



Faculty of Economics and Business

**FACTORS INFLUENCING ATTITUDES OF LOCAL
COMMUNITIES IN THE DISTRICT OF KUCHING, SARAWAK
TOWARDS THE CONSERVATION OF MANGROVE FOREST
RESOURCES IN KUCHING MANGROVE DELTA**

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Statement of Originality

The work described in this Final Year Project, entitled
**“Factors Influencing Attitudes of Local Communities in the District of
Kuching, Sarawak towards the Conservation of Mangrove Forest
Resources in Kuching Mangrove Delta”**
is to the best of the author’s knowledge that of the author except
where due reference is made.

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ABSTRACT

**FACTORS INFLUENCING ATTITUDES OF LOCAL COMMUNITIES IN
THE DISTRICT OF KUCHING, SARAWAK TOWARDS THE
CONSERVATION OF MANGROVE FOREST RESOURCES IN KUCHING
MANGROVE DELTA**

By

Lee Sook Yee

The deltaic mangrove forest areas in the District of Kuching are being destroyed at an alarming rate even though conservation programs are extended to the local communities. This study is carried out to determine the factors that influence the attitudes of the local communities towards conservation of the mangrove forest resources. A total of 326 questionnaires have been collected from 15 villages in the mukim of Sematan, Lundu, Santubong and Matang in the District of Kuching. Data have been collected using face to face interviews of the households in the selected villages. Results from factor analysis show that there are nine factors identified that reflect the attitudes of villagers which include the protection of fauna, payment for conservation, ecotourism, management and conservation programs, economic and commercial values, damage and loss, government responsibility, knowledge and environment. Factors like the socio-demographics, economic activities, location specific of the villages and managerial programs are tested to determine the influence on the attitudes. The results reveal that age, gender, occupation (student), and mangrove replanting have significant causal relationship with attitudes towards

conservation. The study shows that the majority of the members of the communities who are living near the mangrove forest in the District of Kuching show positive attitudes toward conservation of mangrove forest resources. Awareness campaign and education of the younger generations should be extended to the local communities to enhance their participation in the conservation of the mangrove forest resources.

ABSTRAK

**FAKTOR-FAKTOR YANG MEMPENGARUHI SIKAP MASYARAKAT
TEMPATAN DI DAERAH KUCHING, SARAWAK TERHADAP
KONSERVASI SUMBER HUTAN PAYA BAKAU DI DELTA BAKAU
KUCHING**

Oleh

Lee Sook Yee

Kawasan hutan paya bakau di daerah Kuching telah dimusnahkan pada tahap yang membimbangkan meskipun program pemuliharaan diperluas kepada masyarakat tempatan. Kajian ini dilakukan untuk menentukan faktor-faktor yang mempengaruhi sikap masyarakat tempatan terhadap pemuliharaan sumber hutan paya bakau. Sebanyak 326 borang soal selidik telah dikumpulkan dari 15 kampung dalam mukim Sematan, Lundu, Santubong dan Matang di daerah Kuching. Data dikumpul dengan menggunakan temudual bersemuka keatas ketua isirumah di kampung-kampung yang dipilih. Keputusan dari analisis faktor menunjukkan bahawa terdapat sembilan faktor telah dikenalpasti yang mencerminkan sikap penduduk kampung iaitu perlindungan fauna, bayaran untuk pemuliharaan, eko-pelancongan, program pengurusan dan pemuliharaan, nilai ekonomi dan komersil, kerosakan dan kerugian, tanggungjawab kerajaan, pengetahuan dan persekitaran. Faktor-faktor seperti socio-demografi, aktiviti ekonomi, lokasi khusus dan program pengurusan diuji untuk menentukan pengaruh keatas sikap penduduk. Keputusan ini menunjukkan bahawa umur, jantina, pekerjaan (pelajar) dan penanaman semula bakau mempunyai

hubungan penyebab yang signifikan dengan sikap terhadap pemuliharaan. Kajian ini menunjukkan bahawa majoriti masyarakat tempatan yang tinggal berdekatan dengan hutan paya bakau di daerah Kuching mempunyai sikap positif terhadap pemuliharaan sumber hutan paya bakau. Kesedaran kempen dan pendidikan generasi muda harus diperluas kepada masyarakat tempatan untuk meningkatkan penyertaan mereka dalam pemuliharaan sumber hutan paya bakau.

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CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Mangrove is defined as trees and shrubs that grow in saline coastal habitats in the tropics. Mangrove forms a saline woodland habitat which is called mangrove forest. Mangrove forest is a unique, dynamic and highly productive ecosystem. It is not only essential in its multiple ecological functions for its surrounding habitat, but it is also an important resource in providing food, timber, fuel, herbs, and other forest products for local communities. Besides that, mangrove forest can also protect coastlines and prevent salt water intruding into rivers. Mangrove trees have specific characteristics such as tough root systems, special bark and leaf structures and other unique adaptations to enable them to survive in harsh conditions.

Mangrove forests foster in numerous areas worldwide. There are about 15.9 million hectares of mangrove forests along the warm coastlines of tropical oceans all over the world (Sasekumar, 2003). In the Southeast Asia, there are more than 4.2 million hectares or 27 percent of mangrove forests (Sasekumar, 2003). A recent study by the Food and Agriculture Organization of the United Nations found that 1 (Butler, 2005). In addition, the loss of mangrove forests in Thailand, Philippines and Vietnam is more than 60% (Chong and Sasekumar, 2002). In Malaysia, the overall loss amounts to about 16%, some states have lost as much as 30% to 70% of their original areas (Chan

et al., 1993). Mangrove forests in Malaysia are more diverse than other areas such as tropical Australia, tropical Africa and Americas. One of the popular mangrove forests in Malaysia is Matang mangrove forest in Perak. Matang mangrove forest is the largest mangrove forest reserve in Malaysia. It is also one of the world's best-managed mangrove forests and it has received various international awards.

This study will focus on mangrove forest in Kuching district at Sarawak managed by Forestry Department of Sarawak. The mangrove forest covers an area of 11651ha, mostly near the sea-level and hill areas on Pulau Salak. It receives an annual rainfall of 3600 to 4000mm. Furthermore, the mangrove forest is of good quality and little disturbed. The major rivers of this mangrove system are Sungai Sibulaut, Batang Salak and Sungai Santubong. Mangrove forest plays an important part in ecosystem to support the living of the birds, prawns, fish and many animals. In this mangrove forest, there are 43 families of fish have been recorded but little information is available on the water birds. Other wildlife includes crocodiles, monkeys, squirrels, pigs and lizards. Moreover, mangrove forest is dominated by variety species of flora such as *Rhizophora*, *Sonneratia* and *Avicennia*.

The mangrove forest in the Kuching district provides a wide array of raw materials as a major source of income generation and subsistence for the local communities. The principle activities of local people are fishing, logging, farming, and charcoal production in the mangrove forest. However, the forest has undergone the exploitation for an aquaculture project, cultivation and quarrying activities. There is also the illegal hunting of animals. If the mangrove forest continues to undergo exploitation,

this may lead to environmental degradation and affects on natural fisheries and wildlife. Given the enormous benefits of the mangrove forest, proper management and conservation is therefore necessary to ensure the continued existence of it.

Recently, the understanding local communities' attitudes have received increasing attention among researchers, conservation agencies and authorities. In this study, researcher will study and discuss on factors that influencing the attitudes of the local communities toward conservation of mangrove forest resources in Kuching district, Sarawak. There are many factors affecting conservation attitudes positively or negatively. For instance, socio-demographics factors are very important predictors of conservation attitudes. Therefore, researchers can identify the factors that affecting the conservation attitudes, so that this study may be useful to produce a guideline for development of conservation policies and also for further studies.

1.1 Theoretical Framework

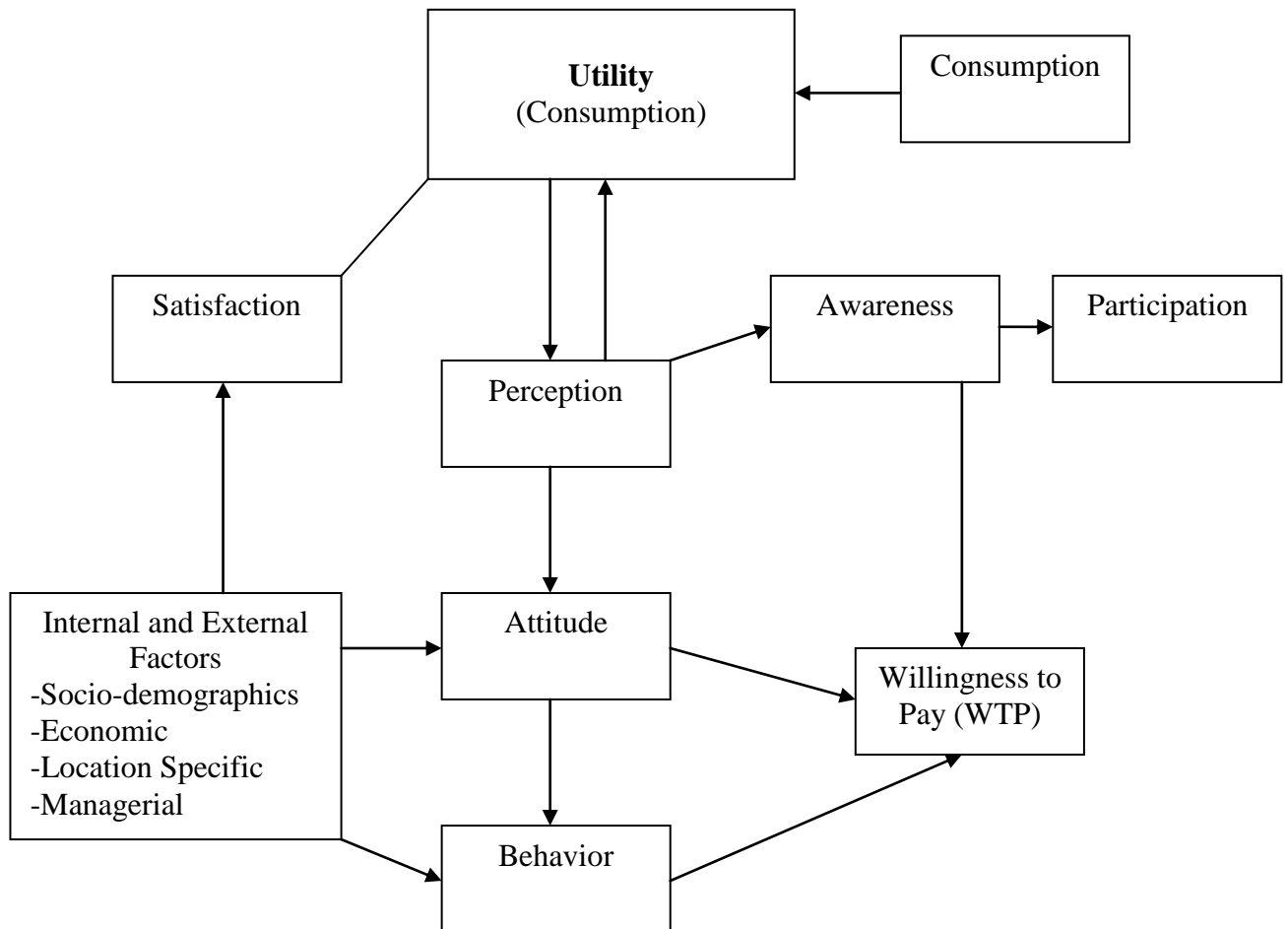


Figure 1: Theoretical Framework

Figure 1 shows the theoretical framework for the research. First of all, utility is often modeled to be effected by consumption of goods and services. Next, utility is a measure of relative satisfaction (Pang, 2010). Perception of people is related to utility. Perception is the process of attaining awareness and awareness that can be created among the people (Dee, 2009). When people are aware of any products and services, they tend to participate in the related activities. Awareness of people can influence the

willingness to pay (WTP). Besides that, behavior also reflects the willingness to pay (WTP).

In addition, perception is a measure of attitude of people. In the other words, the measure of attitude depends on perception. There are several internal and external factors or variables affecting attitude, such as socio-demographics, economic, location specific, and managerial. All these factors will also affect behavior. Lastly, attitude also affects the willingness to pay (WTP). High positive attitude leads to high willingness to pay (WTP). In contrast, low positive attitude leads to low willingness to pay (WTP).

1.2 Problem Statement

In this study, the practical problem of mangrove forest in Kuching district is the mangrove forest area has been reduced even though conservation measures, such as the Forest Reserve, have been taken. The original area of 17153 ha has been reduced by to the present area of 11651 ha as mentioned earlier. Economic activities such as aquaculture project, cultivation and quarrying activities are the main causes of reduction of mangrove forest area. There is 1449 ha of mangrove forest that is being clear-felled for an aquaculture project and this causes a subsequent loss of 11% of the Forest Reserve. All these actions have affected the natural fisheries and wildlife. Furthermore, these actions also cause environmental degradation.

Besides that, attitudes of local communities toward conservation of mangrove forest resources have not been investigated before. There is also lack of research on it and level of adoption by residents. Local communities harvest the mangrove resources for daily life and economic activities. Whether they tend to restore the mangrove forest resources and show positive attitude or just simply harvest the mangrove forest resources and show negative attitude. If they do not restore the mangrove resources, this leads to destruction and reduce the area of mangrove forest day by day. On the other hands, if local people are willing to replant the mangrove forest, it may not cause the problems.

1.3 Objectives of the Study

The general objective of this study is to examine the factors that influence the attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.

The specific objectives of this study are:

- a) To evaluate attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.
- b) To identify the socio-demographic factors that influence the attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.
- c) To identify the economic factors that influence the attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.

- d) To identify the location specific factor that influences the attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.
- e) To identify the managerial factor that influences the attitudes of the local communities towards conservation of mangrove forest resources in Kuching district.

1.4 Significance of the Study

Attitudinal studies are being widely used in evaluating public understanding, acceptance and the impact of conservation interventions, as well as to inform the development of new management strategies (Kideghesho et al., 2007).

The findings of this study are useful in guiding the policies for conservation. Factors behind conservation attitudes will be useful in developing management plans and outreach programs to promote socioeconomic development in the communities and conservation of the mangrove forest.

In addition, this research will help local people to change their attitudes, support conservation efforts, and align their behaviors with conservation goals. The impacts of benefits in changing attitudes and engendering local support may be enhanced by regular contacts between the wildlife staff and local communities.

In part of that, it also provides information to other researchers for further studies on conservation attitudes of mangrove forests.

1.5 Limitations of the Study

This researcher studies the factors influencing attitudes toward conservation of mangrove forest resources in Kuching district. There were some limitations faced by this researcher in this study. One of the constraints was information limitation. It was hard to obtain the relevant data since the data are difficult to find. Some secondary data were not available at website and only available at the certain government departments such as Forestry Department of Malaysia, Department of Statistic Malaysia and others.

Besides that, this researcher also needed to identify the villages for data collection. However, the background and culture of the villages were hard to identify and whether the local communities would accept or reject to be the respondents. If people were not willing to help, it would have led to a failure in data collection.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

According to previous studies, there are many factors affecting conservation attitudes positively or negatively such as historical, political, ecological, socio-cultural and economic conditions. The factors inspiring positive attitudes are likely to enhance the conservation objectives while those inducing negative attitudes may detrimentally undermine these objectives.

Mangrove forests are under threat in at some countries around the world. The destruction of mangrove forests is normally related to human population density. Major reasons for destruction are urban development, aquaculture, mining and overexploitation for timber, fish, crustaceans and shellfish. Various techniques and methodologies are in vogue in different countries for conservation of mangrove forests. Effective restoration and management of mangrove forests are solutions to achieving both economic and environmental conservation goals. Besides that, local communities as important stakeholders can play an effective role in the conservation of mangrove forests.

Recently, a variety of studies have been done by researchers about conservation attitudes and mangrove forests from different countries, fields and authors. It is necessary for researchers to find and discuss the objectives, methodologies, findings and

policy suggestions of related studies, so as to use as guidelines for this research. Below are some research journals regarding on conservation attitudes and mangrove forests.

2.1 Related Studies on Conservation Attitudes

Mojarradi, Zamani & Zarafshani (2008) aimed to evaluate farmers' attitudes toward private crop insurance agents in Fars province, Iran. 385 farmers were surveyed and the instrument for data collection comprised of structured questionnaires and scheduled interviews. The effect of variables such as age, type of farming, years of experience in farming, economic status, education level, access to resources, crop insurance background and satisfaction toward private crop insurer, measured through a perception toward agricultural insurance to an attitude toward private crop insurer was tested using path analysis. The results indicated that farmers had a positive attitude towards private insurance agents. Besides that, farmers' satisfaction with private agents and perception toward agricultural insurance coupled with access to resources had direct impact on farmer' attitudes toward private agents. However, age and crop insurance background had indirect impact on farmers' attitudes toward private crop insurance agent. Based on the findings, the authors suggested that younger farmers should be encouraged to buy insurance coverage through private agents in order to motivate older farmers. Agricultural extension agents should organize extension classes to encourage farmers to take on insurance coverage through private insurers and use more resourceful and satisfied farmers to promote crop insurance.

Kideghesho, Røskaft & Kaltenborn (2007) examined how conservation attitudes in western Serengeti, Tanzania were shaped by the following factors: level of conflicts with protected areas; wildlife imposed constraints (inadequate pasture, water, diseases, loss of livestock during migration, theft and depredation); participation in the community-based project; and socio-demographic factors (age, education level, wealth, immigration, gender, and household size). The questionnaires survey involved respondents from a randomly selected sample of 282 households drawn from the village registers. Data were analyzed by using non-parametric statistics and applied a robust linear regression analysis. In a stepwise linear regression analysis, 59% of the variation in peoples' attitudes was explained by conflict level with protected areas, lack of water and participation in the community based project. Furthermore, level of education also contributed in explaining 51% of the variation in people's attitude regarding the status of the game reserves. Five variables which were lack of water, level of education, inadequate pasture, participation in the community based project, and diseases explained 12% of the variation in people's attitude towards Serengeti National Park. Lastly, this paper recommended some measures to realize effective conservation of wildlife resources such as education, replication of the benefits to other villages, improvement of local people's living standards by alleviating poverty and so on.

Bandara and Thiruchelvam (2008) determined socio-economic factors that influence the level of adoption of soil conservation practices by potato farmers in Nuwara Eliya district, Sri Lanka. Data were collected from 50 potato farmers in five Agrarian Service Centers (ASC) by using multistage stratified random sample and