

WILLINGNESS TO PAY FOR THE CONSERVATION OF MARINE TURTLES: A CASE STUDY OF THE TURTLE ISLANDS PARK, MALAYSIA

RAMESHAR RAJAH



PERPUSTAKAAN
UNIVERSITI MALAYSIA SABAH

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**SCHOOL OF BUSINESS AND ECONOMICS
UNIVERSITI MALAYSIA SABAH
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the requirements for the degree of Masters of
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**SCHOOL OF BUSINESS AND ECONOMICS
UNIVERSITI MALAYSIA SABAH**

2007

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DECLARATION

The materials in this dissertation are original except for the quotations, summaries and references, which have been duly acknowledged.

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ABSTRACT

In an era of increased environmental degradation, conservation is recognized as a vital ingredient in preserving our global heritage. Ecotourism is one of the most effective components of conservation, and sea turtles are one of the rarest forms of animal life left to us. This study, using various statistical analyses, investigated the psychographics and behavioral profiles of visitors to the Turtle Islands Marine Park. It examined their willingness to pay for the conservation of marine turtles. It was hypothesized that Visitor Attitudes, Visitor Behaviour and Visitor Values along with the Attributes of the marine turtles would influence the visitor's willingness to pay, moderated by demographic factors. From a practical point of view, it will enable users of this information to determine if visitors are currently being overcharged, undercharged or charged an optimum conservation fee.



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ABSTRAK

Dalam era degradasi alam sekitar, konservasi dikenali sebagai cara penting untuk menjamin masa depan. Pelancongan eko merupakan salah satu aspek konservasi yang penting dan penyu marin adalah antara spesis tertua di dunia ini. Kajian ini, dengan menggunakan analisa statistik telah mengkaji sikografi dan profil tingkahlaku pelawat-pelawat ke Taman Penyu Malaysia. Ia telah mengkaji kesanggupan untuk bayar untuk konservasi Penyu Marin. Hipotesis kajian ini mengatakan bahawa sikap, tingkahlaku dan nilai pelawat secara langsung mempengaruhi kesanggupan membayar untuk konservasi sementara faktor demografi bertindak sebagai pembolehubah “moderator”. Dari segi praktikal, kajian ini akan membolehkan pengguna untuk mengenali jika pelawat kini sanggup membayar lebih untuk konservasi atau tidak.



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CHAPTER 1

INTRODUCTION

1.1 Overview

According to Darwinian Theory, human beings are relatively new to this world. Despite that, we are probably the most abundant of life forms, with the possible exceptions of grasses and algae.

One of the oldest forms of life, again with the exceptions of some bacteria and single cell organisms, is the Marine Turtle. One of the most graceful sights a scuba diver can see is a turtle gliding beneath him. However this is a sight that is increasingly difficult to find as the global population is declining drastically.

Several decades ago, the Sabah government established the Turtle Islands Park as a means to safeguard our heritage. This park is the nesting ground of one of the largest aggregations of green turtles, and the single largest remaining hawksbill turtle population in the entire south East Asian region (Turtle Islands Management Plan, 1996).

In addition, the nesting of the turtles is not merely seasonal (though there are peak seasons,) but throughout the year. This is not true of many other turtle rookeries, and was one of the reasons the park was named the Turtle Islands Park. Tourists journey from around the world to watch the turtles lay their eggs, almost at the feet of the visitors. To many of them, it is a dream of a lifetime come true. (Antiu, 1997)

The visitors for most eco-tourist destinations in Malaysia can be split into two, foreign visitors and local visitors. However, the actual difference from the park's point of view is minimal, as the conservation fee charged is quite similar, and all other costs charged on the island itself is identical for both segments.

The Turtle Islands Park is now considered a major tourist attraction to eco-tourist from around the world; with the Heart of Borneo program drawing in even more attention to this part of the world, it can be safely assumed that the number of tourists who will wish to visit this park, on the edge of Borneo, will simply grow.

However, for the sake of sustainable development, numbers of visitors should be limited. Currently, only 40 places are available every day. Simple economic theory therefore states that with the increase in demand, and the non-increase in supply, the price should go up.

The question therefore is, what is the optimum price, or price range, that visitors to the Turtle Islands Park are willing to pay?

1.2 Research Problem

The concept of conservation is not a new one, it has been in existence for decades, yet many people don't realise the cost of conservation. This does not refer to the economic cost, where opportunity cost is measured. Rather, it refers to plain old management and operational cost of conservation sites.

Conservation is not cheap. In the Turtle Islands Park, the cost of conservation is borne by the state government. This amount is supposedly offset by the conservation fee that visitors are currently paying, but that pittance doesn't even begin to cover the cost. According to the Annual Report of Sabah Parks in

1995, management cost alone were RM 715, 707. This was not the cost of research, operational cost of the park, or development costs.

The number of visitors to the park has reached 14 000 as of 2005, and even if the management cost had remained the same as ten years ago, that means that each visitor would be apportioned slightly more than RM 50. However, the maximum a visitor pays in conservation fees is RM 10. Malaysian visitors pay RM 3, but their tax ringgit offsets the balance. Even though the privatisation of the facilities has provided a source of income, from an accountants perspective, the park is still running at a loss. A RM 40 loss per visitor in fact.

Conversation with tourists at the park showed that many would be willing to “give more for the turtles”... but just how much are they willing to give? And what are the criteria that would encourage them to shoulder a larger part of the park’s burden?

Hence, the research question this study seeks to address is, **“To what extent do visitors attitudes, visitors’ behaviours, visitors’ values and the product attributes influence willingness to pay for the conservation of Marine Turtles?”**

1.3 Rationale of Study

Marine turtles are one of the oldest forms of life still in existence. Unlike terrestrial forms of life, their territory can't be preserved by being fenced in. They have long life spans, they're well known, and they are very highly endangered. The Turtle Islands Park is one of the few rookeries still in existence in this part of the world, and one of two in Malaysia (places like Pulau Sipadan have very small populations and there is debate as to the appropriateness of the term rookery). The other rookery, Rantau Abang in Peninsular Malaysia has had so few nesting in recent years that some scientists question its viability.

Sabah Park records show that the last study done on willingness to pay by visitors to the Turtle Islands was done ten years ago. Prior to that, there is no record of such a study being conducted. With the declining rate of nesting, the rising cost of conservation and increasing pressure on the turtle population from pollution, trawling and egg collecting, Sabah Parks can not afford NOT to charge users what they are willing to pay. Hence, this study hopes to assist users such as the Sabah Park Trustees and management to identify and understand the factors and attributes that may influence willingness to pay for marine turtles, maximise their revenue and so generate more funds to further their efforts in the conservation of this magnificent animal.

In addition, the Sabah Park's decision to limit the number of visitors to the Turtle Islands as of March 2007 makes this research a timely one.

1.4 Scope of Study

The scope of this proposed study will look into the visitors' willingness to pay for the conservation of Marine Turtles in the Turtle Islands Park, Sandakan, Sabah, Malaysia. The proposed site has been chosen based on the fact that it is one of two major Marine Protected Areas in Malaysia that specialises in Marine Turtles, and the only major one in East Malaysia.

1.5 Objective of the Study

The objectives of the study are:

1. To investigate the relationship between the Dependent Variable (Visitor's Willingness to Pay for Conservation of Marine turtles) and Independent Variables (Visitor's Values, Attitudes and Product Attributes) with Demographic Characteristics as moderators.
2. To provide understanding of the Visitor's Attitudes, Behaviours and Values towards the park, as it is crucial to understand these variables to ensure that the natural environment is adequately maintained.

1.6 Definition of Terms

1.6.1 Willingness to Pay

Willingness to pay measures the value of the whole experience, which includes anticipation and preparation for the trip, travel to the site, on site experience, travel back from site and recollection of experience (McConnel 1997). In short, it is the willingness of an individual to part with an amount of

money for a certain good or service. In the context of the study, that good is the conservation of marine turtles. At various points in this dissertation the phrase willingness to pay for conservation will be used. This should be taken to mean willingness to pay for the conservation of Marine Turtles.

1.6.2 Conservation of Marine Turtles (Ecotourism Product)

The term Conservation of Marine Turtles refers to the efforts undertaken by Sabah Parks to protect, conserve and breed Marine Turtles at the Turtle Islands Park. This includes protecting the nesting turtles, incubating the eggs, releasing the hatchlings and all related activities.

1.6.3 Product Attributes

The term Product Attributes refers to the attributes of the Product (Conservation of Marine Turtles) which may influence a visitor's willingness to pay. In the context of this study, product attributes are the rarity and uniqueness of the product (Marine Turtles), the rarity of watching a nesting, and the severity of its extinction.

1.6.4 Visitor's Attitudes

The term Visitor's Attitudes refer to the attitudes of visitors toward the conservation of wildlife in general, and Marine Turtles in particular. In the context of this study, the attitudes towards the importance of wildlife conservation and the attitude towards the inconvenience of wildlife conservation will be examined.

1.6.5 Visitor's Behaviour

The term Visitor's Behaviours is used to indicate their behaviour in regards to preference of holiday destination, their preference for either choosing an ecotourism destination, or their preference for 'hard ecotourism'.

1.6.6 Visitor's Values

Cleaver and Muller (2002) pointed out that the aspects of ecotourism that distinguishes it from other forms of tourism will appeal to some lifestyle groups, but not to others. As such the term Visitor's Values refers to the "pattern of direction and intensity among a set of basic beliefs regarding wildlife that influences attitudes and behaviours" (Fulton et. Al. 1996)

1.7 Background of Study Area

The Turtle Islands Park, sometimes known as the Turtle Islands Marine Park, consists of 3 islands situated 40 kilometres north of Sandakan, Sabah in the Sulu Sea. Regionally, it lies within 6° 9' to 6° 11' latitude and 118° 3' to 118° 6' longitude. The islands are Pulau Selingan (or Pulau Selingaan), Pulau Bakkungan Kecil (sometimes known as Pulau Bakungaan Kechil) and Pulau Gulisan (sometimes listed as Pulau Gulisaan). These islands are a part of a group of eight islands where turtles nest, but the other five are under the Philippines, and are not part of this study.

The park covers an area of 1740 hectares, with some 18 hectares of terrestrial area and the remaining area comprising coral reefs and the sea between the islands.

Pulau Bakkungan Kecil is the largest of the islands, roughly 8.5 hectares in size, and is located closest to the Philippines border. Pulau Gulisaan at 1.6 hectares is the

smallest. Although both islands have research stations on them, they are not open to visitors and as such were not part of the study.

Pulau Selingan, at almost 8 hectares in size, is the second largest of the islands. It has 3 furnished chalets which can accommodate 50 visitors per night and a restaurant, in addition to the research facilities and of course the hatcheries. It is the only island on which visitors can stay.

The islands were originally under private ownership, and turtles were hunted for shells and meat and their eggs were collected for food. It was under the Turtle Regulations 1964 that the three islands were designated as Turtle Farms, with successful tenderers given exclusive rights to collect turtle eggs

When the islands were recognised as being the main turtle rookeries in Sabah waters (and one of two major ones in Malaysian territory), they were acquired at a cost of RM 89 000 and established as Game and Birds Sanctuaries in 1972. It was only in 1977 that they were designated as a Park, handed over to the Trustees of Sabah Parks and listed as a Marine Protected Area.

The park's main activity is the Conservation of Marine Turtles through the operation of the turtle hatcheries. The turtle eggs are gathered from natural nests and then transplanted into hatcheries. After an incubation period of about 60 days, the turtle hatchlings emerge and are released into the sea.

The park is known internationally because of the Marine Turtles (or Sea Turtles). The park provides nesting habitat to one of the largest aggregation of Green turtle (*Chelonia mydas*) and Hawksbill turtle (*Eretmochelys imbricata*) populations in the entire Southeast Asian region. Green turtles are known in Sabah as "Penyu Hijau" and in Peninsula Malaysia as "Penyu Agar". The Hawksbill turtles are known throughout Malaysia as "Penyu Sisik" or "Penyu Karah".

A third species, the Olive Ridley Turtle (*Lepidochelys Olivacea*), known locally as “Penyu Lipas” was known to nest at the park but have not been seen since the last nesting at Pulau Gulisaan in 1988.

Although the Green turtle is by far the more abundant, accounting for over 90% of the total nesting at the Turtle Islands Park, the Hawksbill population is recognised at the biggest nesting concentration of Hawksbills in the Asian region (Limpus 1994)

Unlike most turtle rookeries in the world, The Turtle Islands Park is unique because of all-year-round nestings. In addition, the absence of man-eating sharks makes the park attractive as tourists can go for swims in the ocean, an activity not possible on many turtle beaches elsewhere.

Of the 14 million eggs produced from 1984 to 1992 in the eight islands, 28% were laid on Sabah nesting islands.

The park is open to a limited number of tourists, almost all of whom come for an overnight trip (as they might thus see a nesting) as the Sabah Park charter is to conserve and preserve Sabah's heritage for the entertainment and education of its people. The trustees therefore have to balance between the need to allow in visitors, gain a source of revenue, and protect the area.

As of 1998, the operation of the tourist facilities at Pulau Selingan has been managed by Crystal Quest Sdn. Bhd. However the Sabah Park Trustees still have overall control in terms of the law and regulations governing the Turtle Islands Park.

1.8 Organization of Thesis

Chapter 1 Introduction and Background

The purpose of this chapter is to present an overview of the research and its significance, the rationale, objective and finally the scope of the study.

Chapter 2 Literature Review

This chapter provides sufficient knowledge regarding the issues and terminologies within the field of the thesis.

Chapter 3 Methodology

This chapter gives explanation to the techniques and methodologies that were used to conduct the research. A theoretical framework is developed followed by the explanation of the research hypotheses, type of study, nature of study, unit of analysis, instrument, population of sample, data collection and data analysis methods.

Chapter 4 Key Findings, Data Analysis and Interpretation

The Fourth chapter illustrates the respondent profiles followed by the research results and findings.

Chapter 5 Discussion and Conclusion

This chapter consists of the conclusion of all the information which was gathered and also the interpretation of data. Following that, are the implications, limitations of research as well as suggestion for future research.

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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter is about the review of the literature which is of relevance to the subject. It will differentiate between the types of goods available, cover in brief Marine Protected Areas, touch on ecotourism and several related aspects, give an overview of conservation of Marine Turtles and its importance, examine the Willingness to Pay concept and related variables, and end in a summary of the chapter.

2.2 Public, Quasi-Private and Private Goods

It is evident from the literature that various economists have divided Goods into different categories, depending on their school of thought. Famham (2005) separated Public Goods from Private Goods.

Since none of them are demonstrably superior to the other, it was decided to use the school of thought that divided goods into three: Public Goods, Quasi Private Goods and Private Goods. This was in part because the definition of Quasi Private Goods seemed most apt for this study.

Kolstad (2000) stated that a pure public good requires two conditions: non-excludability and non-rivalry. Non-excludability means that a good cannot be provided for one person without becoming simultaneously available to others. Non-rivalry exists when the consumption of an extra unit by one person does not

diminish the amount available for consumption by others. As such quasi public goods are harder to quantify, leading to the problem of valuation (Nysolla and Agren, 2002. Atkinson, 1982)

Private goods, naturally, mean the opposite. Consumption is finite, and excludability is simple. The difference between a private good and a quasi private good is that quasi private goods are not traded freely in the market. This, like for public goods, makes price determination harder to estimate. Unlike public goods however, it is relatively simple to estimate the quantity consumed. The other main difference between private and quasi private goods is the rights to the property. Quasi Private goods are collectively owned, and purely private goods are individually owned. Collective property implies that the goods can not be transferred to another individual.

The Turtle Islands Park can be considered a quasi private good (despite being a National Park) as excludability exists, exhaustibility (in terms of rivalry among visitors, limited underground water supply, and the limited capacity of the island to absorb waste from the human visitors) exists, it is collectively owned by the citizens (via the Sabah Park Trustees) and the good can not be transferred.

2.3 Marine Protected Areas (MPAs)

Marine Protected Areas serve as an important tool in helping to protect delicate marine ecosystems from environmental degradation. Hall et. al. (2002) states that there are more than 1300 MPAs worldwide. The effectiveness of MPAs is highly debated, but has not been systematically assessed (Trejo, 2005).