	25%	48%	24%	
Number of park vehicle / tram	0	4	55	88	53	3.95
	0%	2%	27.5%	44%	26.5%	
Clear signboard	1	6	27	94	72	4.15
	0.5%	3%	13.5%	47%	36%	

Safety of watch tower	0	20	83	50	47	3.62
	0%	10%	41.5%	25%	23.5%	
Camping site position	1	6	93	57	43	3.68
	0.5%	3%	46.5%	28.5%	22.5%	
Beautiful landscape	0	0	10	59	131	4.61
	0%	0%	5%	29.5%	65.5%	

Table 5.6 below shows the level of satisfaction of visitors on service condition. The tourist guide show the good result where the highest mean scores for service condition are creativity of tourist guide (4.53). For the tourist guide, majority from visitors are extremely satisfied with creativity of tourist guide which is 56%. This is because the tourist guides have more creativity to visitor where they give many of gifts to visitor as a survivor such as trumpet, grasshopper, ring, chain and bracelets from coconut leave. Another creativity of tourist guides are takes a special photograph with use fresh fruit for the visitor memory. The creativity of tourist guide can enjoy and make the visitors happy when they come to MARDI Agro Technology Park during do the recreation activities.

Friendliness and hospitality by tourist guide with the second highest mean (4.41) also plays an important role to ensure that visitors are satisfied with the services provided. Many of respondents satisfied and extremely satisfied with the friendliness and hospitality of tourist guide which is 97%. Although, the mean score of information by tourist guide which is 4.23 can be improve to ensure the visitor more satisfied with more knowledge get from good tourist guide information.

Respondents also satisfied and extremely satisfied with variety of fruit testing which is 82.5%. Although, some of the respondent not satisfied which is 6.5% rate because not many fruit provided especially in not the season. For the service of visitor on the farm visit, many people are satisfied about the waiting time of vehicle tram which is 89%. This is because the visitors that come only wait along 10 minutes to go to farm visit in MARDI Agro Technology Park.

The tram / vehicle park condition get the lowest mean which is 3.88. Some of visitor extremely dissatisfied and dissatisfied in tram condition which is 15%. When the tram is catch by many visitors especially in the peak season, the visitors have the danger condition especially in hilly area. So that, the respondents hope the tram / park vehicle have to get a good maintenance and reduce the number of visitor catch the tram in one trip to make sure that the safety of visitor are in a good condition.

For the cleanliness of park and toilet, most visitors are extremely satisfied and satisfied that gives the highest percentages which are 77.5% and 94%. This show the larger difference where the cleanliness of toilet should be improve to make sure that visitor more satisfied with the cleanliness of toilet especially in the fruit testing corner area.

Table 5.6: Level satisfaction of visitors on services condition

Service condition	**Not very satisfied**	**Not satisfied**	**Neutral**	**Satisfied**	**Very satisfied**	**Mean**
Waiting time for tram	1	7	14	108	70	4.20
	0.5%	3.5%	7%	54%	35%	

Park vehicle / tram condition	2	30	13	101	54	3.88
	1%	15%	6.5%	50.5%	27%	
Farm visit period	1	6	17	115	61	4.15
	0.5%	3%	8.5%	57.5%	30.5%	
Cleanliness of toilet	0	2	43	102	53	4.03
	0%	1%	21.5%	51%	26.5%	
Cleanliness of park	0	3	9	114	74	4.30
	0%	1.5%	4.5%	57%	37%	
Creativity of tourist guide	0	2	2	84	112	4.53
	0%	1%	1%	42%	56%	
Information by tourist guide	1	7	15	100	73	4.23
	0.5%	3.5%	7.5%	50%	36.5%	
Friendliness and hospitality of tourist guide	0	1	5	102	92	4.41
	0%	0.5%	2.5%	51%	46%	
Variety of fruit testing	0	13	22	99	66	4.09
	0%	6.5%	11%	49.5%	33%	

5.6 Visitors Willingness to Pay (WTP) for build Health and Spa Centre

Willingness to pays are points that make up a demand curve. The higher the bid prices, the lowest the number of people bidding "Yes" (e.g at RM25 only 7% are willing to pay), indicating willingness to pay in order to build Health and Spa Center, compared to a lower bid price (e.g. RM5 = 32.2%) (Table 5.7a). Conversely, the higher the bid prices, the higher the number of people bidding "No" (RM25 = 37.6%) compared to the lower bid price (RM5 = 3.5%). Almost 80% of the respondents say "Yes" to the bid values up to RM15. This gives us the mode for "Yes" vote as RM5 with a median RM15.

The Pearson Chi-Square (56.266) associated with the cross tabulation is highly significant indicating that the responses (yes or no) and the card values are not independent, or purely "random," or are evenly distributed among the card values (table 5.7b)

Table 5.7a: Yes/No to Card Value (WTP Stated Value)

Card value (RM)	**Yes**	**No**	**Total**
5.00	37 (32.2)	3 (3.5)	40 (20)
10.00	31 (27.0)	9 (10.6)	40 (20)
15.00	24 (20.9)	16 (18.8)	40 (20)
20.00	15 (13.0)	25 (29.4)	40 (20)
25.00	8 (7.0)	32 37.6)	40 (20)
Total	115 (100)	85 (100)	200 (100)

Table 5.7b: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.266[a]	4	.000
Likelihood Ratio	61.980	4	.000
Linear-by-Linear Association	55.740	1	.000
N of Valid Cases	200		

5.7 Simple Regression of Grouped Data

We can now compute the odds by saying yes to the card values by dividing the percentages replying yes by the percentages replying "no" and the results are given in table 5.7c. It is evident that the odds of saying yes decreases with the card value. The natural log of these odds can be calculated manually and is reproduced in table 5.7c. It is then possible to regress these logs against the card values to estimate the simple regression equation:

$$\text{In}[\, p / (1-p)] = \alpha + \beta \text{ Card Value}$$

Thus, using grouped data, we obtain a linear regression equation shown in table 5.7d through 5.7f. Note that we have not made us of the logistic regression as provided in the SPSS, but only the simple linear regression of that package.

Table 5.7c: Card Values and the Odds of Yes Answer

Card Value	Odds: P(yes)/P(no)	Natural Log of Odds
RM5	12.3333	2.5123
RM10	3.4444	1.2367
RM15	1.5	0.4055
RM20	0.6	-0.5108
RM25	0.25	-1.3863

Table 5.7d: Simple Logistic Regression

Coefficient[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.315	.147		22.547	.000
	CARD VALUE	-.191	.009	-.997	-21.531	.000

a. Dependent Variable: LOG ODDS

Table 5.7e: Simple model Goodness of Fit

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997[a]	.994	.991	.1401808

a. Predictors: (Constant), CARD VALUE

Table 5.7f: ANOVA Table of Simple Model

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.110	1	9.110	463.604	.000[b]
	Residual	.059	3	.020		
	Total	9.169	4			

a. Dependent Variable: LOG ODDS
b. Predictors: (Constant), CARD VALUE

As can be seen in these tables, the coefficient attached to card value is negative (-0.191), as expected, and statistically significant at 5% (Table 5.7d). The figure means that when the card value increases by RM1.00, the log of the odds of a "Yes" answer decreases by 0.191. This model (using card value alone as independent variable) explains about 99.4% of the variation in the logs of the odds (table 5.7e). The results are significant at

the 1% level (table 5.7f). We do not, however, use the grouped data results to estimate the demand equation, but the individual data.

How do local visitors differ from their foreign counterparts in terms of willingness to pay? Further investigation led to the discovery that differences exists in WTP between local and foreign visitors. Overall, (59%) of the foreign respondents in the sample voted "Yes", and (41%) voted "No" – as compared to (56%) of the local respondents voted "Yes" and 44% voted "No" to all bid prices, respectively. However, the result shows that almost 94.6% of the local respondents are willing to pay up to RM20.00 as compared to only 91.5% of the local respondents. (Appendix 1: Table 2(a) and 2(b))

5.8 Result of Contingent Valuation Method Study

For the Contingent Valuation Method (CVM), our study used the single-bounded dichotomous choice models. We examine WTP for build Health and Spa Centre in MARDI Agro Technology Park as hypothetical. Each WTP is answered by 200 respondents where local and foreign is equal which 100 respondents. We estimated the WTP using both a Logit and Probit model. The explanatory variables we used are listed below[1]:

$$WTP = \alpha + \beta_1 LBD + \beta_2 SEX + \beta_3 AGE + \beta_4 STATUS + \beta_5 DUMOCC + \beta_6 INCOME + \beta_7 DUMEDU + \beta_8 TMEVISIT + \beta_9 PARKING + \beta_{10} TICKET + \beta_{11} ROAD + \beta_{12} NGUIDE + \beta_{13} PREST + \beta_{14} NREST + \beta_{15} TECHNOLOGY + \beta_{16} CAFE + \beta_{17} SALE + \beta_{18} NTOILET + \beta_{19} FRUIT + \beta_{20} VEG + \beta_{21} HERB + \beta_{22} NTRAM + \beta_{23} SBOARD + \beta_{24} TOWER +$$

β_{25}CAMP + β_{26}LANDSCAPE + β_{27}WTIME + β_{28}TRAMCON + β_{29}FARMVISIT + β_{30}CLNTOILET + β_{31}CLNPARK + β_{32}CREATIVE + β_{33}FRIENDLY + β_{34}INFO + β_{35}FRUITTST

In our study, we expected WTP to be a positively relate to DUMEDU, INCOME, TMEVISIT and DUMOCC. For income, since the tourism is widely considered that the higher the income give the higher the probability of saying yes to the bid amount. Past studies such as Radam and Abu Mansor (2000) yield a positive relationship between income and WTP. The log of bid amount (LBD) have a negative relationship with the probability of saying yes to the bid amount where the higher the bid amount give the smaller probability of saying yes. Frequently the visitor come to the park have the highest probability of saying yes to the bid amount. According to Lockwood et.al (1993), education has a positive effect on WTP because it is related to income where a higher level of education means a higher income. For a similar reason we would expect visitors that are presently working to have a higher probability of saying yes to the bid amount. Finally, the facilities and service condition in visitor satisfaction are expected have a negative relationship with the probability of saying yes to the bid amount. It is expected that respondents who found that some facilities and service condition to be not good will be more willing to pay to improve the facilities and service condition.

[1] For an in – depth discussion of these variable. See chapter 4

5.8.1: Willingness to pay (WTP) for foreign respondent in MARDI Agro Technology Park

In this section we present the results of our study for foreign respondents on the issue of interest – that is construction Health and Spa Centre in MARDI Agro Technology Park. The visitors are asked "if supposedly the management wants to construct Health and Spa Centre as a new facilities and service to attract the visitor come to the park. The explanatory variables above used to show the full model of the single-bounded approach. Upon elimination of the insignificant variables, our final model is presented in Table 5.8 below:

Table 5.8: Foreign respondent WTP issue Using Logit and Probit Estimation - Final Model

Variables	Logit			Probit		
	Coeff.	t-statistic	P-value	Coeff	t-statistic	P-value
Constant	7.5708	1.43	0.152	4.4467	1.45	0.148
LBD	-0.2721	-4.17	0.000*	-1.6166	-4.37	0.000*
DUMOCC	0.5671	2.42	0.015**	0.3334	2.47	0.014**
INCOME	1.4997	4.10	0.000*	0.8794	4.38	0.000*
DUMEDU	-2.3890	-1.96	0.050**	-1.4015	-1.97	0.049**
WTIME	-1.0807	-1.96	0.050**	-0.6164	-1.87	0.061**
TRAMCON	0.7049	1.68	0.092***	0.4143	1.65	0.099***
CLNTOILET	1.1555	1.75	0.080***	0.6504	1.69	0.092***
CLNPARK	-2.0873	-2.51	0.012**	-1.2293	-2.55	0.011**
FRUITTEST	1.5531	2.32	0.020**	0.9312	2.39	0.017**
Pseudo R^2	0.4706			0.4756		
Chi Squared	63.71			64.39		

Note: *Significant at 0.01 level, **Significant at 0.05 level and ***Significant at 0.1 level

The final model of foreign visitor has Pseudo R^2 for both the Logit and Probit models. It indicates that the variables included in the model explain about 47.56% of the variation in the independent variable. The variables included in the final model that are significant at the 10% level are TRAMCON and CLNTOILET; with DUMOCC, DUMEDU, WTIME, CLNPARK that are significant at the 5% level; with LBD and INCOME that are significant at the 1% level. INCOME and DUMOCCUP have the expected positive sign where the better occupation gives more respondents the highest income, the more likely the respondents are willing to pay for the construction of Health and Spa Centre.

Another variable include service condition such as TRAMCON, CLNTOILET, and FRUITTEST also have a positive sign indicating that respondent who are employed those that think that tram condition, fruit testing, cleanliness of toilet should be control the influx of visitors especially in the peak season more likely to pay to reduce crowding and make that service always in good condition.

Another service condition such as WTIME, DUMEDU and CLNPARK has a negative sign. DUMEDU have a negative relationship with WTP. Syamsul Herman et.al (2014) stated that the visitors with higher educational level more sensitive toward environmental and degradation issues. This show that the visitor with the higher educational level more aware with environmental issues such as clearing for planting and landscape because MARDI Agro Technology Park known as fruit and vegetable farming. It is the factors that contribute to the negative relationship between education. WTPWTIME indicating that respondents who are employed and not satisfied about waiting time will be more willing to pay to make sure that the time waiting for the tram

can reduce. CLNPARK also give a negative sign where the respondent will be more willing to pay to make sure the park can become clean during the farm visit without garbage. The coefficient on LBD, as expected, is significantly negative. The estimated mean WTP of the foreign group of RM7.20. This can then be extrapolated to estimate the total WTP for the population by multiplying the number of foreign visitor that come to MARDI Agro Technology Park in 2013 by the mean WTP, which approximately amounts to RM440964.00

5.8.2 Willingness to pay (WTP) for local respondent in MARDI Agro Technology Park

Similar as before, we present the single-bounded approach for local respondents, both the full until the final model using Logit and Probit models. Table 5.9 shows the final model of the single-bounded approach.

Table 5.9: Local respondent WTP issue Using Logit and Probit Estimation - Final Model

Variables	Logit			Probit		
	Coeff.	t-statistic	P-value	Coeff	t-statistic	P-value
Constant	-3.6054	-0.99	0.322	-2.1015	-1.01	0.312
LBD	-0.5116	-4.40	0.000*	-0.2903	4.79	0.000*
INCOME	1.8261	3.41	0.001*	1.0312	3.61	0.000*
TIMEVISIT	2.9278	3.60	0.000*	1.6302	3.89	0.000*
PARKING	-1.7850	-1.98	0.048**	-1.0191	-1.98	0.047**
TICKET	2.8873	2.69	0.007*	1.6171	2.72	0.007*
SALE	-2.4858	-2.87	0.004*	-1.4004	-3.03	0.002*
NTOILET	2.0543	2.63	0.009*	1.2188	2.78	0.005*

Pseudo R^2	0.685			0.6876		
Chi Squared	93.97			94.33		

Note: *Significant at 0.01 level and **Significant at 0.05 level

The final model of local visitors includes variables that give the best fit overall. The Pseudo R^2 for this model is a bit higher compared to the model for foreign visitors. It indicates that the variables included in the model explain about 68.76 % (compared to only 50.74% in model for foreign visitors) of the variation in the independent variable. It indicates that the variables included in the model explain about 94.33 % of the variation in the independent variable. The difference variables also given compare to foreign visitors. The variables included in the final model that is significant at the 5% level only PARKING; with INCOME, LBD, TIMEVISIT, TICKET, SALES and NTOILET that are significant at the 1% level. INCOME, TIMEVISIT, TICKET and NTOILET has the expected positive sign where the higher income, low ticket price, frequently to come more to MARDI Agro Technology Park give the probability of visitor to willing to pay. Enough number facilities such as toilet more likely the respondents are willing to pay for the construction Health and Spa Centre. PARKING and SALES has a negative sign indicating that the local respondents who found that number of parking car not enough and condition of sales centre with less souvenirs, fruit and vegetable thing make local respondents will be more willing to pay to make sure that management can add the number of parking car and sell more thing in sales center, in addition to build the Health and Spa Centre. The coefficient on LBD, as expected, is significantly negative. The estimated mean WTP of the foreign group of RM6.35. This can then be extrapolated to estimate the total WTP for the population by multiplying the number of local visitor that

come to MARDI Agro Technology Park in 2013 by the mean WTP, which approximately amounts to RM92913.20

5.8.3 Willingness to pay (WTP) for respondent in MARDI Agro Technology Park

After we combine the entire local and foreign respondent together, we also present the single-bounded approach for all respondents, both the full until the final model using Logit and Probit models. Table 6.14 shows the final model of the single-bounded approach where the combination all of them give the decrease variable:

Table 5.10: Respondent WTP issue Using Logit and Probit Estimation - Final Model

Variables	Logit			Probit		
	Coeff.	t-statistic	P-value	Coeff	t-statistic	P-value
Constant	-0.8527	-0.76	0.448	-0.2724	-0.63	0.530
LBD	-0.2481	-6.60	0.000*	-0.1416	-7.29	0.000*
INCOME	0.9905	5.29	0.000*	0.5513	5.65	0.000*
TIMEVISIT	1.4946	3.81	0.000*	0.8401	3.81	0.000*
Pseudo R^2	0.4303			0.4281		
Chi Squared	117.37			116.75		

Note: *Significant at 0.01 level

The final model for combination of all 200 respondents has a relatively low Pseudo R^2 for both the Logit and Probit models. It indicates that the variables included in the model only explain about 43.03 % of the variation in the independent variable. The variables included in the final model also less that are significant at the 1% level only are LBD, INCOME and TIMEVISIT. INCOME and TIMEVISIT has the expected positive sign

where the higher income and frequently visit more likely the respondents are willing to pay for construction of Health and Spa Centre. The coefficient on LBD, as expected, is significantly negative. The estimated mean WTP of the group of RM8.63. This can then be extrapolated to estimate the total WTP for the population by multiplying the number of all visitor that come to MARDI Agro Technology Park in 2013 by the mean WTP, which approximately amounts to RM654818.51

5.9 Reason for Willingness to pay

From 115 respondents say yes for willing to pay about plan to build the Health and Spa Center, 59 respondents agree are foreign respondents compared 56 respondent among the local respondent

Table 5.11: Reason for willing to pay

Reason	**Local**	**Foreign**	**Total**
Agree with the plan to build the Health and Spa Center	14 (25%)	12 (20.3%)	26 (22.6%)
Will increase knowledge about usage of herbs available in Malaysia	25 (44.6%)	34 (57.6%)	59 (51.3%)
It can help MARDI Agro Technology Park to expend its service	15 (26.8%)	8 (13.6%)	23 (20%)
I love health and spa service	1 (1.8%)	4 (6.8%)	5 (4.3%)
Others	1 (1.8%)	1 (1.7%)	2 (1.7%)
Total	56 (100%)	59 (100%)	115 (100%)

When those who agree to contribute are asked why they want to contribute to the fund, there are 51.3% say they would increase knowledge about usage of herbs available in Malaysia (Table 5.11). 57.6% of foreign respondents give this answer compare with 44.6% among the local respondent. The second higher percentage for the reason which is 22.6% say they agree with the plan to build the Health and Spa Center. This is because MARDI Agro Technology Park is suitable to build more facilities such as Health and Spa Center to attract more visitors to come and enjoy the new activity. Another reason for respondents to pay which is 20% is it can help MARDI Agro Technology Park. This is because when they willing to pay more, they feel responsibilities to help management to develop the project and give benefit for visitor when it build in the future.

5.10 Reason for not willing to pay

Table 5.12: Reason for not willing to pay

Reason	**Local**	**Foreign**	**Total**
I don't like spa	5 (11.4%)	4 (9.8%)	9 (10.6%)
Current entrance fee is already sufficient	17 (38.6%)	13 (31.7%)	30 (35.3%)
The cost should be provided by Malaysian Government	7 (15.9%)	11 (26.8%)	18 (21.2%)
Health and Spa Center is not suitable to be built in MARDI Agro Technology Park	8 (18.2%)	9 (22%)	17 (20%)
Others	7 (15.9%)	4 (9.8%)	11 (12.9%)
Total	44 (100%)	41 (100%)	85 (100%)

The table 5.12 shows that the 85 people who say they are not willing to pay for plan to build the Health and Spa Center, 30 (or 35.3%) say it because current entrance fee is already sufficient. Eighteen (21.2%) of them think that the Health and Spa center is not suitable to be built in MARDI Agro Technology Park because that park is full for many planting or available facilities where the new building can't be develop. In addition, the Health and Spa Center can't be making in the area where almost all the place are hilly area. For the other reason which is 17 (or 20%) say the management have to focus the technology for the fruit and vegetable farm to give more fresh of fruit and vegetable for the visitor.

5.11 Respondents' View on our Questionnaire

To close our interviews, we ask respondents about what they think of our questionnaire on three specific dimensions, namely, whether they find it too much information, about the right information and not enough information. This calls for a multiple response analysis and we present the results of this run below. The table below show that the questionnaire that provided is in about the right information. This is because the questionnaire provided easy to answers by respondent and achieves the objective that suggested.

Table 5.13: Respondents' view on questionnaire

Do you find this	Local	Foreign	Total
Too much information (%)	26	31	28.5
About the right information (%)	68	59	63.5
Not enough information (%)	6	10	8

5.12 Visitors' Suggestions for Improving MARDI Agro Technology Park

Finally, we come to the section in the questionnaire where we ask MARDI Agro Technology Park respondents to offer suggestions or comments on how to improve the park. A total of 157 comments that come from local visitors which is 81 and foreign visitors which is 76 remarks or suggestions are received from the respondents. These are recorded as strong variables and content analysis is conducted to determine what words are commonly used in their suggestions.

The first word that use is information or *maklumat* in Malay, Many respondents did not have a good knowledge about tropical fruit farm especially the foreign visitor. The management of MARDI Agro Technology Park should implement education program to visitors when they visit fruit farm such as technology that used for planting of fruit and vegetable in fertigation and hydroponic process that have in MARDI Agro Technology Park. Advertisement on television and open the technology information center for visitor can help the visitor to get more knowledge about the planting on this park. Besides that, with have education program it can give a lot of benefit to visitor especially get information and knowledge about the function of MARDI Agro Technology Park. Addition of the information can be do with the guide have to sit with visitor in the tram and stop at many place and give more information to visitor about the fruit, vegetables and also herb.

Promotion also suggested by visitor to attract the visitor to come. Governments and non-government body must enhance their cooperation with each other in promote and protected MARDI Agro Technology Park as an agrotourism and conservation area. Cooperation from both agencies is important to attract the visitor to come and develop MARDI Agro Technology Park to maintain as ten popular place of agrotourism in Malaysia.

Another comment is safety or *keselamatan* in Malay language. Enhancement features and security of visitors can be done in the watch tower, trams and farm roads. Visitors suggested that farm roads need to be improved to ensure the safe use of farm roads to all types of transportation especially vehicles park that boarded by visitors. There is also a guide carry the vehicle too fast, especially in the hilly areas. This can lead to visitors' safety is in danger, especially for visitors who sit with many visitor in one tram. For the watch tower, the management have to monitor the safety of watch tower in the hills area and far from many visitor.

For clean or *bersih* in the Malay language that comment by visitors. The visitors employ this word to suggest that the place must be kept clean or that the park or facilities must be locked after so as to remain in a high state of cleanliness. Another comment about clean is about toilet and kiosk in the testing fruit corner. The suggestion is that the toilet and kiosks on the testing fruit corner must be kept clean or in a good repair. Cleanliness also should be monitored in the farm, especially in the fruit that falls to ensure the cleanliness guaranteed and can also avoid less attraction of visitor to come..

Many visitors are also of the opinion that there should be add more infrastructure / services and activity. The infrastructure / service that should be added include toilet, homestay /chalet, tram, guide, signboard, souvenir in the sales center and dustbin. They feel that greater service or facilities can give more comfortable among the visitors to use facilities and services that provided in future generation. More activities should be provided such as flying fox, cycling and fishing to attract the visitor to come and do the adventurous and challenging activities.

Last comment of respondents is about the cafeteria. Some of the respondents not satisfied about cafeteria because not many food selling. To addition the food and drinks, the management in MARDI AgroTechnology Park should allowing food stalls to sell more food and drinks to the visitor. In addition there are foods that were too expensive sell for visitors. So that the visitors suggested the cafeteria should reduce the price toward visitor that come.

5.13 Summary of CVM results

For the CVM that use the single-bounded dichotomous choice, we used two model namely logit and probit model. The result of the logistic and probit regression shows that variable such as LBD, income and number of time visit do contribute towards explaining the logs of the odds of saying "yes" among all respondents to MARDI Agro Technology Park. The sample mean WTP is found to be RM8.26, based on estimated population size of visitors that visit to MARDI Agro Technology Park in 2013.

The result shows difference the WTP between foreign and local respondents. The mean WTP for foreign respondent of RM7.20 compared to local respondents of RM6.35. Ayob (2002) also found foreign visitor's WTP higher than local visitor in valuing the environmental goods in Pulau Payar, Langkawi.

Among the reason of those who agree to pay for construction of Health and Spa Centre is to get more knowledge (51.3%), followed by agree with plan (22.6%) and can help MARDI expend the service (20%). In contrast, among the most frequent reason given by respondent who are not willing to pay are: sufficient entrance fee (35.3%) and that construction of Health and Spa Centre is the government's responsibility (21.2%). Almost 11% refuse to pay because they don't like spa.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study attempts to determine the factors affecting the willingness to willingness to pay among the visitors to MARDI Agro Technology Park, Langkawi in order to enhance their participation in the recreation activities at the park. The study also aims to assess and evaluate visitors' satisfaction towards the park's services and facilities' condition. This will help the management to provide a better service to encourage an increase of visitors at the park. MARDI Agro Technology Park began to take in visitors in 2006, where 9,206 visitors visited the park in the first year. Over the years, the number of visitors increased and by 2013, 75,877 visitor arrivals were recorded. With such a great influx of visitors, the management of the park plans to build a Spa and Health Centre to attract more visitors to the park.

The objectives of the study are first, to identify the demographic characteristics of the visitors to the park; second, to estimate the WTP for an additional facility at the park, namely a Health and Spa Centre; third, to assess the difference in the WTP between local and foreign visitors; and finally to identify the level of satisfaction among visitors to the park.

Based on the descriptive statistics of the respondents' profile, a majority of the respondents to the park that answered the questionnaire distributed by the researcher are males within the age range of 20 to 29, or 22 percent. This indicates that the park appeals to the younger people, implying that the park offers the type of recreation activities that appeal to youth group. With regards to occupation, the majority of the respondents are in the professional/management group with an income range of between RM6001 – RM9000. The finding also shows that a majority of the respondents possess higher institution education level. The conclusion of the relation between the respondents' education and income is a higher education level implies a higher income level.

For the second objective, the CVM is used with the single-bounded dichotomous choice as the technique for measuring WTP. The respondents were asked a hypothetical question which is how much they are willing to pay for a Health and Spa Centre facility at the park. It can be concluded that a low bid amount encourage a higher willingness to pay among visitors compared to a high bid amount. It can be seen that the bid amount at RM5 shows the highest probability of respondents saying "Yes" compared to other bid amounts. Meanwhile, the estimated mean of WTP is RM8.63 for all respondents. However, the result shows that there is a difference in the WTP between foreign and local respondents. The mean willingness to pay for local visitor is RM6.35 and RM7.20 for foreign visitors. These figures indicate that the current fee charged is below the visitors' maximum WTP, be it among the local or among the foreign visitors. Therefore, this finding provides some basis for the management of the park in considering their pricing strategy. The substantial difference between the current fee and the mean WTP

implies that a marginal increase in the entrance fee will contribute significantly to the income of the park management.

The most important factor that affects the WTP of both local and foreign visitor is the income and log bid amount (LBD). Furthermore, frequency of visits and facilities' condition such as the number of parking spaces, length of queue at the ticket counter, condition of sales centre, and the number of public toilets have a significant effect on the willingness to pay of local visitors. For foreign visitors, factors such as occupation, education and services' condition such as waiting time for tram, tram condition, cleanliness of the toilets and park as well as the variety of fruits offered at the fruit tasting corner have a significant effect on their willingness to pay.

Visitors' satisfaction with the park is divided into satisfaction towards services and facilities' condition. For the facilities' condition, the watch tower (3.62) and camping (3.68) have the lowest mean score at 3.62 and 3.68, respectively. It can be concluded that the safety and the position of the facilities influence visitors' decision to participate in the activities. The level of satisfaction towards the availability of a variety of herbs, flowers, and vegetables shows almost similar level of satisfaction, based on the almost similar mean figures. Therefore, it can be concluded that there are still fewer varieties of plants at the park. The park management should consider planting more varieties of herbs, flowers, and fruit trees to attract more visitors to the park. Beautiful landscape has the highest mean score (4.61) among all the factors. This factor is therefore considered the most important in attracting visitors to the park. This implies that the

management must protect and preserve its landscape since it is its greatest asset which can be used to attract visitors.

With regards to services, it can be concluded that the trams/park vehicle condition has the lowest mean score compared to other services. This implies that the trams facility should be improved due to the low satisfaction level associated with it. Among the most important measure is to ensure the safety passengers on their rides to and around the farm. Meanwhile, the creativity of tourist guides has the highest mean score (4.53). We conclude that most of the visitors are satisfied with this service.

6.2 Recommendation

Our empirical findings show that significant factors affecting the probability of individuals to be willing to pay for a Health and Spa Centre at MARDI Agro Technology Park are the log bid amount and income. The contingent valuation method is independent of travel cost and the number of visits to the park a respondent actually made. This method is heavily dependent on the income and the perception of the respondents towards the facilities and services improvement at the park. According to Tambunan (2002), the public good and service element plays an important role in the formulation of respondents' answers because it is possible that the respondents had been told why the entrance fee was being charged at MARDI Agro Technology Park.

Recommending higher fees has become a standard recommendation for economists studying the development and addition of new facilities and services in a park. Several

studies have been done to evaluate visitors' willingness to pay for access to improvement and construction of new facilities. In fact, Wells (1997) found that charging higher entry fees to visitors is the only way park management agencies in many countries can capture a large share of the economic value of protected area tourism.

Besides increasing the entry fees for both local and foreign visitors, multiple pricing policies have also been implemented in several countries. According to Lindberg (1991), multiple pricing policies usually involve charging foreign visitors a higher fee than locals, thereby meeting the twin objectives of raising revenues from those with the ability to pay more, without denying citizens access to their natural heritage.

Another recommendation is government and non – government agencies must enhance their cooperation in promoting and developing MARDI Agro Technology Park as an agrotourism area. Cooperation among all agencies is important to develop the park without damaging the natural landscape and the environment. In addition, these agencies such as the Langkawi Development Authority (LADA) may allocate funds to maintain and improve the facilities and services. Proper maintenance, improvement in facilities, and the variety of recreation activities offered can provide continuous benefits in terms of attracting visitors to the park. At the same time, the construction of a Health and Spa Centre is a new special attraction to the park than can encourage visitors to come and enjoy the new service when it is really provided.

These results prove that an increment of budget outlays for further developments is feasible as the park with improved facilities and better services and pleasant

environment would attract more visitors. A higher number of visitors with an increased satisfaction level could result in increased revenue generation.

With continuous efforts and close cooperation between the government and the private sector, MARDI Agro Technology Park is able to generate significant revenues through the establishment of a Health and Spa Centre. However, despite the excitement of developing a Health and Spa Centre, a number of challenges, including the potential effect of positive and negative tourism should be given due consideration in establishing a sustainable development for the benefit of all parties, especially the local communities.

Many respondents did not have a good knowledge about the planting technology, fertigation and hydroponic process at the park. The management of the park should implement various programmes to educate the public, especially visitors to the park about its activities. This knowledge will be invaluable to the visitors in terms of the benefits of tropical fruits, vegetables and herbs especially those planted at the park.

Another recommendation is the management should provide an evaluation form to the visitors so they can rate the services and facilities' condition at the farm. The form can be given to the visitors when they board the trams and be submitted to the tourist guides. The comments from the visitors are important feedbacks to the management in terms of improving its facilities and services.

The final recommendation is that all the visitors should be required to fill up an inventory form of items upon their entrance to the park. Items such as bottled drinks and packaged food must be properly disposed of in the rubbish bins. Furthermore, the guards must strictly enforce the rules and regulations of the park to make sure that the park is safe and clean. Through time, the problem of littering and improper disposal of rubbish by the visitors can be reduced. The public must be made aware about the importance of keeping the park clean in order to preserve our natural heritage for the future generations.

BIBLIOGRAPHY

Abu Bakar, J. (2002). *A Design Guide for Public Parks in Malaysia.* Universiti Teknologi Malaysia: Skudai, Johor.

Ahmed, S.U., and Goteh, K. (2006). *Cost Benefit Analysis of Environmental Goods by Applying the Contingent Valuation Method: Some Japanese Case Studies.* Nagasaki, Japan: Springer.

Ajzen, I. and Driver, B.I. (1992). "Application of the Theory of Planning Behavior to Leisure Choice." *Journal of Leisure Research.* 24, 207-224.

Alias, R., Shazali, A. M., Abas, S., and Dayang Afizah, M. (2002). "Willingness of Local Tourists to Pay for Conservation of Tourism Sports in the Damai District Sarawak." *ASEAN Journal on Hospitality and Tourism*. 1, 53 – 63.

Alias, R., and Ruhana, B. (2003*). Consumer Perception and Villingness to Pay toward Facilities in Malaysian Agro Park, Bukit Cahaya Shah Alam, Selangor*. In Seminar FEP 2001 Proceedings in Hospitality and Recreation, Faculty of Economic and Management, Universiti Putra Malaysia.

Arin, T., and Kramer, R. A. (2002). "Divers' willingness to pay to visit Marine Sanctuaries: An exploratory study." *Ocean and Coastal Management*. 45, 171–183.

Asafu-Adjaya, J., and Tapsuwan, S. (2008). "A contingent valuation study of scuba diving benefits: Case Study in Mu Ko Similan Marine National Park, Thailand." *Tourism Management.* 29(6), 1122 – 1130.

Ayob, A. M., Rawi, S. B., Ahmad, S.A., and Arzemi, A. (2002). *Valuing Environmental Goods Using Contingent Valuation Method: Case Study Pulau Payar*. Research Report Malaysia: Universiti Utara Malaysia.

Bailey, D. (1987). *Methods of social research (* 2 edition). New York: The Free Press.

Bateman, I. J., and Turner, R. K. (1995). *Valuation of the Environment, Methods and Techniques: The Contingent Valuation Method, in Turner (edition). Sustainable Environmental Economics and Management*: *Principles and Practice*. England: J Wiley.

Bishop, R.C., and Heberlein, T.A. (1979). "Measuring values of extramarket goods: are indirect measures biased?" *American Journal of Agricultural Economics.* 61(5), 926 – 930.

Blaine, T.W., Lichtkoppler, F.R., Jones, K.R., and Zondag, R.H. (2005). "An assessment of household willingness to pay for curbside recycling: A comparison of payment card and referendum approaches." *Journal of Environmental Management.* 76(1), 15 – 22.

Bowen, H.R. (1943). "The interpretation of voting in the allocation of economic resources." *Quarterly Journal of Economics.* 58, 27-48.

Brookshire, D.S., and Crocker, T.D. (1981). "The advantages of contingent valuation method for benefit costs analysis". *Public choice.* 36, 235 – 252.

Brown, J.G., and Henry, W. (1989). "The economic value of elephants." *Discussion London Environmental Economics Centre.* Paper 89-112.

Callen, S.J., and Thomas, J.M. (2004). *Environmental economics and management: Theory, policy and application* (3rd edition). Ohio: Thomson Learning.

Cameron, T., and James, M. (1987). "Efficient Estimation Methods for Use with Closed Ended Contingent Valuation Survey Data." *Review of Economics and Statistics* 69, 269 – 276.

Carr, L., and Mendelsohn, R. (2002). *Valuing Coral Reefs: A travel Cost Analysis of the Great Barrier Reef.* Yele University, School of Forestry and environmental Studies, New Haven CT, USA.

Clark, J.M. (1915). "The concept of value: a rejoinder." *Quarterly Journal of Economic.* 29, 709-723.

Che, D., Veeck, A., and Veeck, G. (2005). "Sustaining production and strengthening the agritourism market: Linkages among Michigan agritourism destination." *Agriculture and human values.* 22, 225 – 234.

Dayang, A. A., Alias, M., Baizura, J. Z. (2006).*The Economics of Recreational Park Conservation: A Case study of Bako National Park.* Universiti Malaysia Sarawak (UNIMAS).

Deaton, A., and Muellbauer, J. (1980). *Economics and consumer behavior*. Cambridge University Press: Cambridge.

Doss, C.R. (2001). "Designing agricultural technology for African women farmers: Lessons from 25 years of experience." *World Development.* 29, 2075 – 2092.

Elliot, B. (1988). "From people's park to green desert." *Landscape Design.* 171, 13 – 15.

Garrod, G., and Willis, K.G. (1999). *Economic Valuation of the Environment: Methods and Case Studies.* UK: Edward Elgar.

Gibberd, F. (1982). "Public parks." *Landscape Design.* 139, 5 – 6.

Hanemann, W. M. (1991). "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" *American Economic Review*. 81 (3), 635 – 647.

Hanley, N., and Splash, C.L. (1993). *Cost-Benefit Analysis and the Environment.* UK: Edward Elger, Hunts.

Henderson, J.M., and Quandt, R.E. (1980). *Microeconomic theory: A mathematical approach.* Singapore, SG: McGraw – Hill International Editions.

Herrmann, A., Xia, L., Monroe, K.B., and Huber, F. (2007). "The Influence of Price Fairness on Consumer Satisfaction: An Empirical Test in the Context of Automobile Purchases." *Journal of Product and Brand Management*. 16(1), 49-58.

Johansson, P.O. (1987). *The Economics Theory and Measurement of Environmental Benefits.* Cambridge University Press: Cambridge.

Johansson, P.O. (1991). *An Introduction to Modern Welfare Economics.* Cambridge University Press: Cambridge.

Kidston, D.A. (2002). *Opportunities for Agritourism on Organic Farms: The Magdalen Island Quebec.* Masters of Environmental Studies Dalhousie University.

King, D.M., and Mazzotta, M. (2005). Ecosystem valuation. U.S. Department of Agriculture, Natural Resources Conservation Service and U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Retrieved March 21, 2014 from http://www.ecosystemvaluation.org/.

Kolter, P. (2004). *Principle of Marketing.* United states of America: Pearson Education.

Kristrom, B. (1990). "Valuing environmental benefits using the contingent valuation method – an econometric analysis." *Umea Economics Studies.* 219.

Lancaster, K.J (1966). "A new approach to consumer theory." *The Journal of Political Economy.* 74(2), 132–157.

Lancaster, K.J. (1998). *Consumer Theory.* Northampton, M.A: Edward Elgar Publishing.

Lazerwitz, B. (1968). *Sampling Theory and rocedures: Methodology in Social Research.* New York: McGraw – Hill Book Company.

Linberg, K. (1991). *Policies for maximizing nature tourism's ecological and economic benefits.* Washington, D.C: World Resources Institute.

Lobo, J.M. (2001). "Decline of roller dung beetle populations (Coleoptera, Scarabaeidae) in the Iberian Peninsula during the 20th century." *Biological Conservation.* 97, 43 – 50.

Lockwood, M., Loomis, J., and DeLacy, T. (1993). "A Contingent Valuation Survey and Benefit-Cost Analysis of Forest Preservation in East Gippsland, Australia". *Journal of Environmental Management.* 38, 233 – 243.

Lusk, J.L., and Hudson, D. (2004). "Willingness to Pay for Golden Rice." *American Journal of Agricultural Economics.* 85(4), 840 – 856.

Maetzold, J. (2002). Nature-Based Tourism and Agritourism Trends: Unlimited Opportunities. Retrieved May 15, 2014 from http: // www. kerrcenter. com / publication / 2002_proceedings/agritourism.pdf.

Martin,C. D., Molina, A., and Esteban, A. (2007), "An Integrated Model of Price, Satisfaction and Loyalty: an Empirical Analysis in the Service Sector." *Journal of Product and Brand Management.* 16(7), 459–468.

Mason, R. D., and Lind, D.A. (1990). *Statistical Techniques in Business and Economics.* (Ninth Edition). USA: Irwin.

Mitchell, R., and Carson, R. (1989). *Using Surveys to value Public Goods; The Contingent Valuation Method.* Resources for the future and The Johns Hopkins University Press. Washington. D.C.

Nik Mustapha, R. A. (1993). "Valuating Outdoor Recreational Resources in Tasik Perdana Using Dichotomous Choice Contingent Valuation Method." *Malaysian Journal of Agricultural Economics.* 10, 39-50.

Nik Mustapha, R.A. (1995). "Estimating the benefits of beach recreation: an application of the contingent valuation method." *Journal of social science and Human.* 3(2), 156 – 162.

Nuva, A. (2007). *Willingness to pay toward the conservation of ecotourism resources at Gunung Gede Pangrango National Park, West Java, Indonesia.* School of Graduate Studies, Universiti Putra Malaysia.

Oliver, R.L. (1997). *Satisfaction: A Behavioral Perspective on the consumer*. Mc GRAW-HILL International edition.

Othman, J., and Shahariah, A.(2003). *The Economics of Wetlands Conservation: Case of Paya Indah Wetlands, Malaysia*. Paper presented at International Ecotourism Conference, 2003: Sustainability of Ecotourism Development in a Competitive Global Environment, Bangi, Malaysia.

Othman, J. (2000). *Estimating Passive Values for Matang Mangroves Forest: Application of Contingent Valuation*. paper presented in First Conference of Resource and Environmental Economists in Malacca, organized by Protem Committee of Malaysian Association for Resource and Environmental Economics (MAREE) on 29 – 31 July.

Pearce, D. (1990). *Economic of Natural Resources and the environment.* Johms Hopkins University Press, Baltimore, Maryland, 141-158.

Phan, K. N., and Tran, V. H. S. (2001). "Analysis of the Recreational Value of the Surrounded Hon Mun Islands in Vietnam". *Economy and Environment Program for Southeast Asia*. Retrieved Jun 12, 2014 from http://www.eepsea.org.

Pizam, A., Neumann, Y., and Reichel, A. (1978). "Dimensions of tourist satisfaction with a destination". *Annals of Tourism Research*, 5, 314-322.

Radam, A., and Abu Mansor, S., (2000). *Use of Dichotomous Choice Contingent Valuation Method to Value the Manukan Island Sabah*. Paper presented in First Conference of Resource and Environmental Economists, Malacca, organized by Protem Committee of Malaysian Association for Resource and Environmental Economics (MAREE) on 29 – 31 July.

Rani, H.O. (2004). *Economic and Business Research For Malaysian Students.* Tanjung Malim, Malaysia: Universiti Pendidikan Sultan Idris (UPSI).

Raziah M.L., Engku Elini, E.A., and Alam A.R. (2008). "Economic valuation of agro-biodiversity: Willingness to pay (WTP) for conservation of rare fruit species in Malaysia." *Economic and Technology Management Review*. 3, 13 – 22.

Reisinger, Y., and Turner, L. W. (2003). *Cross-cultural behaviour in tourism: Concepts and analysis.* Oxford: Butterworth-Heinemann.

Rust, R.T., Moorman, C., and Dikson, P. R. (2002). "Getting Return on Quality: Revenue Expansion, Cost Reduction or Both?" *Journal of Marketing.* 66, 7 – 24.

Samuelson, P. (1954). "The pure theory of public expenditures." *Review of Economics and Statistics.* 36, 387-389.

Seenprachawong, U. (2001). "An economic Analysis of Coral reef in the Andaman Sea of Thailand." *Economy and Environment Program for Southeast Asia*. Retrieved May 18, 2014 from http://www.eepsea.org.

Sen, A. (1999). *Development as Freedom.* New York, NY: Anchor Books, A Division of Random House.

Sirdesh, D., Singh, J. and Sahol, B. (2002). "Consumer trust, value and loyalty in relational exchanges." *Journal of Marketing.* 66(1), 15.

Smith, V.K., Desvousges, W., and Fisher, A. (1986). Estimating Environmental Benefit. *American Journal of Agricultural Economics.* 68(2), 280-290.

Siti Aznor, A. (2009). *Visitors' willingness to pay for an entrance fee: A case study of marine park in Malaysia*. University of Glasgow.

Syamsul Herman, M.A., Nur A'in, C.M., Ahmad, S., and Ramachandran, S. (2014). "Willingness to pay for highlands' agro – tourism recreational facility: A case of Boh Tea plantation, Cameron Highlands". *IOP Conferences series: Earth and Environmental Science.* 19, 1 – 7.

Tambunan, M. (2002). *The Economic of Natural Resources and Environment*. Course Material for Graduate Student. University of Indonesia, Indonesia.

Town and Country Planning Department Peninsular Malaysia. (2002). *Planning Standards Open Spaces and Recreation.* Ministry of Housing and Local Government, Malaysia.

Unnevehr, L.J., Villamil.A.P., and Haster, C. (1999). *Measuring Consumer Demand for Functional Foods and the Impact of Health on Labeling Regulation*. Paper presented at the FAMC Conference on New Approaches to Consumer Welfare, Alexandra, VA.

Varian, H.R. (1992). *Microeconomics Analysis.* W.W. Norton: New York.

Wantrup, S.V. (1947). Capital returns from soil-conservation practices. *Journal of Farm Economics.* 29, 1181–1196.

Warnock, M. (2003). *Utilitarianism and on Liberty*. Malden, MA: Blackwell.

Wells, A. (1997). Cognitive therapy of anxiety disorders: a practice manual and conceptual guide. Chichester, Sussex: Wiley.

Willig, R.D. (1976). Consumer surplus without apology. *American Economic Review.* 66(4), 589-597.

Yacob, M.R., and Radam, A. (2009). A Contingent Valuation Study of Marine Parks Ecotorism: The case of Pulau Payar and Pulau Redang in Malaysia. *Journal of Sustainable Development,* 2(2), 95 – 105.

Zaiton. S. (2008). Willingness to Pay in Taman Negara: A Contingent Valuation Method, Int. *Journal of Economics and Management*, 2(1), 81 – 84.

APPENDIX 1: List of table

Table 1(a)

Country of Origin for foreign respondents

Country	Frequency	Percent	Valid Percent
THAILAND	2	2.0	2.0
SINGAPORE	15	15.0	15.0
INDIA	9	9.0	9.0
OMAN	11	11.0	11.0
PAKISTAN	3	3.0	3.0
SUDAN	3	3.0	3.0
ENGLAND	6	6.0	6.0
JORDAN	3	3.0	3.0
UAE	4	4.0	4.0
BAHRAIN	5	5.0	5.0
AUSTRALIA	11	11.0	11.0
PALESTIN	2	2.0	2.0
SAUDI ARABIA	2	2.0	2.0
HONG KONG	2	2.0	2.0
CHINA	1	1.0	1.0
USA	6	6.0	6.0
BANGLADESH	5	5.0	5.0
KUWAIT	2	2.0	2.0
IRAN	2	2.0	2.0
KOREAN	1	1.0	1.0
RUSSIA	2	2.0	2.0
DENMARK	1	1.0	1.0
SRI LANKA	2	2.0	2.0
Total	100	100.0	100.0

Source: Field Survey

Table 1(b)

State of origin for local respondents

State	Frequency	Percent	Valid Percent
PERLIS	9	9.0	9.0
KEDAH	25	25.0	25.0
PENANG	6	6.0	6.0
PERAK	7	7.0	7.0
SELANGOR	16	16.0	16.0
KUALA LUMPUR	10	10.0	10.0
NEGERI SEMBILAN	2	2.0	2.0
MELAKA	8	8.0	8.0
JOHOR	4	4.0	4.0
PAHANG	5	5.0	5.0
TERENGGANU	2	2.0	2.0
KELANTAN	2	2.0	2.0
SARAWAK	3	3.0	3.0
SABAH	1	1.0	1.0
Total	100	100.0	100.0

Source: Field Study

Table 2(a): Card Value * Yes/No to Card Value* of Local visitors

	Cross tabulation	Yes / No to Card Value		Total
Card Value	**Local Tourist**	Yes	No	
RM5	Count	19	1	20
	% with Yes / No to card value	33.9%	2.3%	20%
	% of total	19%	1%	20%
RM10	Count	16	4	20
	% with Yes / No to card value	28.6%	9.1%	20%
	% of total	16%	4%	20%
RM15	Count	11	9	20
	% with Yes / No to card value	19.6%	20.5%	20%
	% of total	11%	9%	20%
RM20	Count	7	13	20
	% with Yes / No to card value	12.5%	29.5%	20%
	% of total	7%	13%	20%
RM25	Count	3	17	20
	% with Yes / No to card value	5.4%	38.6%	20%
	% of total	3%	17%	20%
Total	Count	56	44	100
	% with Yes / No to card value	100%	100%	100%
	% of total	56%	44%	100%

Chi Square Tests of Local Tourist

	Value	Df	Asymp. Sig. (2 sides)
Pearson Chi Square	34.253[a]	4	.000
Likelihood Ratio	38.897	4	.000
Linear-by-Linear Association	33.770	1	.000
N of Valid Cases	100		

Table 2(b): Card Value * Yes/No to Card Value* of Foreign visitors

	Crosstabulation	Yes / No to Card Value		Total
Card Value	**Foreign Tourist**	Yes	No	
RM5	Count	18	2	20
	% with Yes / No to Card Value	30.5%	4.9%	20%
	% of Total	18%	2%	20%
RM10	Count	15	5	20
	% with Yes / No to Card Value	25.4%	12.2%	20%
	% of Total	15%	5%	20%
RM15	Count	13	7	20
	% with Yes / No to Card Value	22.0%	17.1%	20%
	% of Total	13%	7%	20%
RM20	Count	8	12	20
	% with Yes / No to Card Value	13.6%	29.3%	20%
	% of Total	8%	12%	20%
RM25	Count	5	15	20
	% with Yes / No to Card Value	8.5%	36.6%	20%
	% of Total	5%	15%	20%
Total	Count	59	41	100
	% with Yes / No to Card Value	100%	100%	100%
	% of Total	59%	41%	100%

Chi Square Tests of Foreign Tourists			
	Value	Df	Asymp. Sig. (2 sides)
Pearson Chi Square	22.902[a]	4	.000
Likelihood Ratio	24.563	4	.000
Linear – by - Linear Association	22.284	1	.000
N of Valid Cases	100		

a.0 cell (0.0%) have expected amount less than 5. The minimum expected count is 8.60

APPENDIX 2

COMMENT AND SUGESTION TO IMPROVEMENT

Local respondents

1) Kekalkan persekitaran yang menarik dan kemudahan yang lengkap
2) Info centre untuk pelancong
3) Pelbagaikan tanaman sayur dan herba untuk pengetahuan pelancong
4) Membuat penambaikan lagi terhadap kawasan
5) Perlahankan tram di jalan berbahaya untuk keselamatan pelancong
6) Perbaiki jalan ladang yang berlubang dan bahaya
7) Turunkan harga makanan di cafeteria. Terlalu mahal
8) Pelbagaikan makanan yang dijual di cafeteria
9) Menyedia dan menambahkan lagi bilangan buah – buahan untuk pelancong
10) Banyakkan tanaman pelbagai jenis sayur dan jual dipusat jualan
11) Menambahkan lagi information untuk pengetahuan pelancong
12) Jalan ataupun laluan harus diperbaiki untuk keselamatan pelancong
13) Tambah buah - buahan lagi
14) Tambahkan petugas supaya dapat beri penerangan kepada pelancong semasa dalam lawatan
15) Cadangan saya supaya menambahbaikan kawasan di kiosks supaya lebih selesa
16) Tambahkan kemudahan dan maklumat
17) Meningkatkan kualiti kebersihan taman
18) Patut ada pemberi penerangan ketika lawatan ladang
19) Keselamatan penumpang perlu diutamakan
20) Pelbagaikan tanaman buah dan sayur di kawasan taman
21) Banyakkan promosi dan aktiviti
22) Agak memuaskan
23) Tambah bilangan pekerja dan petugas
24) No comment, everything OK
25) Mewujudkan lebih banyak aktiviti yang boleh menarik perhatian pelancong

26) Menambahkan lagi pilihan buah – buahan dan memperbanyakkan lagi aktiviti tentang penanaman
27) Tambah kemudahan maklumat kepada pelancong
28) Banyakkan aktiviti di kawasan taman
29) Tambah kemudahan awam
30) Banyakkan aktiviti rekreasi
31) Banyakkan kenderaan ladang untuk mengelakkan kesesakan di kawasan menunggu
32) Bagi minuman percuma / water cooler kepada pelancong selepas makan buah
33) Banyakkan "signboard" jalan. Susah nak jumpa
34) Bersihkan signboard yang kotor dan gantikannya yang kurang jelas
35) Agar MARDI dapat lebih banyak lagi buah – buahan tempatan yang terdapat di Malaysia
36) Perbaiki semua kekurangan ladang terutama ladang herba
37) Adakan aktiviti mengutip dan makan buah kepada pelancong yang hadir bagi menambah minat pengetahuan pelancong terutama pelancong dari luar
38) Menambah pokok buah – buahan tempatan
39) Kekalkan persekitaran taman yang menarik
40) Sangat bagus, pusat ilmu pelancongan terbaik
41) Menambahkan petting zoo / taman haiwan peliharaan di kawasan taman untuk tarikan pelawat
42) Aktiviti semuanya puas hati
43) Pastikan buah – buahan yang diberi kepada pelancong adalah buah hasil ladang MARDI sendiri
44) Banyakkan jualan buah –buahan segar di pusat jualan MARDI
45) Menambah ruang dan keselesaan kepada pelancong
46) Banyakkan promosi
47) Pelbagaikan tanaman hiasan dan landskap di kawasan taman agro pelancongan
48) Banyak buah yang masak tapi tidak dipetik dan gugur
49) Banyakkan bunga – bungaan, wangi – wangian, dan landskap yang lebih menarik
50) Wujudkan aktiviti memancing di kawasan taman agro

51) Kebersihan taman dan kemudahan awam perlu dikekalkan untuk generasi masa hadapan
52) Banyakkan buah yang ada di kawasan kiosk
53) Baik dan memuaskan
54) Langkawi adalah tarikan pelancong untuk berehat dan beriadah. Pihak MARDI perlu mengutamakan tarikan tersebut dalam memajukan taman ini supaya menepati citarasa pelawat sasaran
55) Lebihkan tempat riadah untuk keluarga dan anak dan kenalkan kepada anak jenis buah yang anak tak kenal
56) Perlu di war- warkan dalam media massa
57) Tambahkan kemudahan dan maklumat
58) Penambahbaikan kafeteria supaya selesa terutama kedatangan pelancong pada cuti sekolah dan waktu kemuncak
59) Banyakkan aktiviti pendidikan kepada pelancong
60) Pelbagaikan jenis buah di kawasan kiosk
61) Bagus
62) Bina kemudahan homestay kepada pelancong untuk merasa suasana persekitaran taman agro pada waktu malam
63) Perbanyakkan buah – buahan tempatan yang dapat dirasai oleh pelancong
64) Kemudahan mencukupi
65) Promosi perlu diperhebat
66) Sesuai untuk program lawatan
67) Kawasan yang sesuai untuk program pendidikan
68) Pastikan harga tiket yang dijual setaraf dengan perkhidmatan yang disediakan
69) Perlu banyak perhentian semasa lawatan untuk memastikan pelancong dapat melihat pokok buah – buahan tropika dengan lebih dekat
70) Semasa lawatan ada petugas memberi penerangan
71) Amat memuaskan
72) Persekitaran yang menarik. Harap dapat dikekalkan
73) Banyakkan aktiviti yang lebih menarik
74) Perlu ada promosi pada rakyat tempatan

75) Harga tiket tidak terlalu tinggi dan berpatutan
76) Pastikan berhenti di banyak tempat perhentian ladang untuk tujuan penyampaian maklumat oleh petugas
77) Perbesarkan dan penambahbaikan kawasan parking
78) Café di pelbagaikan jenis makanan
79) Kebersihan harus diutamakan
80) Perlu maklumat penanaman yang lebih terperinci
81) Jalan ladang tak sesuai (tak selamat)
82) Membina taman permainan untuk keseronokan anak-anak pelancong yang datang.

Foreign respondents

1) Quality of herbs species to be planted
2) Add more gift for visitor as souvenir
3) This park is suitable for research programme
4) Add more activity in this park
5) Fruit are fresh and delicious. I like it
6) More fresh fruit
7) Nice place to visit
8) Retrieve more information to visitor
9) Provide more activity here
10) Everything is OK. Good enjoy for it.
11) The service is good and we need to stop with every plant and tested fruit
12) Build chalet for visitor to stay
13) More information
14) Get down the ticket for visitor
15) Very good. Better with Health Center
16) This place is so cool and nice. Very happy with family
17) More education program
18) The management have done their very best already
19) More information especially the planting for knowledge of visitor

20) More activity in MARDI Agro Technology Park
21) I happy so much. Nice place
22) Build bigger cafeteria
23) I would really appreciate it if there is a supermarket up there and also restaurant
24) Arabic translation information
25) Standardize the fee for visitor
26) Enough facilities available. Thank you
27) Well set out
28) Develop the park without damages the natural resources
29) More advertisement TV on planting
30) I hope this park will add more flowers as a new attraction.
31) Thank. I love Langkawi agro park
32) Everything was OK. The staff of the agropark very nice. Thank you very much.
33) No need to take ticket for the child
34) Their management can promote the education program to agencies / visitor to get more knowledge
35) Very good
36) Education program for visitor that come
37) Wish we can go and walk around the farm and touch or get close to the fruit tree and we can take photos
38) More information for visitor is good
39) Should provide better resting area for visitor
40) Upgrade the toilet and kiosks at the testing fruit corner
41) Close sign forbidding
42) It was nice but if these add juice it will be good.
43) Advertisement on TV of planting
44) Take care the safety in the farm road
45) Showering facilities
46) More fantastic and good nature
47) Planting more fruit, vegetable, herb and flower to get more knowledge to visitor
48) Build chalets for visitor to enjoy the environment especially at night

49) Maybe offer fruit drink from fruit grown at park
50) Should provide and plant more fruit and vegetables.
51) Abdul Kadir is good guide. Hope can come again in future
52) Good place for interest. Hope can come again later.
53) Advertisement on TV of planting the fresh fruit tropical
54) The park is very beautiful
55) Take care the service s and environment to attract visitor especially the tram
56) The landscape is interesting and many of planting to attract visitor.
57) I enjoy visit this park. Hope can maintain this agro park with the fresh fruit
58) Enjoying visit
59) More activities in here
60) The research program should be continues to get a better attraction of the visitor I nthe future
61) Improve the available information such as planting
62) Safety first
63) More fruit and activity here
64) Provide the comfortable and good safety for watch tower
65) Information technology center must be open for visitor to get knowledge of tropical fruit farm in agro tourism park
66) Farm visit should be make a long time to ensure the visitor can enjoy the natural environment in agro technology park.
67) More Arabic signboard to read
68) Facilities that have is perfect and comfortable
69) Education and video for planting
70) You guy were amazing, this was the best experience of my life.
71) You should keep the seeds for your promotions
72) Thank you for being so nice for tourist and the garden very nice
73) More study / research here
74) Safety first especially park vehicle / tram
75) Concern about cleanliness
76) Standardize the fee for many recreational activities

Appendix 3a: STATA Program for logit and probit estimation (Foreign Respondents)

```
. logit D_WTP  INCOME DUMOCC DUMDEU WTIME TRAMCON CLNTOILET CLNPARK FRUITTEST LB
> D

Iteration 0:   log likelihood = -67.685855
Iteration 1:   log likelihood = -37.870894
Iteration 2:   log likelihood = -35.905544
Iteration 3:   log likelihood =  -35.83155
Iteration 4:   log likelihood = -35.831314
Iteration 5:   log likelihood = -35.831314

Logistic regression                               Number of obs   =        100
                                                  LR chi2(9)      =      63.71
                                                  Prob > chi2     =     0.0000
Log likelihood = -35.831314                       Pseudo R2       =     0.4706
```

D_WTP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
INCOME	1.499733	.3653906	4.10	0.000	.7835808	2.215886
DUMOCC	.5670748	.2340927	2.42	0.015	.1082615	1.025888
DUMDEU	-2.388944	1.21699	-1.96	0.050	-4.774201	-.0036885
WTIME	-1.080698	.552574	-1.96	0.050	-2.163723	.0023272
TRAMCON	.7048951	.4187244	1.68	0.092	-.1157896	1.52558
CLNTOILET	1.155462	.6597406	1.75	0.080	-.1376055	2.44853
CLNPARK	-2.087312	.8301312	-2.51	0.012	-3.714339	-.460285
FRUITTEST	1.553101	.6689184	2.32	0.020	.2420454	2.864157
LBD	-.2720953	.0653212	-4.17	0.000	-.4001224	-.1440681
_cons	7.570823	5.289233	1.43	0.152	-2.795883	17.93753

```
. probit D_WTP  INCOME DUMOCC DUMDEU WTIME TRAMCON CLNTOILET CLNPARK FRUITTEST L
> BD

Iteration 0:   log likelihood = -67.685855
Iteration 1:   log likelihood = -36.785115
Iteration 2:   log likelihood = -35.512936
Iteration 3:   log likelihood = -35.491797
Iteration 4:   log likelihood = -35.491783
Iteration 5:   log likelihood = -35.491783

Probit regression                                 Number of obs   =        100
                                                  LR chi2(9)      =      64.39
                                                  Prob > chi2     =     0.0000
Log likelihood = -35.491783                       Pseudo R2       =     0.4756
```

D_WTP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
INCOME	.8794337	.2006921	4.38	0.000	.4860844	1.272783
DUMOCC	.3334344	.1351779	2.47	0.014	.0684906	.5983782
DUMDEU	-1.401455	.7117438	-1.97	0.049	-2.796447	-.0064623
WTIME	-.6164216	.3294196	-1.87	0.061	-1.262072	.029229
TRAMCON	.4143218	.2509306	1.65	0.099	-.0774932	.9061368
CLNTOILET	.6503608	.3854759	1.69	0.092	-.1051581	1.40588
CLNPARK	-1.229276	.4815114	-2.55	0.011	-2.173021	-.2855308
FRUITTEST	.9311935	.3900453	2.39	0.017	.1667187	1.695668
LBD	-.1616569	.0369803	-4.37	0.000	-.234137	-.0891769
_cons	4.446701	3.075634	1.45	0.148	-1.581431	10.47483

```
.
```

Appendix 3b: STATA Program for logit and probit estimation (Local Respondents)

```
. logit D_WTP LBD INCOME TIMEVISIT PARKING TICKET SALE NTOILET

Iteration 0:   log likelihood =  -68.59298
Iteration 1:   log likelihood = -23.289569
Iteration 2:   log likelihood = -21.812564
Iteration 3:   log likelihood = -21.608941
Iteration 4:   log likelihood = -21.608732
Iteration 5:   log likelihood = -21.608732

Logistic regression                                     Number of obs   =        100
                                                        LR chi2(7)      =      93.97
                                                        Prob > chi2     =     0.0000
Log likelihood = -21.608732                             Pseudo R2       =     0.6850
```

D_WTP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LBD	-.5116206	.1163173	-4.40	0.000	-.7395983	-.2836428
INCOME	1.826119	.5348412	3.41	0.001	.7778491	2.874388
TIMEVISIT	2.927836	.8127688	3.60	0.000	1.334838	4.520834
PARKING	-1.78496	.9032644	-1.98	0.048	-3.555325	-.0145939
TICKET	2.88734	1.071555	2.69	0.007	.7871305	4.98755
SALE	-2.48584	.8674782	-2.87	0.004	-4.186066	-.785614
NTOILET	2.054267	.7816747	2.63	0.009	.5222129	3.586321
_cons	-3.605441	3.638336	-0.99	0.322	-10.73645	3.525567

```
. probit D_WTP LBD INCOME TIMEVISIT PARKING TICKET SALE NTOILET

Iteration 0:   log likelihood =  -68.59298
Iteration 1:   log likelihood = -22.956658
Iteration 2:   log likelihood = -21.556831
Iteration 3:   log likelihood = -21.428328
Iteration 4:   log likelihood = -21.428148
Iteration 5:   log likelihood = -21.428148

Probit regression                                       Number of obs   =        100
                                                        LR chi2(7)      =      94.33
                                                        Prob > chi2     =     0.0000
Log likelihood = -21.428148                             Pseudo R2       =     0.6876
```

D_WTP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LBD	-.2903113	.0606335	-4.79	0.000	-.4091508	-.1714717
INCOME	1.031206	.285895	3.61	0.000	.4708623	1.59155
TIMEVISIT	1.630207	.4191143	3.89	0.000	.8087585	2.451656
PARKING	-1.01911	.5140815	-1.98	0.047	-2.026691	-.0115285
TICKET	1.617117	.5944837	2.72	0.007	.4519503	2.782283
SALE	-1.400423	.4620655	-3.03	0.002	-2.306055	-.4947913
NTOILET	1.218837	.4386205	2.78	0.005	.3591565	2.078517
_cons	-2.101501	2.07645	-1.01	0.312	-6.171267	1.968265

Appendix 3c: STATA Program for logit and probit estimation (All Respondents)

```
. logit D_WTP LBD INCOME TIMEVISIT

Iteration 0:   log likelihood = -136.37092
Iteration 1:   log likelihood = -79.424784
Iteration 2:   log likelihood = -77.708713
Iteration 3:   log likelihood = -77.684863
Iteration 4:   log likelihood = -77.684846
Iteration 5:   log likelihood = -77.684846

Logistic regression                                     Number of obs   =        200
                                                        LR chi2(3)      =     117.37
                                                        Prob > chi2     =     0.0000
Log likelihood = -77.684846                             Pseudo R2       =     0.4303

------------------------------------------------------------------------------
       D_WTP |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         LBD |   -.248094   .0375804    -6.60   0.000    -.3217503   -.1744377
      INCOME |   .9905167   .1873823     5.29   0.000     .6232541    1.357779
   TIMEVISIT |   1.494579   .3917946     3.81   0.000     .7266761    2.262483
       _cons |   -.582675   .7684608    -0.76   0.448    -2.088831    .9234806
------------------------------------------------------------------------------

. probit D_WTP LBD INCOME TIMEVISIT

Iteration 0:   log likelihood = -136.37092
Iteration 1:   log likelihood = -79.530384
Iteration 2:   log likelihood = -78.012326
Iteration 3:   log likelihood = -77.994765
Iteration 4:   log likelihood = -77.994761

Probit regression                                       Number of obs   =        200
                                                        LR chi2(3)      =     116.75
                                                        Prob > chi2     =     0.0000
Log likelihood = -77.994761                             Pseudo R2       =     0.4281

------------------------------------------------------------------------------
       D_WTP |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         LBD |  -.1415721   .0194084    -7.29   0.000     -.179612   -.1035322
      INCOME |    .551306   .0975964     5.65   0.000     .3600206    .7425914
   TIMEVISIT |   .8401185   .2206419     3.81   0.000     .4076684    1.272569
       _cons |  -.2724431   .4335119    -0.63   0.530    -1.122111    .5772247
------------------------------------------------------------------------------

.
```

Appendix 4a: Sample of questionnaire (English)

Dear visitor

Welcome to MARDI Agrotechnology Park, Langkawi. I am a student master of Economics at Universiti Utara Malaysia (UUM), and I am conducting this field survey for academic research. The main objective is to evaluate the visitor willingness to pay for entrance fee toward construction and usage of Health and Spa Exhibition Center in MARDI Agrotechnology Park. I do appreciate if you only take 10 minute of your valuable time in completing this questionnaire. All information gathered is confidential and used only for academic purposes.

Researcher*:*
FAIRUZ BIN PUASA (814269)
UNIVERSITI UTARA MALAYSIA, SINTOK KEDAH

SECTION A: DEMOGRAPHY

Please tick (√) only one answer to each question.

1. Gender*:*

( ) Male
( ) Female

2. Age:

( ) < 20
( ) 20 – 29
( ) 30 – 39
( ) 40 – 49
( ) 50 – 59
( ) ≥ 60

3. Marital status*:*

( ) Single
( ) Married
( ) Others*:* (please specify) _____

4 Nationality

( ) Malaysian (State your state) _____

( ) International (State your country) _____

5 Occupation*:*

( ) Professional / Management
( ) Technical
( ) Clerical
( ) Self employed
( ) Student

( ) Housewife / Unemployed

( ) Others: (please specify) _____

6 Monthly household Income:

( ) ≤ US$1000

( ) US$1001 – US$ 2000

( ) US$2001 – US$ 3000

( ) US$3001 – US$ 4000

( ) US$4001 – US$ 5000

( ) > US$ 5000

7 Highest education attained :

( ) No education

( ) Primary school

( ) Secondary school

( ) Higher Institution

( ) Others: (please specify) _____

SECTION B: THE VIEW ABOUT MARDI AGROTECHNOLOGY PARK?

8 Where did you get information about MARDI Agrotechnology Park? /

( ) Newspaper

( ) Internet

( ) Magazine

( ) Television / Radio

( ) Friends / Family

( ) Tourism agent

( ) Others: (please specify) _____

9 How many times have you visited MARDI Agrotechnology Park? If more than one, give the reason to come again?

( ) First time

( ) 2 time _____

( ) 3 time

( ) More than three times _____

10 Transportation that you use to MARDI Agrotechnology Park?

( ) Car

( ) Motorcycle

( ) Bus

( ) Other (please specify) _____

11 With whom do you come to MARDI Agrotechnology Park?

( ) In group

( ) Partner / spouse

( ) Alone

( ) Family

( ) Others: (please specify) _____

12 Purpose of visit to MARDI Agrotechnology Park? (Choose ONLY one)

( ) Relaxing

( ) Sightseeing

( ) Enjoying the natural beauty

( ) Farm visit

( ) recreational activities

( ) Study / Research

( ) Others: (please specify)_____

13 What types of activity that you do at MARDI Agrotechnology Park? Please choose the main 5 activities that you do and arrange rank on the answer, 1 – the highest to 5 – the lower

( ) Farm visit ( ) Testing Fruit

( ) Sightseeing ( ) Camping

( ) Shopping ( ) Relaxing

( ) Jungle Tracking ( ) Photography

( ) Others (Please specify) _____

14 Please tick (/) the answer whether you <u>(1) extremely dissatisfied, (2) dissatisfied, (3) neutral, (4) satisfied, (5) extremely satisfied</u> on the facilities/ service conditions that have been provided in MARDI Agrotechnology Park

Facilities Conditions	**1**	**2**	**3**	**4**	**5**
Number of parking space					
Short queue at the ticket counter					
Safety in - farm Road					
Number of tourist guide					
Position of resting area					
Number of resting area					
Comfortable information technology center					
Comfortable cafeteria					
Condition of sales center					
Number of public toilet					
Fruit variety					
Vegetable variety					
Flower and herb variety					
Number of park vehicle / tram					
Clear and readable signboard					
Safety of watch tower					
Camping site position					
Beautiful landscape					

Service Conditions	1	2	3	4	5
Waiting time for park vehicle / tram					
Park vehicle / tram condition					
Farm Visit period					
Cleanliness of toilet					
Cleanliness of park					
Creativity of tourist guide					
Information by tourist guide					
Friendliness and hospitality of tourist guide					
Variety of fruit testing					

SECTION C: WILLINGNESS TO PAY AMONG VISITOR

The below box explains the information about MARDI Agro Technology Park. It is important for you to read to answer the following questions.

MARDI Agro Technology Park functions as a center for technology transfer and information dissemination concerning agro-industry. After this park is being upgraded as agro-tourism attraction. It gaining the visitor attention with increment from 9206 in 2006 to 75,877 in 2013.

Currently, main attraction in the park is taking photograph with a variety of visitors who come can pose with a variety of tropical fruit trees, hi-tech vegetable farm, deer park, flower and herb garden. In addition, visitors have the opportunity to taste and buy fresh tropical fruits and the hi-tech vegetables at the sales center.

Assume that the agro technology park management intends to build Health and Spa Exhibition Center. The center will fully utilize the entire herb grown in MARDI Agro Technology Park. This will allow visitors to experience the advantages and benefits of herb grown in the park such as Tongkat Ali, Kacip Fatimah, Sireh, Kunyit, Serai Wangi, limau purut, Avokado and stevia. This center will also become a platform to popularize Malaysia herbs to the world.

Currently, an entrance fee is charged at RM 5 for local visitor and RM20 for foreign visitor. Park management plan to increase the entrance fee to accommodate of expenditure the Health and Spa Center that can be enjoyed by all visitors.

15 If the entrance fee is increased to RM_____, are you willing to pay for this amount?

( ) Yes (Please answer no 16)
( ) No (Please answer no 17)

16 If YES, please state your reason.

( ) Agree with the plan to build the Health and Spa Center.
( ) Will increase knowledge about usage of herbs available in Malaysia
( ) It can help MARDI Agro Technology Park to expend its service
( ) I love health and spa service
( ) Others: (please specify)

_____

17 If NOT, what is your main reason?

( ) I don't like spa
( ) Current entrance fee is already sufficient
( ) The cost should be provided by Malaysian Government
( ) Health and Spa center is not suitable to be built in MARDI Agro Technology Park
( ) Others: (please specify)

_____

18 Do you feel this questionnaire provided you with

( ) Too much information
( ) About the right amount of information
( ) Not enough information

SECTION D: COMMENT/ RECOMMENDATION

19 Do you have any comment or suggestion on how to improve the facilities/ service in MARDI Agro Technology Park?

_____

_____

Thank you Very Much for Your Time. Your cooperation is greatly appreciated

Appendix 4b: Sample of questionnaire (Malay)

Pelawat yang dihormati,

Selamat datang ke Taman Agro teknologi MARDI, Langkawi. Saya adalah pelajar Ijazah Sarjana / Master Ekonomi di Universiti Utara Malaysia(UUM), Sintok, Kedah dan sedang menjalankan kajian akademik untuk menilai kesediaan pelancong untuk membayar untuk pembinaan dan penggunaan Pusat Pameran Kesihatan dan Spa di Taman Agro Teknologi MARDI. Saya sangat menghargai sekiranya anda dapat meluangkan sedikit masa sekurang-kurangnya 10 minit untuk mengisi borang selidik ini. Segala maklumat yang diberikan adalah sulit dan hanya digunakan untuk tujuan akademik sahaja.

Penyelidik:
FAIRUZ BIN PUASA (814269)
UNIVERSITI UTARA MALAYSIA, SINTOK KEDAH

BAHAGIAN A: DEMOGRAFI

Sila tandakan (√) hanya satu jawapan bagi setiap soalan

1. Jantina:

( ) Lelaki
( ) Perempuan

2. Umur:

( ) < 20
( ) 20 – 29
( ) 30 – 39
( ) 40 – 49
( ) 50 – 59
( ) ≥ 60

3. Status perkahwinan:

( ) Bujang
( ) Berkahwin
( ) Lain-lain: (sila nyatakan) _____

4 Kewarganegaraan

( ) Malaysia (Nyatakan negeri anda) _____

( ) Asing (Nyatakan Negara anda) _____

5 Pekerjaan:

( ) Profesional / Pengurusan
( ) Teknikal
( ) Perkeranian
( ) Bekerja sendiri
( ) Pelajar

( ) Suri rumah / Tidak bekerja

( ) Lain-lain: sila nyatakan) _____

6 Pendapatan isi rumah sebulan (RM):

( ) ≤ 3000

( ) 3001 - 6000

( ) 6001 - 9000

( ) 9001 – 12000

( ) 12001 – 15000

( ) > 15000

7 Taraf pendidikan tertinggi :

( ) Tiada Pendidikan

( ) Sekolah Rendah

( ) Sekolah Menengah

( ) Institusi Pengajian Tinggi

( ) Lain-lain: (sila nyatakan) _____

BAHAGIAN B: PANDANGAN MENGENAI TAMAN AGROTEKNOLOGI MARDI

8 Bagaimanakah anda mendapat maklumat mengenai Taman Agroteknologi MARDI?

( ) Surat khabar

( ) Internet

( ) Majalah

( ) Televisyen / Radio

( ) Rakan / Keluarga

( ) Agen pelancongan

( ) Lain-lain: (sila nyatakan) _____

9 Kali keberapakah anda melawat Taman Agro Teknologi MARDI? Jika lebih sekali berikan sebab untuk datang semula?

( ) Kali pertama

( ) Kali ke 2 _____

( ) Kali ke 3

( ) Lebih 3 kali _____

10 Pengangkutan yang digunakan untuk ke Taman Agro Teknologi MARDI?

( ) Kereta

( ) Motosikal

( ) Bas

( ) Lain-lain (sila nyatakan) _____

11 Bersama siapakah anda datang ke Taman Agro Teknologi MARDI?

( ) Dalam kumpulan

( ) Rakan / Pasangan

( ) Seorang diri

( ) Keluarga

( ) Lain-lain: (sila nyatakan) _____

12 Tujuan berkunjung ke Taman Agro Teknologi MARDI? (Pilih HANYA SATU)

( ) Berehat

( ) Bersiar - siar

( ) Menikmati keindahan semula jadi

( ) Melawat ladang

( ) Melakukan aktiviti rekreasi

( ) Pembelajaran atau melakukan kajian

( ) Lain-lain: (sila nyatakan) _____

13 Apakah jenis aktiviti yang anda lakukan di Taman Agro Teknologi MARDI? Pilih 5 aktiviti utama yang dilakukan dan susun mengikut kedudukan, 1 – paling utama ke 5 – paling rendah

( ) Lawatan ladang ( ) Merasa buah
( ) Bersiar – siar ( ) Berkhemah
( ) Membeli belah ( ) Berehat
( ) Merentas rimba / (Jungle tracking) ( ) Bergambar
( ) Lain – lain (sila nyatakan) _____

14 Sila tandakan (/) pada jawapan sama ada anda <u>(1) sangat tidak berpuas hati, (2) tidak puas hati, (3) Tiada pandangan, (4) berpuas hati, (5) sangat berpuas hati</u> dengan keadaan kemudahan awam / perkhidmatan yang disediakan di Taman Agro Teknologi MARDI.

Keadaan Fasiliti / kemudahan	**1**	**2**	**3**	**4**	**5**
Bilangan tempat letak kereta					
Giliran pendek di kaunter tiket					
jalan ladang yang selamat					
Bilangan pemandu pelancong					
Kedudukan Wakaf - wakaf rehat					
Tempat duduk / rehat yang cukup					
pusat teknologi maklumat yang selesa					
Cafeteria yang selesa					
Keadaan pusat jualan					
Bilangan tandas awam					
Kepelbagaian jenis buah					
Kepelbagaian jenis sayur					
Kepelbagaian jenis bunga / herba					
Bilangan kenderaan taman					
papan tanda yang jelas dibaca					
Keselamatan Menara tinjau					
Kedudukan Tapak perkhemahan					
Landskap yang indah					

Keadaan perkhidmatan	1	2	3	4	5
Masa menunggu kenderaan ladang					
Keadaan kenderaan ladang					
Tempoh lawatan ladang					
Kebersihan tandas					
Kebersihan taman					
Kreativiti petugas					
Penyampaian maklumat oleh petugas					
Keramahan dan kemesraan petugas					
Kepelbagaian buah yang dirasa					

BAHAGIAN C: KESEDIAAN UNTUK MEMBAYAR ANTARA PELANCONG

Kotak di bawah menerangkan maklumat tentang Taman Agro Teknologi MARDI. Adalah penting bagi anda untuk membaca untuk menjawab soalan-soalan berikut.

Taman Agro Teknologi MARDI Langkawi berfungsi sebagai pusat pemindahan teknologi dan penyebaran maklumat mengenai industri pertanian. Setelah taman ini dinaiktaraf sebagai tarikan agro-pelancongan. Ia semakin mendapat perhatian orang ramai dengan **peningkatan pelawat** yang datang dari 9206 pada tahun 2006 kepada 75877 pada tahun 2013

Pada masa kini, tarikan utama di taman ini termasuklah bergambar dengan pelbagai tarikan utama termasuk ladang buah-buahan tropika, kebun sayur hi tech, taman rusa, kebun bunga dan taman herba. Di samping itu, pelawat berpeluang merasa dan membeli buah –buahan tropika dan sayur hi tech segar yang dijual di pusat jualan.

Andaikan pihak pengurusan taman agro teknologi bercadang untuk membina **Pusat Pameran Kesihatan dan Spa.** Pusat ini akan menggunakan keseluruhan herba yang di tanam di Taman Agro Teknologi MARDI. Ini membolehkan pelawat mengetahui mengenai kelebihan dan khasiat herba yang ada. Pusat ini juga akan menjadi platform untuk mempopularkan herba Malaysia di mata / seluruh dunia

Pada masa ini, bayaran masuk yang dikenakan adalah RM6 dan RM 20 untuk pelancong tempatan dan asing. Pengurusan taman bercadang untuk meningkatkan bayaran masuk untuk menampung perbelanjaan Pusat Kesihatan dan Spa yang boleh dinikmati oleh semua pelawat.

15 Sekiranya bayaran masuk ditingkatkan sebanyak RM_____, adakah anda sedia untuk membayar dengan jumlah tersebut.

( ) Ya (sila jawab soalan no16)

( ) Tidak (sila jawab soalan no 17)

16 Sekiranya YA, sila nyatakan alasan anda.

( ) Bersetuju dengan rancangan pembinaan Pusat Kesihatan dan Spa

( ) Akan meningkatkan pengetahuan mengenai penggunaan herba yang terdapat di Malaysia

( ) Boleh membantu Taman Agro Teknologi MARDI dalam perbelanjaan pusat dan perkhidmatan tersebut

( ) Saya suka kepada perkhidmatan kesihatan dan spa .

( ) Lain-lain: (sila nyatakan)

_____

17 Sekiranya TIDAK, sila nyatakan alasan anda.

( ) Saya tidak suka perkhidmatan spa

( ) Harga tiket kini sudah memadai

( ) Kos seharusnya ditanggung oleh kerajaan Malaysia

( ) Pusat Kesihatan dan Spa tidak sesuai dibina di Taman Agro Teknologi MARDI

( ) Lain-lain : (sila nyatakan)

_____

18 Adakah anda rasa kaji selidik ini menyediakan anda dengan

( ) Terlalu banyak maklumat

( ) Maklumat yang tepat dan mencukupi

( ) Tidak cukup maklumat

BAHAGIAN D: CADANGAN

19 Komen atau cadangan anda untuk menambahbaik kemudahan/ perkhidmatan yang ada di Taman Agro Teknologi MARDI?

_____

_____

TERIMA KASIH ATAS KERJASAMA ANDA. KERJASAMA ANDA AMAT DIHARGAI

RM5	**RM5**
RM10	**RM10**
RM15	**RM15**
RM20	**RM20**
RM25	**RM25**

Appendix 5: Photographs of available facilities and service in MARDI Agro Technology Park

Farm tour shuttle

Jungle tracking

Sales centre

Counter ticket

Public toilet

Cafeteria

Test fruit corner

Parking car

Waiting Area

Watch tower

Farm visit

Creativity of tourist guide

Variety of fruit

Variety of hi tech vegetables

Photograph Activity

Beautiful Landscape

Information technology centre

Petting zoo