



Universiti Malaysia  
**KELANTAN**

**LOCAL VISITORS' WILLINGNESS TO PAY FOR  
AN ENTRANCE FEE AT TAMAN NEGERI  
GUNUNG STONG, KELANTAN**

by

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A report submitted in fulfilment of the requirements for the degree of  
Bachelor of Applied Science (Sustainable Science) with Honours

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**FACULTY OF EARTH SCIENCE**  
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## THESIS DECLARATION

I hereby declare that the work embodies in this Report is the result of the original research and has not been submitted for a higher degrees to any universities or institutions.

*Dayangaini*

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Students

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Date: 27 Disember 2020

I certify the Report of this final year project entitled Local Visitors' Willingness to Pay for an Entrance Fee in Taman Negeri Gunung Stong, Kelantan by Dayang Aini Nazura Binti Abang Jais, matric number E17A0077 has been examined and all correction recommend by examiners have been done for the degree of Bachelor of Applied Science (Sustainable Science) with Honours Faculty of Earth Science, University Malaysia Kelantan.

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## **Local Visitors' Willingness to Pay for an Entrance Fee at Taman Negeri Gunung Stong, Kelantan**

### **ABSTRACT**

Kelantan is known as a state with the natural environment and cultural heritage that contributes to the industry of tourism growth to increase the local economy income. Taman Negeri Gunung Stong are known as one of the main visitors' attraction place in State of Kelantan. The value of the recreational forest for the local community is even greater because the forest give the areas with pure oxygen and the people surrounding will feel like they are close to the nature. However, the main issue faced in managing the recreational forest is lack of financial resources to provide and restore adequate recreation facilities. The aim of this study is to determine the perception and attitude of local visitors towards recreational resources in Taman Negeri Gunung Stong and also to analyse local visitors' willingness to pay for an entrance fee in Taman Negeri Gunung Stong by using Contingent Valuation Method (CVM). A CVM based on the binary logit regression model was used. A total of 150 respondents who had visited to Taman Negeri Gunung Stong was participated in this study. The sampling techniques used in this study was random sampling. Overall the result shows that most of the respondents are concern on taking care the recreational forest for used by future generations. The study found that the mean of willingness to pay in TNGS is RM 6.12. The entrance fee collections are used as supplementary funds for the allocations made for construction and maintenance costs of the Taman Negeri Gunung Stong.

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## **Kesediaan Pelawat Tempatan Membayar Bayaran Masuk di Taman Negeri Gunung Stong, Kelantan**

### **ABSTRAK**

Kelantan dikenali sebagai sebuah negeri dengan persekitaran semula jadi dan warisan budaya yang menyumbang kepada pertumbuhan industri pelancongan untuk meningkatkan pendapatan ekonomi tempatan. Taman Negeri Gunung Stong adalah salah satu tempat tarikan utama pelancong di negeri Kelantan. Nilai hutan rekreasi untuk masyarakat setempat adalah sangat besar kerana hutan membekalkan oksigen yang asli kepada orang di sekitarnya dan merasa dekat dengan alam semula jadi. Namun, masalah utama yang dihadapi dalam mengurus hutan rekreasi adalah kekurangan sumber kewangan untuk menyediakan dan menambahbaik kemudahan rekreasi yang mencukupi. Tujuan kajian ini adalah untuk menentukan persepsi dan sikap pengunjung tempatan terhadap sumber rekreasi dan juga untuk menganalisis kesediaan pengunjung tempatan untuk membayar bayaran masuk di Taman Negeri Gunung Stong dengan menggunakan Kaedah Penilaian Kontinjen. Berdasarkan Kaedah Penilaian Kontinjen, model regresi logit binari telah digunakan. Seramai 150 orang responden yang pernah berkunjung ke Taman Negeri Gunung Stong telah mengikuti kajian ini. Teknik persampelan yang digunakan dalam kajian ini adalah persampelan rawak. Secara keseluruhan hasilnya menunjukkan bahawa kebanyakan responden mengambil berat tentang menjaga hutan rekreasi untuk digunakan oleh generasi akan datang. Kajian itu mendapati bahawa min kesediaan membayar di TNGS adalah RM 6.12. Bayaran masuk yang dikenakan kepada pengunjung adalah sebagai peruntukan bagi kos pembinaan dan penyelenggaraan di Taman Negeri Gunung Stong.

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## LIST OF ABBREVIATIONS

CVM	Contingent Valuation Method
TNGS	Taman Negeri Gunung Stong
WTP	Willingness to Pay
WTA	Willingness to Agree/Accept



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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of study

The ecosystem in forests mainly provides various services and economic values, which contribute to humankind benefit. The economic value measure is relevant when the individual's willingness to pay for those benefit. There are four categories of values are classified, direct use, indirect use, option values and non-use values (Mansouri et al., 2014). The direct use-value in the forest include consumptive and non-consumptive use such as fibre, food, timber, provision of fuel and recreational sites. The recreational value is a subset in direct values on the ecosystem of forest and even park which include the uses of forest such as hiking, leisure, recreation and others (Mansouri et al., 2014).

Forests in Southeast Asia consists of high value in biodiversity, habitats and commercially introduced product (Kummer & Turner, 1994). The forests are classified as a recreational forest for public use that were conceptualized in period 1966 to 1970 during the First Malaysia Program. Department of Forestry is responsible for

managing and designing the recreational forest. The scenic beauty of recreational areas occupies about 0.05% total of permanent forest in Peninsular Malaysia reserves.

Kelantan is known as a state with the natural environment and cultural heritage that contributes to the industry of tourism growth to increase local economy income. There are many attraction places that suitable to appoint it as a recreational place such as:

1. Taman Negara Kuala Koh, Gua Musang
2. Gunung Reng, Jeli
3. Kolam Air Panas, Jeli
4. Lata Renyok, Jeli
5. Taman Negeri Gunung Stong, Dabong, Kuala Krai, Kelantan



**Figure 1.1** Map of State of Kelantan, Malaysia

People are attaching more importance to leisure time and recreation, thus increasing the demand and value of public recreational resources. Green pace and national park are the examples of public recreational support where people can enjoy and relax with many recreational opportunities and facilities provided such as picnic with family, sightseeing or participate in adventure activities such as hiking (Tang,

2009). The tourism sector has attracted attention as it is a way to fill the leisure time to reduce the impact of rising stress caused by rapid urbanization and industrialization. The economic activities development, population increase, high living standard, air pollution phenomenon in cities, noise pollution and other environmental pollutants have caused an increase in demand for environmental nature (Mansouri et al., 2014). Due to that, people living in urban areas tend to leave the cities and use the natural environment to escape the mechanical life and hide away in natural recreational areas and resort outside the cities.

## **1.2 Problem Statements**

The environment is most related to the economy and it will give effect to each other. One of the crucial factors in sustainable growth is natural resource interest. In order to create a stable and prosperous environment for sustainable economic growth, it is essential to establish natural resorts and recreation to meet the needs and demands of the population of society. It is an important aspect where tourists will pay the bills.

User fees for recreation access to and use the public lands have been the main topic of managerial and academic debate since the turn of the century. The legislation to collect fees was enacted in the late 1950s, but agencies' management did not perceive this as a significant source of revenue. Furthermore, the federal agencies did not rely much on fees as serious earnings because they believe that outdoor recreation should be open and available to all socioeconomic classes at no cost. However, open access to national park or recreational forest and the failure of the market system in restricting their use might give huge impact to the ecotourism sustainable in the (H & Y, 2014). Currently, most of the tourist destination is facing minimal or raising public supported for natural attraction's maintenance and management. However, there is a

lack of financial resources for the management of the parks to provide and restore adequate recreation facilities to ensure that the management of natural resources is measure and makes use of people's contribution to the conservation and revival of these areas. Thus, the charging of entrance fee is a way better for users, either local or foreign visitors.

Recreational forest help biodiversity loss, maintain the beauty of the landscape, and act as one of ecological function that supplies the services of ecosystems (Muhumuza & Balkwill, 2013). Despite these benefits, the financial resources and political support for nature conservation are limited, and degradation of the ecosystem remains a significant challenge. Limited funds from other parts of ecosystem services under pressure from forest managers of recreation forests are forced to maximize the revenue from recreation services by separating and charging entrance fees based on recreation and conservation facilities and public utilities. Due to that, the values of recreational may be not fully appreciated in the parks. Most recreational sites are not provided with necessary attention in terms of financial and conservation.

### **1.3 Expected Outcomes**

The results of this study estimated the amount of money of local visitors are willing to pay in Taman Negeri Gunung Stong (TNGS) in sustaining the recreational forest in Kelantan and determined the perception and attitude of local visitors towards recreational value and resources that exist at TNGS.

#### **1.4 Objectives**

The objective of this research:

1. To determine the perception and attitude of local visitors on recreational resources provided at Taman Negeri Gunung Stong.
2. To analyse the local visitors' willingness to pay for conservation of recreational resources provided in Taman Negeri Gunung Stong.

#### **1.5 Scope of the Study**

The research was conducted through online platform toward the targeted respondents to participate in this survey. This is due to the situation of Covid-19 recently that have restrict any economic and tourism activities especially to ensure the numbers of spread will be decline The primary data will be collected using a set of questionnaires. This research aims to determine the local visitors' perception, attitude and their willingness to pay for recreational resources at Taman Negeri Gunung Stong. Besides, this research will focus on Contingent Valuation Method to elicit their willingness to pay for the entrance fee at recreational sites Negeri Gunung Stong.

#### **1.6 Significant of Study**

The significance of this research is to provide the data of local visitors' willingness to pay in solving the financial issue in TNGS. The data provided will help the management in TNGS to improve their maintenance. The data from this research also can help the management to increase the awareness of the local community about the impact of recreational activity on conserving the natural resources of present and future generations.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Recreational Forest

Forest is one of the environmentally essential tools that contain many biodiversities. Forest covers the total land of which 4,032,905 hectares in the country (FAO, 2005). Most of these areas have always been threatened by human activity due to an increase in world population and growth in the economy of global. The threats come from human in various activities such as the development of infrastructure, tourism activity and extraction of resources from settlers. In developing countries, protected areas like forest are seen as potential to build ecotourism activity and generate income to contribute in economic growth as it is recreational assests and have opportunities to attract many tourists from other countries. Economic growth can be improved from tourism activity with provided of income and jobs and maintaining nature as attractions to encourage tourism activity in forest areas (Nepal, 2000).

Forest areas have essential environmental values and are frequently located in vulnerable habitats. The World Tourism Organization define sustainable tourism as one that enhances the quality of life of local communities, provide tourists with high-



quality experience and preserves the quality of the environment that both rely on (Bhuiyan et al., 2011). The forest park has the potential and possibly even the obligation to actively and possibly promote sustainable development through leisure tourism (Machlis & Field, 2000). Apart from that, the recreational forest used as conservation of adequate forest area for recreation, education and the protection of unique flora and fauna. Its goal is to produce enough area as the recreational place, ecotourism and raise awareness of forestry among the public. It can be described as a designated area for a picnic and outdoor activities and preservation of local flora and fauna and areas where the education can be carried out. Besides, the recreational forest is set up specifically for educational purposes. However, based on the observation, the recreational forest is seen as mainly serving for recreational activities. The increasing needs of recreational can be due to increase in population number, an increase of leisure and money and the trend in appreciation of nature (Yahha & N.A, 1999).

In the United States, the residents may want to pay for the production of tropical rainforest for various reasons. For example, their tourism place or recreational value, the resources of production of wood and non-wood products, the potential pharmaceutical and other products that can be discovered within forest biodiversity of the rainforest, the role of forest in regulating the global climate change and for knowledge of the ecosystem and flora and fauna that contain exist (Kramer & Mercer, 2015).

### **2.1.1 Recreational resources**

Forestry provides the potential benefits of forest resources to society. These can be classified into two leading groups, national and global benefits (Pak & Türker, 2006). For Environmental Impact Statement (EIS), the recreational uses of an area can

include any outdoor activity in which the residential areas, visitors and tourists may participate. Typically, although not exclusively, focused on weekends or holiday periods such as hiking, fishing or boating may be included. Besides, recreational resources can be an essential component for the economy and lifestyle of residents. Forest is one of the natural resources that supply many social and economic benefits that can be obtained from forests. In the broadest sense, the dimensions of natural resources of outdoor recreation involve ensuring that for a host of purpose include outdoor recreation, high quality, sustainability natural resource and ecosystem are available in present and future.

An ecosystem is more than just a landscape. An ecosystem is built from all living organisms' interaction including people with their environment and can be small and widely (USDA, 1995). Ecosystem mentioned include flora, fauna, water, air and also humans. Thus, outdoor recreation includes people interacting with the natural environment. The outdoor recreational resources are any natural resources and facilities provided that make the outdoor recreation possible. Land, water, vegetation, wildlife, mineral and air are examples of natural resources. However, in professional recreation perspective, the term also includes infrastructure and other development that used in engagements of outdoor recreations.

## **2.2 Public attitude and perception**

People are motivated to visit or use a green park for various kind of benefits either for physical health, psychologically wellbeing and also psychosocial benefits (Home et al., 2012). However, people visit a green park for many reasons or 'being away' either physical or psychologically away (Laumann et al., 2001).

The study carried out by Lynn and Brown (2003), the relationship between recreational use impacts and experience on hiking in Starkey Hill in Toronto, Canada show that the users were motivated to have a visit on green parks mainly for enjoying the nature (95.1%) followed by for doing the physical exercise (91.5%), to escape from pressure in everyday life (65.9%) and to have a social bonding with family and friends (59.8%) (Natasha A. Lynn, 2000). Another study related by Abkar et al. (2010), the visitors of Gadir Park in Yazd, Iran, shows that 46% of respondents use the park to relax and raise and improve mentally (Abkar et al., 2010). Apart from that, the reasons they use the parks were to escape from a stressful urban environment and release mind by observing at flowers and plants and thinking peacefully. The 'relaxing' represented 58% that chose by respondents followed by 'refreshed' feeling (43.9%). However, in this research, they did not study the impacts of respondent's demographic such as age, education and occupation (Abkar et al., 2010).

Environmental attitude is defined as a psychological propensity to determine a degree or environmental benefits or disadvantage. The environmental concern include the general environmental or ecological and environmental attitudes towards particular environment topics. An attitude can be characterized as a physiological propensity to view a given object or action with some degree of favour or disagreement (Ajzen & Fishbein, 2005).

Attitudes are dynamic combinations of items that we like in term of personality, beliefs, principles, attitudes and matures. The public's attitude in the recreational forest that can destroy the environment can be observed through environmental hygiene. It is vital to maintaining the cleanliness in recreational areas to ensure visitor's satisfaction.

The nature-based ecotourism sector got higher demands from visitors. Due to that demands, it put a lot of pressure towards nature and recreational areas to provide the recreational amenities. The facilities in recreational sites are vital in order to fulfil the needs of visitors. The lack of provision of amenities and services in the recreational sites can contribute to overuse and blockage of facilities. Besides, when the service is lack, it could lead to a reduction of visitor's satisfaction.

The government should provide provision on the maintenance of facilities in the recreational park to attract more visitors. If the facilities provided is adequate, it will enlighten the visitors on the recreational value. Recreational sites with new facilities can arise a good impression and increase the satisfaction of visitors. The higher satisfaction leads to higher willingness to pay (WTP). People who know the benefits of protecting, conserving and preserving the environmental resources such as forests will increase their WTP. Furthermore, this somehow has the potential to improve the development and implementation of sustainability of place.

### **2.3 Non-Market Valuation**

The environment plays an essential role in supporting the production of goods and services which are sold in the market. As an example, soil, service pollinating insects and other input in environmental in supporting the production of food. The environment aspects give rise to 'values of the market'. Land, services, honeybee pollination are some of the environmental assets traded in the market and have an exact price in reflecting the exchange market value. The others value such as rainfall can be estimated by refer to the contribution of them in market production by using the function production methods where the market value of environmental inputs can be

concluded from the contribution that they make to the marketed value of the final product (Baker & Ruting, 2014).

Non-market good can be defined as a natural attraction which can be accessed anytime and anywhere without paying a single cost. Sometimes, it is possible to be assessed in term of monetary to the users. The thing is done to determine willingness to pay of consumers for the good and services. In market situation's context, the willingness to pay is used in market good and it is based on the estimation of rational choice and maximization of utility. For example, if there is a shift in a non-market good in environmental improvement, the persons might think either he or she is better off in some way or the person will choose to pay for some amount of money to gain this shift (Abu Bakar et al., 2016).

A valuation 'method' consists of a broadly defined set of procedures to estimates non-market values. For example, contingent valuation, choice experiment, travel cost and hedonic price methods. Meanwhile, procedures are the various steps for the implementation of the method in an empirical study. Example of the procedure includes random utility models used to implement the travel cost method, referendum questions used to implement the contingent valuation method and meta-analysis used to implement the benefit transfer method. The monetary value is someone places on something is measured as either willingness to pay (WTP) or willingness to accept (WTA) compensation.

There are two methods for calculating the monetary value of the non-market outcome. Stated preference methods is a method that uses a survey to estimate how much money people are willing to pay in obtain a non-market outcome such as a specific improvement in environmental due to policy. The stated preference methods mentioned are based on the notion that there is a certain amount of products and

services purchased by people with their income, that people are willing to trade-off so they can get the benefits from it (Zhang et al., 2015). This measured in term of willingness to pay for non-market results even the methods used to assess how much the compensation that people are willing to accept in giving up the non-market good that they already got the benefits. Meanwhile, the revealed preference method is a method that analysed observed to impute the dollar value on non-market results such as recreation and facilities. Revealed preference method cannot be used for policy analysis in all situations where non-market values are needed. 'Benefit 'transfer' is not one of the valuation method but it more to technique in applying available estimation of non-market values to new policy contexts (Amirnejad et al., 2006).

There is two approaches that use in stated preference methods, contingent valuation and choice modelling. These two approaches use surveys in order to estimate how much the individuals are willing to pay for a non-market good. Furthermore, both use statistical models based on random utility theory to analyse the data of the survey. This will include the estimation on average willingness to pay for non-market results or specific attributes. It examines how willingness to pay influenced from income, attitudes or other factors such as gender, education or age. A contingent valuation is an approach that involves in asking people to make their choices about environmental results and payment which can be used in the estimation of how much they are willing to pay for non-market results to be provided. This result values as a whole, as an example, the amount of money that people are willing to pay by additional taxes in order to make some improvement in vegetation sector along a river. In short, people ask either they are willing to pay for a set of money to improve environmental (Baker & Ruting, 2014). Next, choice modelling is an approach that offers people choices between the different options that are made up of sets of attribute or characteristics

which describe the outcome of policy. For example, the attribute may indicate a number of birds and fish in a vegetable area and the individual cost or household. The implicit price of each attribute then estimated reflects the average willingness to pay for the additional unit.

Next, revealed preference methods. In these methods, also have two approaches that widely use which travel cost method and hedonic pricing. The travel cost method is a method that imputes the people place value on visiting the recreation site by examining how much they spend to visit which include the transportation costs, facilities and entrance fee and also their time cost. All of this data is used in estimation the consumer surplus which people got from their visit. Next, hedonic pricing is a method that deconstructs market price which its influence by non-market results. The estimation of implicit prices for a characteristics number that makes up the good, for example in housing, the number of characteristics can be room numbers, landfill proximity or others (Othman et al., 2006).

### **2.3.1 Measurement of environmental value**

Valuation of economic gives an idea of the actual costs and benefits for ecosystem services and degradation and helps make the correct decision (Pearce, et al., 1994). Besides, the economic valuation of environmental reveals the monetary value of goods and services. Hence, it makes the decision making easy for matter social well-being (Batie & Shabman, 1982). An environmental valuation can be defined as economic field aimed at estimating the values for changes in environmental and services of the ecosystem. The non-market valuation was the main topic debated by the economists, politician and other people related. Economists have developed various techniques that can be assigned to the economy's values to goods and services,

which there is no fixed price in markets. The economic value can be estimated through the price of goods and services authorisation, which the cost often replacing the specific good or interest services.

There are various methods for evaluating non-market products and services or allocating environmental quality or quantity changes based on person's preferences. The revealed preference methods are focused on actual behaviour that represents maximization of utility subject to constraint. The type of revealed preference method is referred on observed choices in a 'take-it-or-leave-it' setting. There is a significant difference between revealed preference and stated preference methods that derive their data from people's answer to hypothetical questions rather than from real-world choices observations. The earliest stated preference methods included specifically asking people about the values they put on environmental resources by establishing a hypothetical market.

#### **2.4 Contingent Valuation Method**

Valuation of environmental consist of application that can be used to estimate economic value such as hedonic pricing, travel cost method, choice modelling and the contingent valuation method. In environmental valuation, the Contingent Valuation Method (CVM) is commonly used. CVM is used as a technique for calculating the importance of environment capital (Bateman et al., 1994). CVM is a method for putting interest or sum on products and services that are usually not traded on the market (Ajzen & Driver, 1992).

The word 'contingent' refers to the respondent's reaction on what they would act to certain situations if they were there. To estimate the economic value of new market goods, CVM is one of questionnaire-based approach (O'Riordan et al., 1987).



Essential concepts in CVM is willingness to pay (WTP). WTP defines as the average price a person is willing to pay for products and services (ADB, 2011). To be concrete, WTP is the amount of money that a person is able and willing to pay to explore and enjoy the scenery in forest areas and recreational facilities (McConnell, 1985).

CVM is a method that categorized under stated preference method, which is better in environmental valuation compared to inferring values from actual choice which categorize under revealed preference methods. Mostly, CVM is used in many applications because it is clear and explicitly asked people how much they are willing to pay for environmental facilities services. Awareness on the importance of benefits led to this method. People can obtain environment resources and realize the need that includes the costs and benefits of non-market goods and services. (Venkatachalam, 2004). The estimation of economic values for all types of ecosystem services include use value and non-use value used CVM (Beukering et al., 2007). It is known as a standard method used in non-use value measurements.

Contingent valuation refers to people who relate in to the surveys that are asked to state how much amount of money they would like to spend on environmental goods and services. The contingent word also refers to 'passive use value' that does not involve market purchase or direct participation. The excellent example of defining non-use value or passive use-value is public goods. The public goods are one of the environmental resources that are not supported in the economic market even though there are substantial offer benefits to the public (Costanza et al., 1997).

## **2.5 Advantages of CVM**

CVM has several advantages. In economics such as health economics, cultural economics and transportation security and economics and environmental economics,

CVM is commonly used worldwide (Kim et al., 2007; Nor & Yusoff, 1989; O'Shea et al., 2008). It is a simple, straightforward and flexible method that has been widely used in environmental valuation. For the last 30 years, this method has been used intensively in environmental economics valuation, especially in non-market valuation techniques. CVM is an approach developed by economists to value public goods which are non-marketed and estimate the value of improvements or damage to environmental facilities (Garrod & Willis, 1992).

One of the ways to assign the dollar values to non-use environmental values by using the contingent valuation method which may not include any market purchases and does not involve the direct involvement. These values are also referred as values of 'passive use'. They include everything from the essential roles of life support associated with ecological health and biodiversity to the enjoyment of a scenic view or the wilderness experience and to the knowledge of potential fish or bird watching opportunities.

CVM is highly flexible, which can be used to measure almost that related to the value of economic. However, even if there is no measureable activity available to deduce values by other means, it is better able to estimate values for products and services that are readily defined and recognised by consumers and consumed in the discrete units such as user days of recreation. CVM is the most widely accepted method in estimating the total economic value which includes all types of non-use or 'passive use' value. This method also can be used to estimate the use values and the existence values, option values and bequest value.

## 2.6 Disadvantages of CVM

CVM is the method where it assumes that people understand well in the question and reveal their preference in the contingent market same as in the real market. Nevertheless, some people are unfamiliar with the monetary value placed on non-environmental goods and services. Hence, CVM is a stated preference technique which compromised by limitations or biases. Bias is defined as the difference between the distributions in the hypothetical bids obtained from a survey and the distribution of bids that would be received in a market environment that would show the real demand. Some of the biases include:

### i. Strategic bias

Strategic bias in stated preference studies has long been an issue. The phenomenon occurs when an 'individual intentionally misrepresent their preferences in order to influence the decision-making process. Most of the strategic bias study concerned the method of contingent valuation with very few studies investigating whether the bias could manifest itself in the discrete choice experiments and to what degree.

### ii. Non-response bias

Non-response bias is the type of bias that occurs when individuals are reluctant or unable to respond to a survey because of a factor that makes them substantially different from individuals who respond. The differentiation between non-respondents and the respondents is typically a factor which affects the lack of response. It can be referred to as participation bias,; a non-response bias may be due to the poor construction of the sample and the ability to target from the questionnaire. It could also be due to the respondent having taken an irrelevant decision.

### iii. Interviewer bias

Interviewer bias in the sense of face to face and self-administered surveys. They find that face to face surveys provide more significant WTP estimates than self-administered surveys and among interviewers, WTP differs. However, sociodemographic differences influence the variations in WTP responses in the interviewers.

### iv. Information bias

Information bias occurs when respondents are required to value attributes for which they have little or no experience, so that the data bias can emerge. Generally, in such cases, the amount and type of information that submitted to respondents can influence their response. Based on Hirshleifer and Riley (1992), stated that an individual's valuation is correctly provided the information available, it is not reasonable to call it a bias but only an impact (Hirshleifer & Riley, 1992).

## **2.7 Application of Contingent Valuation Method**

In Malaysia, the development of environmental valuation is relatively slow compared to Asia, Latin America and Africa, known as developing countries. The uses of environmental valuation in Malaysia only focus on non-timber forest product valuation at earlier stages. Products mentioned are classified into two main categories which are goods and services. Example of goods is herbs medicines that made up from herbs plant and others. Meanwhile, for services is soil protection, recreational opportunities and conservation of biodiversity (Ahmad, 2009). In the 20th century, Malaysia's environmental valuation development experienced rapid development and increased in its use. Academic interests and financial support contribute to the methods

of environmental valuation in Malaysia that not focus on recreational and forests benefits and in sectors of industry, such as in the management of waste (Othman, 2002), wetlands benefits (Othman et al., 2006).

The value of non-market goods using the Stated Preference Method, which uses the stated behaviour of individuals in a hypothetical setting. Choice modelling and Contingent Valuation Method is the method that includes in Stated Preference Method. It is used in approaching individuals and directly asked the respondents about willingness to pay on a certain amount of money towards the non-market level of good describes (Bateman et al., 1994).

Economists developed a CVM as an approach towards value non-market public goods and estimated the value or damage of the improvement in environment facilities (Garrod & Willis, 1992). Based on history in 1947, Ciriacy-Wantrup (Ciriacy-Wantrup, 1947), is a person who proposed the original idea on analyzing the benefits of measures to prevent soil erosion which generates extra benefits market that goods in nature and estimate the benefits to gathering the individual's willingness to pay for all the benefits through a survey methods (Hanemann, 2018).

In Malaysia, the study of Local Tourists' Willingness to Pay for Conservation at Tourism Sport was carried out at Damai District in Sarawak (Alias et al., 2002). The dichotomous choice and CVM was applied in this study randomly to visitors. The logit model was used to obtain the results that indicate the median value of a person. The model shows the results, the value of the median WTP is RM11.64 for Damai preservation. Next, Arin and Kramer (2002) were carried out the study on diver demand for visiting the marine sanctuary by using CVM in Philippines (Arin & Kramer, 2002). In this study, an exploratory contingent valuation study was carried out among tourists from local and foreign in three major dive destinations in the

Philippines. The charge an entrance fee to visitors is one of the ways to ensure that finance marine reserves.

The way mentioned also help the local communities to capture scarcity rent of their resources. Thus, the income collected will cover the maintenance and anti-fishing rule enforcement costs of a marine reserve. Besides, the entrance fee can be used as a tool to regulate the number of visitors to minimize the damage of diver. Estimation of WTP was modelled as a function of age, gender, income, level of educational, type of diving (scuba and snorkel) and interest in protecting the environment. From that, the maximum WTP of each diver was elicited through question of contingent valuation. The results showed the average of WTP is considerably higher on Mactan Beach than in Anilao and Alana Beach, where the average WTP was US\$3.7 in Anilao, US\$5.5 Mactan and US\$3.4 on Alana Beach. The results from the survey study showed a positive WTP to enter the marine sanctuaries where the fishing activities become one of major threats to coral reefs, prohibited (Arin & Kramer, 2002).

Another study by Kim et al. (2007) in assessing the economic value of a world heritage site and willingness to pay determinants at Changdok Palace using the CVM approach (Kim et al., 2007). The close-ended questions or dichotomous choice was used in this study. The logit models in both linear and logarithmic forms were employed in identifying the determinants from the DC questions. From the result of pre-test, ten price offers were given on the questionnaire. Next, the mean WTP value was calculated from the estimation of the coefficient of each model through LIMDEP 8.0 program. The value of mean WTP in a log-linear model were 5706 (\$5.70) while in a log-logit model was 6005 (\$6.00). The results show that the gap between the two mean WTP amounts was small. The user benefit estimation involves an approximation

of the average WTP for a given quantity of the public good by multiplying the sum of the average WTP and the current admission price, 2300 won by visitor numbers. The visitor numbers were 685,694, which include the foreign visitors of 443772. As a result, the log-linear model's aggregate use value was estimated at around \$1.9 million while the log-logit model's aggregate use value was estimated at \$2.01 million (Kim et al., 2007).

## **2.8 Review of previous studies of CVM**

CVM is commonly used in developing countries. CVM is used in eliciting the preference of individual for a basic infrastructure project in recent years (Merrett, 2002). Contingent valuation is a method to estimate the value to put on a good or services by an individual. The approach allows the individual to reveal their WTP explicitly to receive a specific good or willingness to agree (WTA) to give up a good rather than to infer them from behaviours observed in normal market places. Hence, CVM is a very trendy method in measuring the benefit of value changes in the supply of non-market goods and services. It is also accepted widely around the world. In many countries, most of the researcher who studied in the economic field used CVM in the estimation of the value of environmental goods or services includes in Malaysia and other developing countries.

The previous studies showed in Table 2.1. It presents a summary of the previous studies that have been carried out among the recreational sites in Malaysia and in other selected developing countries.

**Table 2.1** Summary of previous studies using CVM

Year	Researcher	Valued Areas	Willingness to pay (Valuation Result)
2002	Alias et al.,	Damai District, Sarawak, Malaysia	Median: RM 11.64 (per person)
2002	Jamal and Shahariah	Paya Indah Wetland Kuala Langat, Selangor, Malaysia	Mean: RM 28 to RM 31
2003	Alias and Ruhana	Malaysia Agricultural Park, Bukit Cahaya Sri Alam, Selangor, Malaysia	Mean: RM 4.87 to RM 3.61
2006	Dayang et al.,	Bako National Park, Kuching, Sarawak, Malaysia	Mean: RM 6.84 to RM 7.66 Median: RM 7.77 (per person)
2008	Nuva et al.,	Gunung Pangarango National Park, West Java Indonesia	Mean: RP 7629.77 (per visit)
2009	Seddigheh Arab Amiry et al.,	Kapar Bid Sanctuary Klang, Selangor, Malaysia	Mean: RM 4.02- RM 43.23
2009	Ahmad Shuib	Larut Matang, Perak Malaysia	Mean: RM 44.58 (per recreationist) and RM 41.18 (per visit)
2009	Mohd Rusli et al.,	Marine Park: Pulau Payar and Pulau Redang, Malaysia	Mean Pulau Payar: RM7.30 (Local) RM 8.00 (International)  Mean Pulau Redang: RM 7.80 (Local) and RM 10.60 (International)



**Table 2.1** (Continued)

2009	Mohd Rusli et al.,	Redang Island Marine Park, Malaysia	Mean: RM 7.80 to RM 10.60 (per annum for conservation)
2010	Faizah et al.,	Kilim Karts Geoforest Park, Langkawi, Kedah Malaysia	Mean: RM 17.27 (per visit for sustainability)
2014	Masoumeh et al.,	Hasan Gavyar Forest Park of Noorabad City	Mean: 17919 Rials (per person) and 215028 Rials (per households)
2016	S. Mohammadi Limaiei et al.,	Saravan Forest Park North of Iran	Annual recreational value of the forest park: 22,761.6 million
2019	Saied Satari et al.,	Kabudval Forest Park, Golestan Province of Iran	Mean: 34,850 Rials (per person)
2019	Wan-Yu Liu et al.,	Huisun National Park, Taiwan	Mean: NT\$2884 (per person)

Based on the table above, it indicates that CVM is widely applied among developing countries, including Malaysia. In CVM, WTP is the most significant term. The maximum amount that visitors or customers are willing to pay for products or services is known as the WTP (ADB, 2011). In particular, in the use of recreational facilities, WTP is the sum of money that a person is willing to pay (McConnell, 1985). It also tests whether a person sacrifices his or her income to enjoy the goods or services (Abu Bakar et al., 2016).

## CHAPTER 3

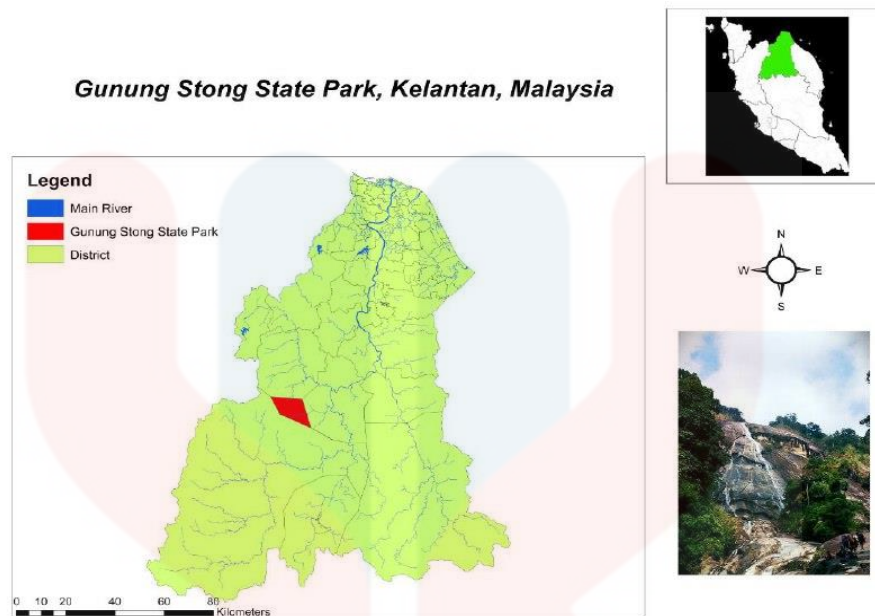
### MATERIALS AND METHOD

#### 3.1 Study Area

Taman Negeri Gunung Stong is nature forest reserve covering 21,950 hectares near the small town of Dabong in Kelantan. It was gazetted as a state park and ecotourism site in 2007. Besides, it is managed by the Kelantan State Forestry Department. Taman Negeri Gunung Stong's outdoor recreation activities are similar to the better known and much more extensive than Taman Negara but less marketed due to its bit remote location. At least seven major climbing peaks, cascading waterfalls include accessible waterfall of Jelawang caves, rare animals, birds, plants and others (Jayaraj et al., 2012).

MALAYSIA

KELANTAN



**Figure 3.1** Map of Gunung Stong State Park, Kelantan, Malaysia

### 3.2 Questionnaire Design

The survey questionnaire is a survey tool which is used to identify a number of questions in order to determine the monetary value of a change in a non-market good. Therefore, the questionnaire should be designed to enable respondents to think critically about the subject of interest, to provide them with the requisite details to be able to make informed decisions and to encourage them to recognise the monetary valuations and reveal it. The method of contingent valuation uses the survey questions to obtain the preference of society for public goods by creating a hypothetical market.

Contingent valuation method questionnaires can be designed to obtain willingness to pay (WTP) or willingness to accept (WTA) estimates for a change in the level of public good provided. The decision to use WTP or WTA ultimately depends on the property rights of the good. However, WTA estimates are often biased upwards. Hence, the contingent valuation studies need to be well designed in order to obtain the WTP estimates.

The consistency of the language and the questionnaire's sentences play an essential role in providing the potential respondents with the best response. To obtain the best answers from the respondents, the time allocated for answering the questions is also significant. The respondents are affected by the time and number of questions to provide the correct answers. Thus, the format and arrangement of questions must also be well structured to enable respondents to address the questions during the survey.

In this study, the questionnaire was prepared in two version in English Language and Bahasa Malaysia. The questionnaire distributed to the respondents was prepared in Bahasa Malaysia in order to make the respondents are fully understand on terms of willingness to pay. There are two types of question used in the questionnaire: open-ended questions and close-ended questions. Open-ended questions are where the respondents are required to give their answers in the space provided. It is a convenience type of questionnaire because the respondents can help the researcher determine the respondent's possible answers. Meanwhile, for the close-ended questions, the respondents must tick the selected answers on the questionnaire form based on the answers provided. The close-ended questions are easy to analyse and coded in statistical software, namely Statistical Package for Social Science software.

In this research, the questionnaire had been developed, which consists of tick boxes, closed questions, rating scales and open questions and spaces for additional qualitative information or comments. The questions were designed in the rating scale where the respondent has to mark on questions by referring to the provided scale. The scale provided below:

1. Strongly disagree
2. Disagree
3. Agree
4. Moderate agree
5. Strongly agree

The questionnaire was designed into four main sections. Section A represents the perception on recreational resources in Taman Negeri Gunung Stong. In section A, it is consists of tick boxes, open-ended questions and rating scale. The same design goes to section B, which it represents the attitude on recreational resources in Taman Negeri Gunung Stong. The demographic profile of respondents was gathered in Section D, such as gender, age, race, marital status, level of formal education, occupation and household gross monthly income.

In section C, it was designed to obtain the willingness to pay of respondents if there are increment in the rate of the entrance fee in Taman Negeri Gunung Stong. The detailed is briefly describes in a current scenario at Taman Negeri Gunung Stong. Then, the respondents were required to answer the questions provided based on the scenario given and their income and expenses, which what maximum amount they are willing to pay. The scenario is stated in the questionnaire, as shown below:

### SCENARIO AT TAMAN NEGERI GUNUNG STONG (TNGS)

Taman Negeri Gunung Stong is nature forest reserve which covering 21,950 hectares near the small town of Dabong in Kelantan. It was gazetted as a state park and ecotourism site in 2007. Besides, it is managed by the Kelantan State Forestry Department. The surroundings in TNGS have a cool atmosphere and are mostly covered with fog during the morning. Besides, the area is surrounded by lush natural rainforest and is said to be the oldest rainforest on earth. The environment in TNGS is also rich with various species of flora and fauna.

However, due to preserve the recreational value and the scenic resources, a few steps should be taken such as build up funds for sustainability of recreational value at TNGS. The provision of funds from government are not enough to cover the maintenance cost in TNGS and the management is considering to increase the current entrance fee for visitors to the park since it has not been revalidated for almost 14 years. The current entrance fee is **RM2**. The increasing in the entrance fee is required in protecting the TNGS from further degradation. The additional funds will be used efficiently to maintain the facilities and strengthen the conservation efforts in TNGS.

The questionnaire has explicitly been split into five different sets based on the bid amount used. For the Set A, the bid amount offered (RM1, RM2 ,RM0.50), Set B (RM2,RM3,RM1), Set C (RM3,RM4,RM2), Set D (RM4, RM5, RM3) and Set E (RM5, RM 6, RM 4). In general, if the respondents answered ‘Yes’ on the question that asked whether they are willing to pay if there is an increase in the rate of entrance fee at a given amount to enjoy the recreational values in TNGS. Therefore, if the respondents answered ‘No’, it means they are not willing to pay for the entrance fee and they are required to choose why they are not willing to pay as stated in the questionnaire or state their own reasons in the provided space. The additional RM2 is considered the minimum increase that represents the reasonable additional amount for entrance fee in a recreational forest in Malaysia.

### 3.3 Pilot Survey

A pilot survey can be defined as a small study to test analysis protocols, the instrument for gathering the data and as strategy sample for recruiting among another analysis method in preparation for more extensive study. Besides, the pilot survey is one of the critical phases in a research study. It is conducted during the full study to identify potential problems and deficiencies in the research instruments and protocol before implementation. Doing the pilot survey can help the researchers familiar with the protocol procedures and help decide between two competing methods of study, such as using interviews compared to the self-administered questionnaire (Abu Hassan et al., 2006).

In this study, the pre-testing of the questionnaire during the pilot study was carried out to a sample of 30 respondents which comprises the respondents who had been visited TNGS. The link of google form of pre-testing of the questionnaire was distributed to the targeted respondents through online platform such as WhatApps. The pilot test was conducted in October 2020.

In testing the reliability of the questionnaire, data from the pilot test are being used. Cronbach's alpha is commonly used to determine the reliability of the questionnaire. According to Sekaran and Bougie, if the Cronbach's alpha is closer to 1, the measure's reliability is higher (Sekaran & Bougie, 2010). Table 3.1 show the result of reliability tests for the variable used in this research. In this pilot study, the Cronbach's alpha range from 0.856 to 0.954. There are 11 statement was analyse for the perception on recreational resources in TNGS where the value of Cronbach's alpha is 0.954. Meanwhile, there are seven statement for the attitude on recreational resources in TNGS where the value of Cronbach's alpha is 0.856.

As shown in the table above, each section's reliability are higher than 0.7, which is acceptable. Hence, the suggested measurement scales used in this study are suitable for use.

**Table 3.1** Reliability of Pilot Test

Section	Cronchbach's Alpha ( $\alpha$ )
1) Perception on recreational resources in TNGS	0.954
2) Attitude on recreational resources in TNGS	
i) Facilities, activities and services in TNGS	0.856

### **3.4 Data Collection**

#### **3.4.1 Sample size**

In order to produce a good result on the estimation of CVM, the sample size is important. Based on studies on bias and efficiency of single versus double-bound CVM model, it defines that 'small size sample' is a sample of 100 or less, the sample size of 250-400 is categorized as 'medium size sample' and the sample size of more than 1000 as 'large size sample' (Calia & Strazzera, 2000). The sample size was determined by referring to the proposed rule thumb, which is suitable and accurate for most research which larger than 30 and less than 500 (Calia & Strazzera, 2000).

In this study, the survey concentrated on the local visitors for a several reasons. A total of 150 respondent was participated in this survey. Since there are five different sets of questionnaires, the distribution of the questionnaire was divided into five groups based on percentage. For Set A and Set B, it required 30%, which represent a



total of 45 respondents was participated in the survey. Meanwhile, for Set C, Set D and Set E, it required 13.3%, which represent a total of 20 respondents was participated. Set A and Set B have higher percentage among the other set because there is a high probability that the respondents are willing to pay for the price offered for that sets.

### **3.4.2 Sampling techniques**

Sampling is defined as the method of selecting a representative subset of population which known as sample. This method makes the research more accurate and it is related to case study design and qualitative analysis. In this study, the type of non- probability sampling, random sampling. Random sampling refers to a variety of selection techniques in which members of the sample are selected by chance, but with known probability of selection (J & Lavrakas, 2008).

The web-based and online survey tools commonly used in data collection instruments in nowadays networked environment. Hence, in this study, the survey was conducted through an online platform towards selected respondents. The google form was used in the collection of data. The google form is a cloud-based data management tool used to design and develop the web-based questionnaire. The collection of data began on October 2020 until November 2020. The questionnaire is well organized in the google form in order to easy the respondents to answered.

## **3.5 Data Analysis**

### **3.5.1 Descriptive Analysis**

The descriptive analysis provides an overview of the respondents and an insight into their behavioural pattern. Typically, this analysis concerned with the ways

of data were collected and organized. The analysis will describe a summary derived from the samples that will be used to illustrate the data and characteristics of variables in terms of the frequencies and percentages of distribution of the survey. The result of the analysis provides the distribution of response and statistics of summary of the respondent's profile, socioeconomic, their responses to the questions about environmental attitudes, perceptions and also opinions about recreational resources that available in TNGS.

In this study, descriptive data gathered the data of demographic collected from Section D were analysed in software, namely Statistical Package for Social Science (SPSS) to find the mean and percentage of each data from the respondent. The data extracted is the primary information of respondents which includes gender, age, race, marital status, level of formal education, occupation and monthly household income of respondent. The questions in Section A, Section B and Section C also analysed in SPSS software.

### **3.5.2 Estimation of Willingness To Pay**

The CVM with a dichotomous choice and double-bounded model is used in this study to elicit the mean of WTP of the respondents in improving the environmental services. The method is explicitly applicable in a situation where market information about respondent's preference is absent. In this case, the CVM is selected because of the importance of non-use values and the potential significance level. This method is also used widely in estimating both use and non-use values. In this study, the CVM is a method used to estimate the respondent's willingness to pay. WTP can be defined as an amount of money or value that an individual is willing to pay for goods or services. It also measures whether an individual is willing to forego their income to ensure and

maintain the sustainability of environmental goods or services (ADB, 2011). Thus, the binary logit regression technique was used to determine the WTP of the respondents in TNGS. It is used in determining the significant level of the CVM technique. In estimating the WTP of the respondents in TNGS, there are values for ‘Yes’ or ‘No’ based on the questions given. Value of 1 represents for Yes, and 0 value represent for No.

The respondents were asked whether they are willing to pay specific additional fees for a given commodity with possible responses being ‘Yes’ and ‘No’. The bid amount varies across respondents and the only information obtained from each respondents is whether his or her maximum WTP or below the bid. Logistic regression technique has been used to estimate WTP (Hanemann, 2018). Using this approach, the probability of saying ‘Yes’ to a bid is estimated at different levels of the independent variable is estimated as:

$$P = (1 - e^{-x})^{-1} \quad (3.1)$$

Here,  $x$  is the bid amount (price) and  $P$  is the probability that the price will be accepted under this probability function. This area shows the proportion of the population that would consume the good at each price level and their associated utility. The area under the curve is assessed by integration techniques and can be expressed as:

$$E(WTP) = \int_L^U (1 + e^{a+bPRICE})^{-1} dPRICE \quad (3.2)$$

where,  $(1 + e^{a+bPRICE})^{-1}$  is the probability of saying 'Yes' and Upper and Lower represent the limits of integration respectively. Estimating the mean WTP within this framework is based on some assumption about the upper and lower limits of the integral. For example, knowing the price amounts at which the probability of saying ‘No’ is 0 and the probability of saying ‘Yes’ is 1.

### RESULTS AND DISCUSSIONS

#### 4.1 Demographic profile of respondents

A sample comprising five different set of google form used in the survey for analysis. In each google forms, the respondent characteristics selected for discussions included gender, age, race, marital status, level of formal education, occupation and monthly gross household income level. Table 4.1 gathered the frequency and percentage of distributions for the respondent's demographic profile.

Based on table 4.1, the majority of the respondents were female (68.0%), followed by male (32.0%). Though this percentage, it can be concluded that female respondents have the most contribution for this study's result. This has a similar finding in a previous study conducted in the recreational forest by (Aswad et al., 2011) and (Kim et al., 2007). More than half of the respondents were single (90.0%) and married (10.0%). The majority of the respondents answered the survey were Malay (84.0%), followed by the Bumiputera Sabah/Sarawak (10.0%), Chinese (5.3%) and Indian (0.7%).

Meanwhile, most of the respondents (84.7%) were between 21-29 years old while the rest of the age groups was 30-39 age group (6.7%), 40-49 age group (5.3%), below 20 years old (2.7%) and 50 and above years of age (0.7%). Based on the groups of age, the result shows that youthful tend to participate in this survey. This study found that the majority of respondents obtained a high level of formal education. It can be expressed as more than half of respondents had formal education. It was found that 80.7% of respondents attained university degrees. Next came, 9.3% of respondents had a university diploma and 6.0% had a certificate of college/STPM. The rest of the respondents had secondary school education (2.7%) and postgraduate level (1.3%).

The employment of respondent's status is an important variable related to the respondent level of income and their willingness to pay. Basically, a higher income is linked with their higher willingness to pay. The results figures that most of the respondents were full-time students (55.3%) while private employee (19.3%), government employee (11.3%), self-employed (8.7%) and unemployed (2.0%). The rest, factory workers (1.3%).

In this study, respondents were asked to state their monthly gross household income level. The results found that most of the respondents (35.3%) earned a monthly gross household of RM 2001- RM 3500. They were then followed by an income group of RM 1000 – RM 2000 (12.7%), RM 6501 – RM 10000 (10.7%) and RM 10000 and above (2.3%). Respondents who receive a higher incomes are willing to pay more for an entrance fee in Taman Negeri Gunung Stong to protect the recreational forests for present and future generation.

**Table 4.1** Demographic profile of respondents

Variables	Frequency	Percent (%)
<b>Gender</b>		
Male	48	32.0
Female	102	68.0
<b>Age</b>		
Below 20	4	2.7
21-29	127	84.7
30-39	10	6.7
40-49	8	5.3
50 and above	1	0.7
<b>Race</b>		
Malay	126	84.0
Chinese	8	5.3
Indian	1	0.7
Bumiputera Sabah/Sarawak	15	10.0
<b>Marital status</b>		
Single	135	90.0
Married	15	10.0
<b>Level of formal education</b>		
Secondary school	4	2.7
College/STPM	9	6.0
University-Diploma	14	9.3
University-Degree	121	80.7
University-Master/PhD	2	1.3
<b>Occupation</b>		
Government employee	17	11.3
Private employee	29	19.3
Self-employee	13	8.7
Factory	2	1.3
Unemployed	3	2.0
Students	83	55.3

**Table 4.1** (Continued)

<b>Monthly Gross Household Income Level</b>		
Under RM 1000	24	16.0
RM 1000 – RM 2000	19	12.7
RM 2001 – RM 3500	53	35.3
RM 3501 – RM 6500	33	22.0
RM 6501 – RM 10000	16	10.7
RM 10001- RM 30000	5	3.3

## **4.2 Characteristics and purpose of visit TNGS**

Table 4.2 summarise the characteristics of respondents that had visited to TNGS. Most of respondents (98.0%) knew the existence of TNGS while 2.0% did not know about TNGS. The results found that 93.3% of the respondents had visited to TNGS, followed by 6.7% did not visited. Some of the respondents knew the TNGS but did not visited because some of them live away from state of Kelantan. They just knew about the places through socials media and internet. Since 2017, majority of respondents (90.7%) had visited the TNGS about 1-3 times while the others group of respondents, 4-6 times and never visited TNGS were 5.3% and 4.0% respectively.

Most of respondents who visited TNGS for several times had involved in activities that held by management of TNGS. The results figure that 90.7% getting involved in activities in TNGS while 9.3% did not took part. They came to TNGS not only to enjoy the beauty scenery but also attracted to adventure activities of TNGS. Based on the survey's result, it shows that 40.7% came to TNGS to hike with their friends, family and others. TNGS are well-known place with hiking activities. People outside Kelantan also come to TNGS to participate in the activities. Then, followed by bath (34.0%) and see the beauty of nature (4.1%). Then, the other group of respondents came to TNGS for research and education and picnic were 9.0% and 8.1%

respectively. The rest, across forest. (4.1%). Majority of respondents (100.0%) agreed that recreational forests in TNGS should be taken care by everyone.

**Table 4.2** Characteristics and purpose of visit

Characteristics	Frequency	Percent (%)
<b>Recognize about TNGS</b>		
Yes	147	98.0
No	3	2.0
<b>Visited to TNGS</b>		
Yes	140	93.3
No	10	6.7
<b>Time visited to TNGS</b>		
0	6	4.0
1-3	136	90.7
4-6	8	5.3
<b>Involvement of activities in TNGS</b>		
Yes	136	90.7
No	14	9.3
<b>Type of activities participated in TNGS</b>		
Bath	40	34.0
Picnic	14	8.1
Hiking	73	40.7
Across forest	5	4.1
Research and education	10	9.0
See the beauty of nature	8	4.1
<b>Take care of recreational forest</b>		
Yes	150	100.0



### 4.3 Characteristics of information and recreational forest in Kelantan

Most of the respondent obtained the information about interesting place in Kelantan through many resources such as family, friends, social media and internet, university/school and others. Majority of respondents stated that they knew about TNGS through their friends (36.3%) and social media (32.8%). Sources of information from friends and social media seem to be the most popular sources that can spread interesting places to other people. The next group of respondents obtained information about TNGS from university/school (14.2%). Usually, the university such as lecturers, held activities in recreational places to bring out their students to discover beauty. The rest of the respondents got the information through their family (11.7%) and television (5.7%).

Majority of the respondents had visited to another recreational forest besides in TNGS with a percentage of 96.7% while the 5.5% of respondents did not visited to other recreational forest. The recreational forest that commonly visited such as Lata Keding Bukit Kudung in Jeli, Gunung Reng in Gua Musang, Lata Air Terjun Beringin, Taman Rekreasi Gua Ikan and also Taman Negera Kuala Koh, Kelantan. Hence, from the example of other recreational forest were visited by the respondents, about 38.0% of them have pay their visit to Lata Keding Bukit Kudung. This place is the most popular recreational forest that respondents had visited because it was located in strategic area which is in front of the Jeli Campus of University Malaysia Kelantan (UMK). Gunung Reng is the second most popular that respondents visited with a percentage of 24.3%, followed by Taman Rekreasi Gua Ikan (21.0%) and Lata Beringin (11.0%). The least place that respondents visited is Taman Negera Kuala Koh with a percentage of 5.7%. Taman Negera Kuala Koh is the least place that visited by the respondents because in 2014, the place was hit by big flood. Hence, all the

infrastructure and facilities in that place are totally damage and it takes quite a long time to rebuild.

By referring the data in the table below, the beautiful waterfall and beautiful scenery caught the respondent's attention. These two recreational values got higher percentage where 25.6% for beautiful waterfall and 24.4% for beautiful scenery. Respondent's indicated these are the most valuable recreational values that exists in TNGS. The data for other recreational values stated were also recorded. TNGS has a clean river where 19.0% of respondents agreed. The variety of unique plants and animals also can be seen in TNGS, 15.9% of respondents were also agreed that recreational value existed in TNGS. The beautiful arrangement of landscape got lower percentage from respondents where 15.1% of them agreed.

**Table 4.3** Characteristics of information and recreational forests in Kelantan

Characteristics	Frequency	Percent (%)
<b>Source of information on TNGS</b>		
Family	33	11.7
Friends	102	36.3
Social media	90	32.0
School/University	40	14.2
Television	16	5.7
<b>Frequency of visiting other recreational forests in Kelantan</b>		
Yes	145	96.7
No	5	3.3

**Table 4.3 (Continued)**

<b>Visit to other recreational forests in Kelantan</b>		
Taman Negara Kuala Koh	17	5.7
Taman Rekreasi Gua Ikan	63	21.0
Gunung Reng	73	24.3
Lata Beringin	33	11.0
Lata Keding Bukit Kudung	114	38.0
<b>Recreational values that available in TNGS</b>		
Beautiful waterfall	132	25.6
Clean river	98	19.0
Beautiful scenery	126	24.4
Variety of unique plants and animals	82	15.9
Beautiful landscape arrangement	78	15.1

#### **4.4 Perceptions on recreational resources in TNGS**

Table 4.4 shows the summary of the frequency of respondent's perceptions on recreational resources in TNGS. During the survey, the respondents were asked to rank their perception by referring the rating scale from a scale of 1 to 5. The respondents required to rank based on the perception where 1 represent the strongly disagree, 2 represent disagree, 3 represent neutral, 4 represent agree and 5 represent strongly agree.

Based on the recorded data, majority of the respondents strongly agreed with statement that stated TNGS need to be taken care and preserve for the uses of future generations (76.0%), TNGS is a suitable place to enjoy the beauty of nature and the diversity of forests resources at TNGS should be utilized sustainably by the locals recorded the same percentage with 75.3% respectively. Hence, most of the respondents strongly agreed with TNGS is a suitable place to refresh their mind (74.0%). The conservation in forest areas in ensuring the sustainability of ecosystem and genetic

resources in the future is consider as an important things in TNGS which resulting the respondents who strongly agreed as 70.0%.

Besides, most of the respondents strongly agreed that TNGS can help in improving the air and water quality (67.3%), TNGS can be known as one of the green areas which is forest that are still native in the state of Kelantan (64.0%) and TNGS provide recreational and ecotourism opportunities for the visitors (62.7%). TNGS should be preserved well as an ecological site for tourism activity and opportunity for everyone in order to gain experience of beauty and nature in TNGS. In addition, TNGS rich with biodiversity. Most of the respondents strongly agreed with the variety of flora and fauna can be found in TNGS area for educational and scientific research purpose (60.7%). TNGS also the place that preserve the diversity of the unique plants and wildlife habitats (Jayaraj et al., 2012). Almost half of the respondents strongly agreed that TNGS preserves the unique plants such as Rafflesia, herbs and others (48.0%). There are 39.3% of the respondents who also agreed with the statements. Besides, there are almost half of the respondents agreed with TNGS preserve wildlife habitats such as Tapir, Desert goat, Deer and variety of endangered animals (46.0%). However, there are 2.0% who stated they are strongly disagreed and 0.70% disagreed.

**Table 4.4** Perceptions on recreational resources in TNGS

Characteristics	Mean	1	2	3	4	5
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
TNGS need to be taken care of and preserved so that they can be used by future generations.	4.76	0 (0.0)	0 (0.0)	0 (0.0)	36 (24.0)	114 (76.0)

**Table 4.4** (Continued)

TNGS is a suitable place to enjoy the beauty of nature.	4.75	0 (0.0)	0 (0.0)	0 (0.0)	37 (24.7)	113 (75.3)
The diversity of forest resources at TNGS should be utilized sustainably by the locals.	4.73	0 (0.0)	0 (0.0)	3 (2.0)	34 (22.7)	113 (75.3)
TNGS is a suitable place to refresh your mind.	4.72	0 (0.0)	0 (0.0)	3 (2.0)	36 (24.0)	111 (74.0)
The conservation of forest areas in TNGS is important to ensure the sustainability of ecosystem and genetic resources in the future.	4.69	0 (0.0)	0 (0.0)	1 (0.7)	44 (29.3)	105 (70.0)
TNGS can help in improving the air and water quality.	4.65	0 (0.0)	0 (0.0)	3 (2.0)	46 (30.7)	101 (67.3)
TNGS is one of the green areas (forests that are still native) in the state of Kelantan.	4.63	0 (0.0)	0 (0.0)	2 (1.3)	52 (34.7)	96 (64.0)
TNGS provide recreational and ecotourism opportunities for visitors.	4.61	0 (0.0)	0 (0.0)	3 (2.0)	53 (35.3)	94 (62.7)
The variety of animals and plants found in the TNGS area is very suitable for education and scientific research purposes.	4.59	0 (0.0)	0 (0.0)	2 (1.3)	57 (38.0)	91 (60.7)

**Table 4.4** (Continued)

TNGS preserves the diversity of unique plant habitats such as Rafflesia, herbs and others.	4.35	0 (0.0)	1 (0.7)	18 (12.0)	59 (39.3)	72 (40.8)
TNGS preserves wildlife habitats such as Tapir, Desert Goat, Deer and various endangered animals.	4.28	3 (2.0)	1 (0.7)	18 (12.0)	69 (46.0)	65 (43.3)

#### 4.5 Attitudes on recreational resources in TNGS

Table 4.5 shows the summary of the frequency of respondent's attitudes on recreational resources in TNGS. By referring to the rank, the results of survey shows that respondents believe the uniqueness and beauty of recreational resources available at TNGS is the main attraction for visitors to come with the mean value of 4.65 represents 69.30% who strongly agreed with the statement. For the statements everyone must protect the recreational resources in TNGS with same mean value which is 4.65 represents 68.7% of the respondents who strongly agreed.

More than half of the respondents love the healthy and good environment in TNGS. There are 65.30% of the respondents who strongly agreed with the statement. Besides, there are 62.0% of the respondents believe that community will have more respect towards people who like to maintain the sustainability and beauty of recreational resources at TNGS. Most of the respondents were strongly agreed with 55.3% believe their contribution can help in conservation of recreational resources in TNGS for future generations. The communities can help in sustained and maintained the environmental by make a complaint if environmental occurred.

More than half of the respondents (55.3%) were strongly agreed to make a complaint or report to the relevant parties if there any problems or threats to the recreational resources in TNGS. Almost half of the respondents (48.0%) agreed to contribute their income to the sustainability of the environment. However, there are 2.0% of the respondents did not willing to contribute their income to the environment.

**Table 4.5** Attitude on recreational resources in TNGS

Characteristics	Mean	1	2	3	4	5
		Freq	Freq	Freq	Freq	Freq
		(%)	(%)	(%)	(%)	(%)
Everyone must protect recreational resources in TNGS.	4.65	0 (0.0)	0 (0.0)	5 (3.3)	42 (28.0)	103 (68.7)
I believe the uniqueness and beauty of recreational resources available at TNGS is the main attraction for visitors to come.	4.65	0 (0.0)	0 (0.0)	7 (4.7)	39 (26.0)	104 (69.3)
I love the healthy and good environment at TNGS.	4.62	0 (0.0)	0 (0.0)	5 (3.3)	47 (37.7)	98 (65.3)
I believe the community will have more respect for people who like to maintain the sustainability and beauty of recreational resources at TNGS.	4.57	1 (0.7)	0 (0.0)	6 (4.0)	50 (33.3)	93 (62.0)
I believe my contribution can help towards the conservation of recreational resources in TNGS for future generations.	4.49	0 (0.0)	0 (0.0)	10 (6.7)	57 (38.0)	83 (55.3)

**Table 4.5** (Continued)

I am ready to make a complaint to the relevant parties if I know of problems and threats to recreational resources at TNGS.	4.49	0 (0.0)	0 (0.0)	8 (5.3)	61 (40.7)	81 (54.9)
I am willing to contribute a small portion of my income to the environment.	4.17	0 (0.0)	3 (2.0)	22 (14.7)	72 (48.0)	53 (35.3)

#### 4.6 Level of satisfaction towards facilities in TNGS

There are many facilities that provided by the management of TNGS. Table 4.6 below summarize the level of satisfaction of respondents towards facilities in TNGS. During the survey, respondents were asked to rank their satisfaction on a scale of 1 to 5 where the scale 1 represents very dissatisfied, 2 dissatisfied, 3 neutral, 4 satisfied and 5 very satisfied.

Based on the data in Table 4.6, the result figures that there are no difficulty for the respondents to reach TNGS where 56.0% were satisfied. Most of the respondents were satisfied with the campsite, 56.7%. Facilities of car parking in TNGS, 40.0% of respondents were neutral, the information centre recorded that there are 41.3% of respondents were satisfied with that facility and for surau facility, 33.3% of respondents were neutral. Other than that, 14.7% were dissatisfied and the rest, 4.0% were very dissatisfied. The same level of satisfaction also recorded for convenient/souvenirs store and public toilet where 47.3% and 30.0% rate neutral respectively. However, there are 4.7% of the respondents were very dissatisfied with the public toilet.



**Table 4.6** Facilities in TNGS

Characteristics	Mean	1	2	3	4	5
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Accessibility to reach the TNGS	4.17	0 (0.0)	2 (1.3)	11 (13.7)	84 (56.0)	47 (31.3)
Campsite	4.09	0 (0.0)	1 (0.7)	24 (16.0)	85 (56.7)	40 (26.7)
Car parking	3.71	1 (0.7)	5 (3.3)	60 (40.0)	54 (36.0)	30 (20.0)
Information centre	3.59	0 (0.0)	29 (19.3)	31 (20.7)	62 (41.3)	28 (18.7)
Surau	3.41	6 (4.0)	22 (14.7)	50 (33.3)	48 (32.0)	24 (16.0)
Convenient/Souvenir store	3.35	3 (2.0)	17 (11.3)	71 (47.3)	43 (28.7)	16 (10.7)
Public toilet	3.14	7 (4.7)	41 (27.3)	45 (30.0)	38 (25.3)	19 (12.7)

#### 4.6.1 Level of satisfaction towards activities in TNGS

TNGS famous with many attraction in their activities. Table 4.7 recorded the data of respondent's perception of activities in TNGS. The results figures that 56.7% of the respondents were very satisfied with bath at the waterfall, 54.0% were satisfied with mountain climbing and other than that, 46.0% were very satisfied with the crossing forest activities.

TNGS also known as a suitable place to do some research and education. There are 52.0% of the respondents were satisfied with the activity. TNGS also can be known as an ideal place to calm the mind. The results shows the respondents were satisfied with picnic and camping activities where 42.0% and 46.7% respectively. The last activity, bird watching recorded the data, where there are 38.0% of respondents were satisfied, 1.3% were dissatisfied and 0.7% were very dissatisfied.

**Table 4.7** Activities in TNGS

Characteristics	Mean	1	2	3	4	5
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Waterfall bath	4.43	0 (0.0)	0 (0.0)	20 (13.3)	45 (30.0)	85 (56.7)
Mountain climbing	4.42	0 (0.0)	0 (0.0)	3 (2.0)	81 (54.0)	66 (44.0)
Crossing forest	4.37	0 (0.0)	0 (0.0)	13 (8.7)	68 (45.3)	69 (46.0)
Research and education	4.28	0 (0.0)	0 (0.0)	15 (10.0)	78 (52.0)	57 (38.0)
Picnic	4.14	0 (0.0)	0 (0.0)	33 (22.0)	63 (42.0)	54 (36.0)
Camping	4.14	0 (0.0)	1 (0.7)	28 (18.7)	70 (46.7)	51 (34.0)
Bird watching	3.90	1 (0.7)	2 (1.3)	49 (32.7)	57 (38.0)	41 (27.3)

#### 4.6.2 Level of satisfaction towards safety in TNGS

Table 4.8 summarize the respondent’s perception on level of safety in TNGS. Based on the survey data, most of respondents (44.7%) were satisfied with the level of cleanliness and safety in TNGS. This shows that the management of TNGS always concerned about the cleanliness in the recreational forest. However, there are some of respondents were dissatisfied (3.3%) and very dissatisfied (0.7%). The level of safety in bath area, the data shows 38.7% were neutral and 32.0% were satisfied. However, there are 4.0% and 2.7% were dissatisfied and very dissatisfied respectively.

**Table 4.8** Safety in TNGS

Characteristics	Mean	1	2	3	4	5
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Level of cleanliness and safety	3.80	1 (0.7)	5 (3.3)	47 (31.3)	67 (44.7)	30 (20.0)
Level of safety in bath area	3.68	4 (2.7)	6 (4.0)	58 (38.7)	48 (32.0)	34 (22.7)

#### 4.7 Analysis of Willingness to Pay

In this section, it presented the WTP as stated by the respondents. The analysis used the dichotomous choice and double-bounded CVM, where the respondents must answer the given questions. The questions include whether they are willing to pay for a particular price if the entrance fee increase in TNGS. Hence, the questions let them to answer with the option of ‘Yes’ or ‘No’ to the offered price (bid). The bidding prices are ranged between RM 1 to RM 5 were assigned in conducting the survey. The survey

used a sample of 150 respondents. A total of 150 respondents participated in answering the survey.

Table 4.9 summarize the respondents' willingness to pay if there is an increase in the rate of an entrance fee. Based on the results, most of the respondents are willing to pay in the rate of entrance fee with 89.3%. However, there are a few respondents (10.7%) did not willing to pay for the increase in the rate of an entrance fee. In section C, the respondents were required to tick on the questions on reasons for willing to pay and reasons they were unwilling to pay. The table below also includes the results of reasons for their willingness to pay and not willing to pay. Majority of the respondents (40.0%) were willing to pay because to maintain the beauty of the environment that should be seen by the future generations.

The rest of the respondents were willing to pay to conserve and preserve TNGS (34.0), and the TNGS give a significant contribution towards forest ecosystem (14.7%). However, there are other reasons from the respondents: the funds from the visitors can cover the cost of maintaining the facility in TNGS (0.7%). Meanwhile, for the reasons of not willing to pay, most of the respondents voted the conservation of the recreational resources should be founded by the government (3.5%). They believe that the government should give funds to the recreational forests in Malaysia in order to maintain the diversity of flora and fauna that lived in forests in Malaysia. However, 4.7% of the respondents cannot afford to pay if there is an increase in the entrance fee rate. Some respondents (1.2%) think the recreational resources at the recreational forest are not essential to conserve and protect. As a human being, the attitude to take good care of recreational resources at the recreational forest is very important to enjoy many benefits from the forest. Others respondents (1.2%) stated their own reasons for

unwilling to pay. Among the reasons stated are facilities and cleanliness of the place are not in line with the charges and the price is not reasonable.

**Table 4.9** Willingness to Pay

Characteristics	Frequency	Percent (%)
<b>Willingness to pay</b>		
Yes	134	89.3
No	16	10.7
<b>Reasons for willing to Pay</b>		
The beauty of the environment can be enjoyed and seen by future generations	60	40.0
To conserve and preserve TNGS	51	34.0
Contributions from forest ecosystems are enormous to all parties	22	14.7
Cover the maintenance cost	1	0.7
<b>Reasons of not willing to pay</b>		
The conservation of recreational resources should be founded by the government	4	3.5
Cannot afford to pay	6	4.7

**Table 4.9** (Continued)

Recreational resources at recreational forest is not important to conserve and protect	3	1.2
Unreasonable	3	1.2

The frequency of distribution of respondent's willingness to pay for each bid amount was gathered in Table 4.10. The result shows that 132 (88.0%) of the 150 respondents indicated their willingness to pay for the offered bid and 18 respondents (12.0%) indicated they unwilling to pay. The results recorded in this study include the bid price with a minimum bidding price implicit the large numbers of respondents are willing to pay for the increase in the entrance fee.

Based on the results gathered, most of the respondents were willing to pay for the offered bid start from RM1 until RM5. For the first bid level value of RM1 offered to the respondents, the result recorded 80.0% of the respondents were willing to pay and the rest were unwilling to pay (6.0%). The result for the second bid level value of RM2 offered to respondents recorded that there are 86.7% of the respondents that willing to pay for that bid while 13.3% would avoid paying. It shows that most of the respondents were willing to pay more for an entrance fee as increase as RM2. Based on the table below, for third, fourth and fifth bid level value of RM3, RM4, RM5, most of the respondents also willing to pay for the offered bid where the data recorded 100.0%, 95.0% and 90.0% respectively.

**Table 4.10** Percentage of Respond Bidding Price

Price (RM)	Yes	No	Total
	Frequency (%)	Frequency (%)	Frequency (%)
1	36 (80.0)	9 (6.0)	45 (20)
2	39 (86.7)	6 (13.3)	45 (20)
3	20 (100.0)	0 (0.00)	20 (13.3)
4	19 (95.0)	1 (5.0)	20 (13.3)
5	18 (90.0)	2 (10.0)	20 (13.3)
<b>Total</b>	<b>132</b> <b>(88.0)</b>	<b>18</b> <b>(12.0)</b>	<b>150</b> <b>(100)</b>

#### 4.7.1 Binary Logistic Regression Technique

The binary logistic regression technique was applied in this study to analyse the probability of the respondents' willingness to pay for the rate of increase of entrance fee in TNGS. The SPSS software was used in estimating the results of the binary logit regression model.

This analysis was used to test whether there are significant different in the socio-demographic factors variable and provide further information about the independent variables that influenced the willingness to pay. Most of literature found that economic and socio-demographic characteristics are the components that influence the willingness to pay. The result of logit regression model has summarize and tabulated in the Table 4.11.

From the result, it was discovered that price, gender and race variable has positive value of coefficient where (0.005), (0.810) and (0.488) respectively. All the 3 variable in the table below are significant at 1% level which indicates there are relationship between the variables and respondents' willingness to pay. In these regression, the goodness of fit test is indicated by Pseudo R<sup>2</sup> called Nagelkerke R<sup>2</sup> with value of 0.088. For the percentage of the right prediction is more than half which is 63.3%. The coefficient between gender and willingness to pay is 0.810 and the p-value is 0.060. This represent there are positive correlation and significant between these two variables. The female respondents exhibit a higher amount of WTP as compared to male respondents. Meanwhile, coefficient for race variable is 0.488 and the p-value is 0.060.

**Table 4.11** Result of Logit Regression Model

Variable	Coefficient	Significant	Standard error
Constant	3.336	0.000*	1.140
Price	0.005	0.001*	0.162
Gender	0.810	0.060*	0.489
Race	0.488	0.094*	0.335
Nagelkerke R <sup>2</sup>		0.088	
Log likelihood		127.133	
Percentage of right prediction		63.3%	

Source: Author's survey (2020)

Note: \* significant at 1% level or 95% of confidence interval



#### 4.7.2 Mean Value of WTP

A bidding format was used to elicit willingness to pay. The double-bounded dichotomous choice contingent valuation (DC-CV) model was applied to examine the data. There are two possible results can be observed when used DC-CV model. Its either the respondent is willing to pay for the bid level of the entrance fee offered or the respondent is not willing to pay for the bid level of entrance fee. The bid price is the dependent variable, where value of 1 represent Yes and value of 0 represent No.

In this study, the SPSS software was used to calculate the actual value of the respondents' willingness to pay. The results of the WTP based on gender and race is presented in Table 4.11 and Table 4.12 respectively. The result shows that the mean WTP of the respondents for the entrance fee in TNGS is RM 6.12 per person. Table 4.11 has tabulated the result for WTP based on gender respondents. The male are willing to pay for an entrance fee is RM 6.00 while female is RM 6.30. Based on the mean value of WTP, it shows that female respondents are willing to pay more than current entrance fee which is RM 2 in TNGS. It shows that female love to participate the activities that held in TNGS such as hiking which is a famous activities in TNGS.

**Table 4.12** WTP based on Gender

Respondents	Entrance Fee (RM)
Male	RM 6.00
Female	RM 6.30
All Sample	RM 6.12

For the mean value of WTP based on the respondents' race shows in the Table 4.12. The Malay respondents are willing to pay RM 6.30 for an entrance fee in TNGS, while the respondents from Bumiputera Sabah/Sarawak, they are willing to pay RM 4.90. Meanwhile, the Chinese respondents are willing to pay RM 6.33 and followed by Indian respondent, RM 4.00.

**Table 4.13** WTP based on Race

Respondents	Entrance fee (RM)
Malay	RM 6.30
Bumiputera Sabah/Sarawak	RM 4.90
Chinese	RM 6.33
Indian	RM 4.00
All sample	RM 6.12

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Conclusions

This study aims to determine the amount of money or value that respondents are willing to pay for an entrance fee at TNGS. The contingent valuation method (CVM) has been used to estimate the willingness to pay. CVM is an approach used to assess the economic value of non-market goods. There are four techniques can be used in CVM to classify the WTP of reference individuals which is open-ended, bidding game, payment card and dichotomous option. In this study, the method of contingent valuation of dichotomous preference is used to assess the local visitors' willingness for an entrance fee in TNGS. The technique presented questions with two choices which are 'Yes' and 'No' for individual willingness to pay for the sum of the bid.

The objectives of this study are achieved. The attitude and perception of the respondents towards recreational resources in TNGS are determined. The study showed the attitude and perception of the respondents towards the recreational resources and satisfaction on the facilities, services and activities provided at TNGS is

quite high. However, there are few things in TNGS that need improvement by the management.

Conservation of recreational resources in the future will be depend on the satisfaction of the visitors with the resources and their willingness to visit the recreational forest. Generally, the respondents are satisfied with the recreational resources in TNGS, but still, there are a few things that need some improvement by the management of TNGS. Even there are some increase in entrance fee, the respondents are still willing to visit TNGS and contribute some of their income to sustain the recreational resources in TNGS. TNGS is known as a place that suitable for recreation and vacation. Hence, with the current recreational resources, respondents' satisfaction of represent the information about the conditions of the recreational forests at the present time.

Overall the result shows that most of the respondents are concern on taking care the recreational forest for used by future generations. The data interpreted showed the local visitors' willingness to pay for an entrance fee in TNGS. The respondents are willing to pay RM 6.12 for an entrance fee in TNGS. Based on the results, it proved the local visitors are willing to pay more than current entrance fee which RM 2. The local government should consider increasing the charge in entrance fee to transform them into a fund for the protection and conservation of the recreational resources in TNGS. In a nutshell, the finding in this study has shown the willingness to pay for it. The respondents are affected by socio-demographic factors. There is gender and race. In addition, the respondents' satisfaction on facilities and services provide in TNGS are essential factor that influences their willingness to pay.

## 5.2 Recommendations

In this study, the evaluation on the respondent's willingness to pay for the entrance fee at TNGS have tested the theory proposed in CVM. Currently, there is no longer the phenomenon of CVM application in Malaysia or other developing countries. Therefore, the results obtained for the evaluation of non-market goods by applying the CVM need to be interpreted with carefully to avoid bias in revealing respondents' income.

The management of TNGS should be considered to create more activities that can create awareness, especially to the local people about the benefits of taking care of the environment in TNGS. Besides, they must be exposed on how to conserve recreational forest in a good way. From that, the recreational forest such as TNGS can be conserved and preserve for future generations. Most of the respondents unwilling to pay for entrance fee because of the incomplete facility and infrastructure in TNGS. The management of TNGS should pay more attention to the facility and infrastructure provided in TNGS. The facility and infrastructure improvement in TNGS will make the visitors more satisfied and enjoy their visitation in TNGS. This study can be improved by conducting face to face survey and interview with the local visitors in TNGS. From that, the data and information about local visitors' willingness to pay in TNGS will be more accurate.

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## **SURVEY FORM**

### **LOCAL VISITORS' WILLINGNESS TO PAY FOR AN ENTRANCE FEE AT TAMAN NEGERI GUNUNG STONG, KELANTAN**

I am student from Universiti Malaysia Kelantan (UMK) and currently doing a research for final year project on study of protection value on forest recreation services in Taman Negeri Gunung Stong, Kelantan Using Contingent Valuation Method. The objective of this study is to determine the willingness to pay for recreational resources at Taman Negeri Gunung Stong, Kelantan. The scope of this questions will be ask about attitudes, perception and willingness to pay. There are no rights or wrong on answering the questions. The findings from this study will provide data information on forest recreational resources at Taman Negeri Gunung Stong. I highly appreciate if you could answers these questions as best as you can. All the answers will be kept as anonymous and only used for research purposes.

**DAYANG AINI NAZURA BT ABANG JAIS**

Bachelor Degree of Applied Science (Sustainable Science)

Faculty of Earth Science

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**SECTION A: PERCEPTION ON RECREATIONAL RESOURCES IN TAMAN NEGERI GUNUNG STONG.**

Instructions: Please tick (✓) the answer.

A1. Do you recognize about Taman Negeri Gunung Stong?

a. Yes  b. No

A2. Have you ever visited the Taman Negeri Gunung Stong before?

a. Yes  b. No

A3. If YES, how many times since 2017?

\_\_\_\_\_

A4. Have you ever been participated in any recreational activities that held at Taman Negeri Gunung Stong?

a. Yes  b. No

A5. If YES, what type of activities do you take part?

\_\_\_\_\_

A6. In your opinion, do we have need to take care the recreational resources at Taman Negeri Gunung Stong?

a. Yes

Instructions: For each of the statements below, please placing a tick (√) in the suitable box of scale based on your opinion.

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

No	Statements	1	2	3	4	5
1	Taman Negeri Gunung Stong provide recreational and ecotourism opportunities for visitors					
2	Variety of unique plant species can be seen at Taman Negeri Gunung Stong					
3	Variety of unique animal species can be seen at Taman Negeri Gunung Stong					
4	Taman Negeri Gunung Stong is important for education and scientific research					
5	Taman Negeri Gunung Stong known as green area					
6	Taman Negeri Gunung Stong can help in improving the water quality					
7	Taman Negeri Gunung Stong is a suitable place to refresh your mind					
8	Taman Negeri Gunung Stong is a suitable place to enjoy the beauty of nature					
9	Taman Negeri Gunung Stong need to be taken care of and preserved so that they can be used by future generations					
10	Taman Negeri Gunung Stong should be utilized sustainably by the locals					

**SECTION B: ATTITUDE ON RECREATIONAL RESOURCES IN TAMAN NEGERI GUNUNG STONG.**

Instructions: Please tick (√) the answer.

B1. Where did you know about Taman Negeri Gunung Stong?

- |                 |                          |               |                          |
|-----------------|--------------------------|---------------|--------------------------|
| a. Family       | <input type="checkbox"/> | e. School     | <input type="checkbox"/> |
| b. Friends      | <input type="checkbox"/> | f. Television | <input type="checkbox"/> |
| c. Social media | <input type="checkbox"/> | g. Others     | _____                    |

B2. Have you ever been visited other recreational forests in Kelantan besides Taman Negeri Gunung Stong?

- |        |                          |       |                          |
|--------|--------------------------|-------|--------------------------|
| a. Yes | <input type="checkbox"/> | b. No | <input type="checkbox"/> |
|--------|--------------------------|-------|--------------------------|

B3. If YES, which of the following recreational park have you visited?

- |                            |                          |                             |                          |
|----------------------------|--------------------------|-----------------------------|--------------------------|
| a. Taman Rekreasi Gua Ikan | <input type="checkbox"/> | d. Air Terjun Lata Beringin | <input type="checkbox"/> |
| b. Taman Negara Kuala Koh  | <input type="checkbox"/> | e. Lata Keding Bukit Kudung | <input type="checkbox"/> |
| c. Gunung Reng             | <input type="checkbox"/> | f. Others                   | _____                    |

B4. Here are the recreational values available at Gunung Stong State Park. Please tick in the appropriate box that corresponds to your opinion only.

- |                        |                          |                                               |                          |
|------------------------|--------------------------|-----------------------------------------------|--------------------------|
| a. Beautiful waterfall | <input type="checkbox"/> | d. Variety of unique plant and animal species | <input type="checkbox"/> |
| b. Beautiful views     | <input type="checkbox"/> | e. Others (please specify)                    | _____                    |
| c. Clean river water   | <input type="checkbox"/> |                                               |                          |

In this section, we would like to know **LEVEL OF SATISFACTION** on facilities, activities and services in Taman Negeri Gunung Stong. For each of the statements, please placing a tick (√) in the suitable box of scale based on your opinion.

1. Very dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Strongly satisfied

No	Statements	1	2	3	4	5	6
<b>FACILITIES</b>							
1	Accessibility to reach the Taman Negeri Gunung Stong						
2	Campsite						
3	Information centre						
4	Surau						
5	Public toilets						
<b>ACTIVITIES</b>							
8	Research education						
9	Hiking						
10	Waterfall bath and climb up to the waterfall.						
11	Bird watching						
12	Camping						
13	Picnic						
<b>SERVICES</b>							
14	Level of climbing track safety						
15	Level of cleanliness of facilities provided						

Instructions: For each of the statements below, please placing a tick (√) in the suitable box of scale based on your opinion.

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

No	Statements	1	2	3	4	5
1	I am willing to contribute a small portion of my income to the environment					
2	I am willing to pay the entrance fee to enter Taman Negeri Gunung Stong for the purpose of the conservation of forest					
3	I am willing to pay the entrance fee to enter Taman Negeri Gunung Stong for the purpose of management of the forest					
3	Every person must protect the recreational resources in Taman Negeri Gunung Stong					
4	I am willing to participate in forest conservation programmes					
5	I love the environment					
6	I believe I can contribute to a better environment					
7	I think society will have more respect for people who take care of the environment					
8	I will notify the nearest environmental organization or government agency if there is an environmental problem					
9	I will inform the media to announce if there is an environmental problem					
10	If there is an environmental problem, I will wait for others to take action					

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## SECTION C: WILLINGNESS TO PAY

### SCENARIO AT TAMAN NEGERI GUNUNG STONG (TNGS)

Taman Negeri Gunung Stong is nature forest reserve which covering 21,950 hectares near the small town of Dabong in Kelantan. It was gazetted as a state park and ecotourism site in 2007. Besides, it is managed by the Kelantan State Forestry Department. The surroundings in TNGS have a cool atmosphere and are mostly covered with fog during the morning. Besides, the area is surrounded by lush natural rainforest and is said to be the oldest rainforest on earth. The environment in TNGS is also rich with various species of flora and fauna. However, due to preserve the recreational value and the scenic resources, a few steps should be taken such as build up funds for sustainability of recreational value at TNGS. The provision of funds from government are not enough to cover the maintenance cost in TNGS and the management is considering to increase the current entrance fee for visitors to the park since it has not been revalidated for almost 14 years. The current entrance fee is **RM2**. The increasing in the entrance fee is required in protecting the TNGS from further degradation. The additional funds will be used efficiently to maintain the facilities and strengthen the conservation efforts in TNGS.

Instructions: Please tick (✓) the answer.

C1. Based on scenario mention above, if the rate of entrance fee increase in order to protect the recreational value at TNGS, are you willing to pay more?

a. Yes  Go to C2      b. No  Go to C6

C2. Based on the scenario and your current income, would you willing to pay **additional** of (**RM1/RM2/RM3/RM4/RM5**) for the Entrance Fee? (Currently, there is **RM2** entrance fee)

a. Yes  Go to C3      b. No  Go to C4

C3. If you said YES to question No. 2 are you willing to pay **additional** of (**RM2/RM3/ RM4/RM5/RM6**) for Entrance Fee?

a. Yes  Go to C5      b. No  Go to C4



C4. If you said NO to question No. 2 & No. 3, are you willing to pay additional of (RM0.50/ RM1/ RM2/RM3/RM4) for entrance fee?

a. Yes

b. No  Go to C5

C5. Consider your current income and expenses, what is the maximum additional amount that you willing to pay for entrance fee?

RM	<input type="text"/>
----	----------------------

C6. Here are the reasons why some people **ARE WILLING TO PAY**. Please state the reasons that are appropriate to the view only.

- a. To preserve and conserve TNGS
- b. The contribution from the forest ecosystem is enormous to all parties
- c. The beauty of the environment can be used and seen for future generations

C7. Here are the reasons why some people **ARE NOT WILLING TO PAY**. Please state the reasons that are appropriate to the view only.

- a. The conservation of recreational resources should be founded by the government
- b. Recreational resources at forest park is not important to conserve and protect
- c. Cannot afford to pay

C8. If you have any comments or recommendations, please specify below.

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## SECTION D: DEMOGRAPHIC PROFILE

Instructions: Please tick (✓) the answer.

1. Gender

a. Male

b. Female

2. Please state your age

\_\_\_\_\_ Years

3. Race

a. Malay

d. Bumiputera Sabah/Sarawak

b. Chinese

e. Others

c. Indian

4. Marital status

a. Married

c. Others \_\_\_\_\_

b. Single

5. Level of formal educational

a. No formal education

e. University – Diploma

b. Primary school

f. University – Degree

c. Secondary school

g. University – Master/ PhD

d. College/ STPM

6. Occupation

a. Government employee

e. Factory

b. Private employee

f. Unemployed

c. Self-employee

g. Others \_\_\_\_\_

d. Students

7. Please state your Household Gross Monthly income? (include family members that living together)

RM:



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**END OF QUESTIONS**

**THANK YOU**



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