



***VALUATION OF BENEFITS FOR GIANT PANDA CONSERVATION BY
LOCAL COMMUNITY IN THE PROXIMITY OF ZOO NEGARA, MALAYSIA***

MUHAMMAD SYUKRAN BIN MOHD ROSLI

IKDPM 2019 2



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By

MUHAMMAD SYUKRAN BIN MOHD ROSLI

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

April 2019

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

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Chair: Nawal Hanim Binti Abdullah, PhD
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The Giant Panda (*Ailuropoda melanoleuca*) is an endangered endemic species in China and a world symbol for conservation and preservation. The arrival of giant panda in Malaysia is seen as an opportunity to undertake research on the animals which could benefit conservation of captive wildlife in general. The giant pandas that are placed in the million-ringgit complex at Zoo Negara Malaysia have attracted influx of visitors to the zoo. Giant Panda Conservation Centre (GPCC) generates mixed reactions among the communities living in the proximity of the zoo. The giant panda attraction gives an extensive variety of biological community services to human prosperity, but the value that could benefit the local communities is unknown. The purpose of this research is to estimate the benefit of giant panda conservation among local community. A total of 250 respondents were selected at the vicinity of Majlis Perbandaran Ampang Jaya, Majlis Perbandaran Selayang and Dewan Bandaraya Kuala Lumpur. The findings indicated that local community is willing to pay for giant panda conservation about RM13.47, meanwhile the conservation value was estimated at RM36,318,218.10 for the year 2016. Moreover, the results found that the factors influenced the WTP are monthly income, household size, male gender, and perception. The findings of this research would also be useful to estimate economic valuation and outline the benefits of giant panda conservation as perceived by local community in Malaysia.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PENILAIAN MANFAAT UNTUK PEMULIHARAAN *GIANT PANDA* OLEH KOMUNITI TEMPATAN BERDEKATAN ZOO NEGARA, MALAYSIA

Oleh

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Giant Panda (*Ailuropoda melanoleuca*) adalah spesies endemik yang terancam di China dan simbol dunia untuk pemuliharaan dan pemeliharaan. Ketibaan *giant panda* di Malaysia dilihat sebagai peluang untuk menjalankan penyelidikan tentang haiwan yang dapat memberi manfaat kepada pemuliharaan hidupan liar secara umum. Panda raksasa yang ditempatkan di kompleks bernilai jutaan ringgit di Zoo Negara Malaysia telah menarik kemasukan pelawat ke zoo. Pusat Pemuliharaan *Giant Panda* (GPCC) menghasilkan pelbagai reaksi di antara masyarakat yang tinggal di zoo berdekatan. Daya tarikan *giant panda* memberikan pelbagai perkhidmatan komuniti biologi kepada kemakmuran manusia, tetapi nilai yang dapat memberi manfaat kepada masyarakat setempat tidak diketahui. Tujuan penyelidikan ini adalah untuk menganggarkan manfaat pemuliharaan *giant panda* di kalangan masyarakat setempat. Seramai 250 responden dipilih di sekitar Majlis Perbandaran Ampang Jaya, Majlis Perbandaran Selayang dan Dewan Bandaraya Kuala Lumpur. Penemuan ini menunjukkan bahawa masyarakat tempatan sanggup membayar pemuliharaan *giant panda* sebanyak RM13.47, sementara keseluruhan nilai pemuliharaan dianggarkan pada RM36,318,218.10 untuk tahun 2016. Selain itu, dapatan mendapati bahawa faktor-faktor yang mempengaruhi kesanggupan membayar ialah pendapatan bulanan, isi rumah saiz, jantina lelaki, dan persepsi. Penemuan kajian ini juga berguna untuk menganggarkan penilaian ekonomi dan menggariskan manfaat pemuliharaan *giant panda* seperti yang dilihat oleh masyarakat setempat di Malaysia.

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Muhamad Syukran Mohd Rosli, April 2019

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
CV	Contingent Valuation
CVM	Contingent Valuation Method
CVS	Contingent Valuation Survey
DBDC	Double Bounded Dichotomous Choice
DBKL	Dewan Bandaraya Kuala Lumpur
DC	Dichotomous Choice
GEF	Global Environment Facility
GP	Giant Panda
GPC	Giant Panda Conservation
GPCC	Giant Panda Conservation Centre
GPLP	Giant Panda Loan Program
KUL	Kuala Lumpur
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
MOSTE	Ministry of Science, Technology and Environment
MOSTI	Ministry of Science, Technology and Innovation
MPAJ	Majlis Perbandaran Ampang Jaya
MPS	Majlis Perbandaran Selayang
MyBioD	Malaysia Biodiversity
NGO	Non-Governmental Organisation
NPBD	National Policy on Biological Diversity
SBDC	Single Bounded Dichotomous Choice
SEL	Selangor
SPSS	Statistical Package for Social Sciences
TEV	Total Economic Value
TPB	Theory of Planned Behaviour
UNCED	United Nations Conference on Environment and Development
WTA	Willingness to Accept
WTP	Willingness to Pay
WWF	World Wildlife Fund

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In this latter-day society, broad-ranging large vertebrates are threatened by alteration and degeneration of tropical forest and over-reaping of wildlife products (Macdonald et al., 2013). The rapid development has destroyed and eliminates the huge majority of native species (Marzluff, 2001) at many levels by taking advantage of high technologies and native resources. As a result, this has reinstated forest habitat loss with large-scale farming and non-stop logging until these activities intimidated other local ecosystems (Cox and Elmqvist, 2000). Therefore, there is the need to preserve the environment to ensure that issues like conservation of natural resources are secured in order to enjoy the existence and future benefits of conservation. Conservation of natural resources can be divided into several features: wildlife conservation (Ahmad et al., 2016), energy conservation (Allcott, 2011), habitat conservation (Bulte & Horan, 2003), marine conservation (Leslie, 2005) as well as soil and water conservation (Blanco & Lal, 2010).

Indeed, conservation is not only under the efforts exerted by neither the state nor the government, but it is also everyone's responsibility. As such, Non-Governmental Organizations (NGOs) have been set up, and can act as policy entrepreneurs and implementer, policy driven delivering services, knowledge makers and intermediary, public informant, and decision maker in their areas of interest, which in this case, is conservation (York University, 2014).

1.1.1 Ecotourism

Principally, ecotourism means an involvement of travels to some places of natural history in respective undeveloped areas where activities are upheld and unbiased distribution of welfare to the local (Ziffer, 1989). In other words, tourists prelude to the seldom visited areas by others will place demands upon the environment related with new attractions, activities, and resources (Wall, 1999). In some situation, ecotourism can help to conserve a fragile biodiversity and increase awareness of environmental issues (Rao, 2013).

Figure 1.1, it tells us about how tourism, like any other industries, should be considered in the contexts of both nature and involvement of local communities. The paradigm highlights the significance of encouraging positive ties between locals, biodiversity and tourism. The strength and weakness of any in the links thus implicate other links as well (Williams, 2004). He added that for each link to be positive, the endowment towards the other two components must be positive. In some cases, this relationship will be facilitated by an appropriate management or agencies which play an important role in emboldening between the components. The agency (in this case is Zoo Negara) can help

to begin collecting databases for the giant panda, and provide opportunities for resources, education and economic. As such, ecotourism nowadays is receiving more conservationist as one of the ways to promote environmental preservation and income generation (Shoka, 2006).

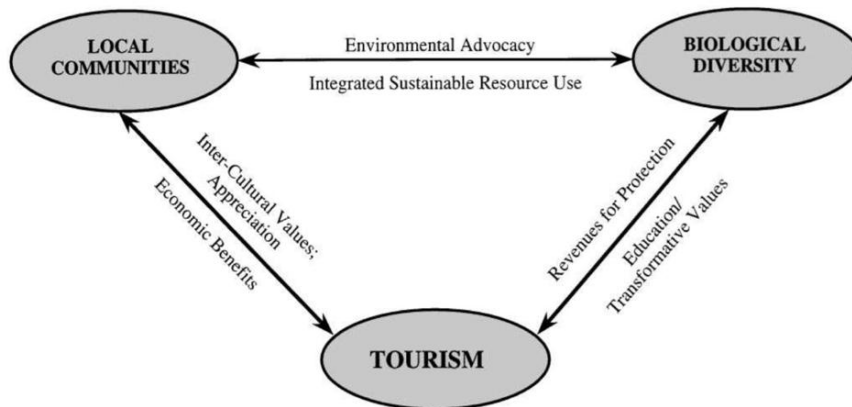


Figure 1.1: The ecotourism paradigm

Source: Wallace and Pierce (1996)

1.1.2 Wildlife Conservation

Conservation is actually a long-term preservation of cultural feature through examination, documentation, treatment and precautionary care (Emory University, 2015). Meanwhile, wildlife is an element of our ecosystem (Egler, 1964). In other words, wildlife includes all animals, flora, fauna and other life forms. There are numbers of endangered species that needed to be saved (De Groot et al., 2002). Animals make the earth fill with various natural beauties. However, human activities become a big ultimatum to the animals. According to Macdonald (2013), hunting and poaching cause death to so many big animals. Animals get killed indiscriminately for profit making by hunting and selling their skins, meats and few others for premium end products (Booth, 2010). The forest areas are the animals' natural habitats. Deforestation is also one of the vital causes for their extinction as the trees are hacked down for fuel, wood, and paper. Animals will have no place to stay and eat as their main sources of food and habitat have been destroyed.

Wildlife Conservation is the practice of protecting native flora and fauna as well as their natural surroundings (de Groot et al., 2002). The goal of wildlife conservation is to ensure that nature will be within reach for succeeding generations to enjoy and also to recognize the significance of wildlife and wilderness for humans and another species (Krutilla, 1967). Many countries possess government agencies and numerous independent non-profit organizations (NGOs) devoted to wildlife conservation, which help to execute policies planned to protect wildlife (Nasi et al., 2008).

1.1.3 Conservation Activities in Malaysia

Malaysia is ranked in the top 10 Megadiverse Countries in the World - a league of nations that carries more than 70% of the earth's biodiversity, identified in 1998 by Conservation International (CI), to boost awareness for biodiversity preservation worldwide (RankRed, 2016). Meanwhile, benefits index for biodiversity by Global Environment Facility (GEF) ranked Malaysia at number 24 for having a composite index of relative biodiversity potential establishment of species represented in each country, their menace status, and the habitat mixture in each country (Dev Pandey et al., 2006). Malaysia is blessed with resources in every sector including the fisheries, agriculture, marine, mineral resources, forestry, poultry to name a few. It is one of the rapid growing economies in the ASEAN (Noor Mohammad, 2011).

The government of Malaysia is very much committed to the concept of sustainability, which highly relates to wildlife conservation. In 1973, the Ministry of Technology, Research and Local was established. Later, in 1976 it was renamed as Ministry of Science, Technology and Environment (MOSTE) with new tasks and responsibilities pertaining to environmental affairs. On 27th March 2004, the Cabinet agreed to rearrange MOSTE functions and the name was again changed to Ministry of Science, Technology and Innovation (MOSTI). In order to conduct the national ICT development, multimedia and innovation, Ministry of Natural Resources and Environment (MNRE) was established. MNRE responsibility towards wildlife conservation is wildlife management and environmental conservation. In 2012, Malaysia Biodiversity (MyBioD) was launched by the MNRE. It serves as a vehicle to brand Malaysia's rich biodiversity and to internalize the appreciation for this natural heritage with the view of generating awareness in line with the first Aichi Biodiversity Target (Sains, 1998).

Likewise, the first National Policy on Biological Diversity (NPBD) was ratified in mid 1998. Later, it was changed to National Policy on the Environment in 2002 by the Cabinet and it was changed again to National Policy on Biological Diversity 2016-2025. The policy's objectives are: (1) to optimize economic welfare from constant utilization of the factors of biological diversity; (2) to certify long-term food reliability for the country; (3) to sustain and enhance environmental durability for relevant functioning of ecological systems; (4) to strengthen scientific, technology and knowledge in education, social, cultural and aesthetic values of biological uniformity; and (5) to underline biosafety issues in the application and development of biotechnology. Overall, NPBD objectives are often changed in order to meet the needs throughout the years.

The Langkawi Declaration on the Environment and Development of Commonwealth Countries is the benchmark movement of the important role in environmental issues in the world (Ibrahim et al., 2012). This benchmark then leads to United Nations Conference on Environment and Development (UNCED) circa June 1992. The following is the list of Malaysia's participation on environmental and conservation conventions:

1. Convention on Biological Diversity (CBD) on 24th June 1994;
2. Convention on Biological Diversity, Chapters 15 and 16 of Agenda 21 on 16 February 1996 (Convention on Biological Diversity, 1996);
3. International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1978;
4. World Conservation Union (IUCN);
5. United Nations Framework Convention on Climate Change on 13th July 1994;
6. International Board for Plant Genetic Resources Regional Board for Plant Genetic Resources Regional Committee for Southeast Asia (IBPGR/RECSEA) (later known as International Plant Genetic Resources Institute (IPGRI); and
7. Nagoya Protocol on Access to Genetic Resources and The Fair and Equitable Sharing of Benefits Arising from Their Utilization to The Convention on Biological Diversity (Secretariat of the Convention on Biological Diversity, n.d.).

1.1.4 Economic Value

Economic value is an outline of the benefit offered by goods or services to an economic agent. Additionally, economic value is also one of the many possible ways to define and measure value (Carson, 2000). The economic value of environmental goods and services, such as clean water and air, and healthy fish and wildlife populations, are not revealed over market prices (Pearce & Turner, 1990). There are various ways that can be used to estimate non-market values. The contingent valuation method is typically employed in this context of study because of the existence of a huge non-use component in the total economic value of a preservation project (Carson et al., 1998).

Contingent valuation method (CVM) is outstandingly attractive because it can evaluate values where markets do not prevail or where market substitutes cannot be established (Carson et al., 1995). For these reasons, CVM is widely used to measure existence values, option values, altruistic values, indirect use values and non-use values (Phillips, 1998). The CVM has been utilized around the globe to determine the environmental commodity (Mitchell & Carson, 1989; Hanemann, 1994). The total economic value assumes that the amount an individual is willing to pay (WTP) to acquire goods is approximately equal to the amount he/she is willing to accept (WTA), to forgo the same goods (Willig, 1976) by using CVM. These values of benefits and costs are the primary concept of economic efficiency, where economic proficiency increases if the total of the benefits to gainers (due to redistribution of resources) beats the sum of the costs to the losses (Bateman et al., 2002).

1.1.5 The Conservation of The Giant Panda

Since 1950s', the *Ailuropoda melanoleuca* or known as giant panda (GP) has been protected as top needed species for conservation because it is classified as endangered species in China. It is further added that it has been made an 'icon' species for wildlife conservation. They used to be placed in Southwest China, including Hubei, Gansu, Shaanxi, Hunan, and Sichuan regions (Zhu and Long, 1983). However, the existence of

wild giant pandas nowadays can only be found in three provinces of China, namely Shaanxi, Gansu and Sichuan.

In the mid 1970s, the habitat of GP was divided into six huge patches in 45 areas (Fan & Song, 1998), while the second GP study by the State Forestry Administration discovered 16 patch population between 1987 and 1988 (MOF, 1989). The management plan conducted by the State Forestry Administration (known as China Ministry of Forestry), the New York Zoological Society (Wildlife Conservation International), and the World-Wide Fund for Nature (WWF) entitled “National Conservation Management Plan for the Giant Panda and its Habitat” includes two reserved lands in China specifically for the giant panda, build management stations of giant panda habitat, and develop scientific research all over the world (MacKinnon et al., 1989).

1.1.6 Giant Panda Loan Program

The giant panda population in China has been decreasing over the last century. The main ultimatum to the GP were fragmentation, habitat destruction, and logging (Zhu & Long, 1983; Hu et al., 1985; MOF, 1989), poaching (Hu, 1998b; Li et al., 2000), capturing for zoos (Hu, 1998a), and natural catastrophes such as the simultaneous flowering and dying of bamboo (Yang et al., 1981; Hu et al., 1985). Historically, the GP was killed for its skin and skull or seized for the imperial hunting park in China (Zhu & Long, 1983; Hu et al., 1985; MOF, 1989). Unfortunately, poaching endures a serious issue (Hu, 1998a; Li et al., 2000) but few studies have actually assessed the effects of poaching on GP populations (Zhou and Pan, 1997).

In 1953, the first pair of the giant panda was exhibited at Chengdu Zoo. This seems to be the first effort to introduce GP to the rest of the world. although the plan to loan the GP was ratified in 1980-1990, however, the Giant Panda Loan Program (GPLP) was introduced earlier than that (Lindburg & Baragona, 2004). Meanwhile, the first zoo to breed pandas in captivity was at Beijing Zoo in 1963. Since then, half of the pandas were saved from the wild following bamboo dieback between 1970s and 1980s. Zoos in Mexico City (5); Tokyo (3); Berlin (2); San United States of America (San Diego and Washington D.C; 2); Paris (1); and Pyongyang (1) hold a few captive pandas (Garshelis, 2002).

On the 40th anniversary of diplomatic relationship, the Chinese government approved to lend the GP for 10 years to the Malaysian government in June 2012 to strengthen the diplomatic ties and handed over two GP (namely Fu Wa and Feng Yi) in April (Ahmad et al., 2016). The loan was constructed under the International Giant Panda Conservation Cooperation Agreement, which allows Malaysia the opportunity to supervise research on GP conservation, besides to thrive and edify local expertise.

As per financial aid, according to the Zoo Negara Malaysia Annual Report 2013, the MNRE and national zoo has spent over RM24.9 million for the facilities of Giant Panda and loaning a Panda is \$1,000,000 (RM3.29 million) per year. In total, it requires RM32.9 million over 10 years for the loan. Recently, Liang Liang gave birth to a pink, hairless and blind cub weighing three to five ounces named Nuan Nuan. As for 2017, the entrance fee to the national zoo is RM54 per adult, inclusive a visit to Giant Panda Conservation Centre. Nonetheless, giant pandas in national zoo have become a new tourism attraction as indicated by the increasing number of visitors to the centre since its establishment as per reported.

Therefore, GP is not only a diplomatic symbol between Malaysia and China, but also as part of awareness for its conservation towards this endangered species and considered as ecotourism product (Ahmad et al., 2016). Malaysians have come to understand the significance of locating the GP in the national zoo. Approximately 100 local and foreign visitors come to visit the GP on weekdays and 300 local and foreign visitors on weekends and public holidays. This is a decent result, as individuals will get information about the GP, engage in recreational activities and enjoy the facilities.

1.1 Problem Statement

Wildlife conservation has no market value because most environmental goods (in this case, wildlife conservation) are measured using the economic value. In other words, it has not been evaluated in a systematic manner based on the demand for the resources. Economic valuation of the wildlife can be used to demonstrate that the conservation of the wildlife provides tangible economic benefits to people (Boyle & Bishop 1987). The problem of finding the price or economic values attached to a natural resource and environment can be solved by adopting an appropriate method of valuation. Valuation is concerned with interpreting the methods for deriving empirical evaluation of environmental values (Carson et al., 1998).

Our nation has participated in many conventions to show support towards national agenda and worldwide conservation (Phua & Minowa, 2005; Sha et al., 2008; Ibrahim & Aziz, 2012). Conservation nourishes a composite set of values to human being and avails to society. Protected areas, for example, provide scenic panoramas, which are forged to give unique services to all, such as national parks and zoological parks (Andualem & Oyekale, 2012). National parks and zoological parks are maneuvered for sheltering wildlife. Meanwhile, national parks or sanctuaries of wildlife exist within an ingenuous forest and there is no restriction on their activities from place to place within the park in search of sustenance. Supplementary, since zoological parks are commonly hinged in towns, the wildlife are in duress and immuned to be dependent on humans for survival. Zoological parks are practical in protecting wildlife from danger, and grow their number through breeding, mainly used for protecting wildlife. Furthermore, zoos are also important for research and education purposes and they create wildlife conservation awareness to the public (Carson, 2000). Likewise, finding conservation value will reveal the value in the level of goods and services provided by the environment (Shahwahid, 2008). This method can be classified as the provision of

economic values, and these environment functions offer direct use values, indirect use values, option values and non-use values.

However, the decision to bring the pair, Liang Liang and Xiang Xiang, has created a controversy among Malaysians (Ahmad et al., 2016). Regretfully, some Malaysians do not see the significance of Panda Diplomacy and have ridiculed the government's call on social media to help to name the pandas. Executive Director and CEO of WWF-Malaysia, Dato' Dr. Dionysius Sharma, regards the deal with China as a pointless effort in misuse of public funds and a pointless effort in terms of wildlife conservation (Rhishja Cota-Larson, 2012). Maketab Mohamed (2012), President of Malaysian Nature Society expressed his feeling towards the idea to train the locals in the field of artificial breeding, genetics and such as a waste of money. Dr. Dionysius Sharma said that it is too expensive to train locals in such field here, as compared to send them off to China; even though Malaysia's Natural Resources and Environment Ministry (The Star, 2014) said that the "panda deal" would "promote public awareness on panda conservation undertaken by China" and "encourage the public to appreciate and learn the importance of biodiversity and wildlife conservation in Malaysia". Through personal communication with Mohd Yusof (2016), Chairman of *Kawasan Rukun Tetangga* (KRT) Taman Muda Phase 1, he stated that the ticket price to promote and appreciate the conservation of giant panda was a wasteful value as they were of no significant benefits for them directly other than as recreational activities and ecotourism. There were some complaints from the public that the ticket price was expensive, thus, the management of Zoo Negara changed the fee several times.

Moreover, the communities do not realize that the Giant Panda Conservation Centre (GPCC) and ecotourism do have monetary benefits, where they can be obtained through recreational activities and ecotourism industry that can be linked to other sectors in the economy. According to Zhang and Lei (2012), they stated that through conservation as ecotourism, it can enhance public environmental awareness (1), empowerment of local people (2), and financial benefits to the local communities (3). Nonetheless, this non-demand good is basically the total of all use and non-use values (Fujiwara & Campbell, 2011).

Ahmad et al (2016) focused on the use value of visitors at GPCC in Malaysia. However, this research emphasizes on the valuation of benefits for conservation of giant panda by visitors in the proximity of the national zoo. As Rietbergen (1998) wrote, if a given recreational site has something different that makes it unique among other sites or if there are endemic wildlife, the benefits of that specific site is believed to be high and bigger than its use value. Nonetheless, from the perspective of the local community around the national zoo, the findings on their non-market values are essential to be explored through proper research. Moreover, the measures of economic value are based on what people prefer.

To answer all the research questions developed for this research, findings on conservation valuation is highly required to uncover the values towards local community. An assessment of economic value of giant panda conservation in Malaysia

is imperative not only to understand its conservation value, but also to justify the benefits perceived by local community. Meanwhile, this research is in response to mitigate research gap.

1.3 Research Objectives

Based on the aforementioned research questions, the main objective of this research is to estimate the value of benefits for giant panda conservation. The study is designed to achieve the following specific research objectives:

1. To identify factors affecting WTP for conservation fee of giant panda among local community;
2. To determine the conservation value of giant panda by using the willingness to pay among local community; and
3. To estimate the total conservation value of giant panda among the local community.

1.4 Research Questions

Given the discussed background, this research tries to resolve these core questions:

1. What are the benefits gained from conservation of giant panda?
2. What is the estimated value of conservation of the giant panda?

1.5 Significance of the Research

There has been some significance of the research that can be found in this research. First, this research was using CVM technique to verdict the results. Second, according to the Zoo Negara Annual Report (2015), zero researches were conducted in valuing giant panda conservation (GPC) among local community. Thus, this research will look deeper into that subject matter. Third, this research was using Theory of Planned Behaviour (TPB) in assessing WTP.

- i. Academic and Research Field

It is important to understand the giant panda conservation efforts in Malaysia. Moreover, GPC value has never been discussed in Malaysia up until recently. It also indicates that this species was only available in its original habitat in China. However, there is still lack of studies with regards to the economic values and benefits of GP conservation in Malaysia, especially when it involved local participation. Only some of the market values of GP were quantified in previous studies, mostly about visitors. For

example, the previous study estimating the visitors' economic values was done by Ahmad et al. (2016), while other studies identified the variables that lead to GP conservation and awareness such as visitors' attitude towards GPCC by Ashaari and Johari (2016), visitors awareness benefits towards GPCC by Nordin and Ling (2016), visitors satisfaction benefits towards facilities of GPCC by Yee and Johari (2016) and wildlife value orientation by Wan and Puvaneswaran (2016). Other studies regarding GP were about motivation factors (Ramli & Ramachandran, 2016) and memorable tourism experiences towards GPCC (Ing & Kunasekaran, 2016). Therefore, this research might help to fill this research gap by estimating the locals non-market values of GPC in Malaysia. Hence, this data is valuable for government and policy makers to deal with the conservation of Giant Pandas in Malaysia. Therefore, these types of projects must be encouraged as they can improve the knowledge and the awareness about these conservation efforts and encourage the society and people to sustain resources for further generations. The results obtained from this survey can contribute towards the literature regarding the GPC and could initiate more research.

ii. Policy Makers

The results of this research would be very helpful to the Negara Zoo management, the decision makers, and the tourism operators, as they could identify and address the real concerns, which would help in developing and implementing the strategic plan for the awareness of the locals and visitors in the future. Furthermore, these results would help in identifying different factors that affect the local's perception, with regards to the GP conservation.

REFERENCES

- Abdullah, N. K. (1995). Estimating the benefits of beach recreation: an application of the contingent valuation method. *Pertanika J. Soc. Sc. & Hum*, 3(2), 155-162.
- Ahmad Shuib, Sridar Ramachandran, Syamsul Herman M Afandi, Zaiton Samdin, Siow May Ling and Shazali Johari (2016). Factors influencing willingness to pay for conservation. Conference Paper. ResearchGate, Universiti Putra Malaysia.
- Ahmad, S. (2009). Recreational values of mangrove forest in Larut Matang, Perak. *Journal of Tropical Forest Science*, 81-87.
- Ajzen, I. (1988). *Attitudes, personality, and behaviour*. Chicago: Dorsey Press.
- Ajzen, I. (2001). Nature and operation of attitude. *Annual Review of Psychology*, 52(1), 27-58.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*.
- Alias Radam & Shazali Abu Mansor (2005), Use of dichotomous choice contingent valuation method to value the Manukan Island, Sabah. Faculty of Economics and Management, Universiti Putra Malaysia and Universiti Malaysia.
- Alias, R., & Ruhana, B. U. S. U. (2003). Consumer Perception and Willingness to Pay toward Facilities in Malaysian Agro Park, Bukit Cahaya Shah Alam, Selangor. In Ishak et al (eds) Seminar FEP 2001 Proceedings in Hospitality and Recreation (pp. 41-52).
- Allcott, H. (2011). Social norms and energy conservation. *Journal of public Economics*, 95(9-10), 1082-1095.
- Andualem, G. M., & Oyekale+, A. S. (2012). A Truncated Poisson Modeling of Visitors' Use-Values of Addis Ababa Lions Zoological Park, Ethiopia. *Life Science Journal*, 9(4).
- Appleton, J. (1996). *The experience of landscape* (pp. 66-7). Chichester: Wiley.
- Ashaari, A. A., & Johari, S. (2016). Visitors' Attitudes towards Giant Panda Conservation Programme in Zoo Negara, Malaysia. *Asia-Pacific Journal of Innovation in Hospitality and Tourism APJIHT*, 107.
- Assessment, M. E. (2005). *Ecosystems and Human Well-Being: Current State and Trends. Findings of the Condition and Trends Working Group*. Millennium Ecosystem Assessment Series.
- Ayob, A.M., Rawi, S.B., Ahmad, S.A., & Arzemi, A. (2002). *Valuing Environmental Goods Using Contingent Valuation Method: Case Study Pulau Payar*. Research Report, Malaysia: Universiti Utara Malaysia.

- Baillie, J., Hilton-Taylor, C., & Stuart, S. N. (Eds.). (2004). 2004 IUCN red list of threatened species: a global species assessment. Iucn.
- Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R. E., ... & Munro, K. (2002). Economic reasons for conserving wild nature. *science*, 297(5583), 950-953.
- Bandara, R., & Tisdell, C. (2005). Changing abundance of elephants and willingness to pay for their conservation. *Journal of Environmental Management*, 76(1), 47-59.
- Baral, N., Stern, M. J., & Bhattarai, R. (2008). Contingent valuation of ecotourism in Annapurna conservation area, Nepal: Implications for sustainable park finance and local development. *Ecological Economics*, 66(2-3), 218-227.
- Barbier, E. B., Bockstael, N., Burgess, J. C., & Strand, I. (1995). The linkages between the timber trade and tropical deforestation—Indonesia. *The World Economy*, 18(3), 411-442.
- Basheer, A. A. A., & Ibrahim, A. A. (2010). Mobile marketing: Examining the impact of trust, privacy concern and consumers' attitudes on intention to purchase. *International Journal of Business and Management*, 5(3), 28.
- Bateman, I. J., Carson, R. T., Day, B., Hanemann, M., Hanley, N., Hett, T., ... & Sugden, R. (2002). Economic valuation with stated preference techniques: A manual. *Economic valuation with stated preference techniques: a manual*.
- Bateman, I., Willis, K., & Garrod, G. (1994). Consistency between contingent valuation estimates: a comparison of two studies of UK National Parks. *Journal of the Regional Studies Association*, 28(5), 457-474.
- Bhandari, A. K., & Heshmati, A. (2010). Willingness to pay for biodiversity conservation. *Journal of Travel & Tourism Marketing*, 27(6), 612-623.
- Black, L. W., Burkhalter, S., Gastil, J., & Stromer-Galley, J. (2010). Methods for analyzing and measuring group deliberation. *The sourcebook for political communication research: Methods, measures, and analytic techniques*, 323-345.
- Blanco, H., & Lal, R. (2010). Soil and water conservation. *Principles of Soil Conservation and Management*; Blanco, H., Lal, R., Eds, 1-19.
- Booth, V. R. (2010). Contribution of wildlife to national economies. *FAO/CIC*.
- Bowker, J. M., & Stoll, J. R. (1988). Use of dichotomous choice nonmarket methods to value the whooping crane resource. *American Journal of Agricultural Economics*, 70(2), 372-381.
- Boyle, K. J., & Bishop, R. C. (1987). Valuing wildlife in benefit- cost analyses: A case study involving endangered species. *Water resources research*, 23(5), 943-950.
- Brinkmann, S. (2014). Interview. In *Encyclopedia of critical psychology* (pp. 1008-1010). Springer New York.

- Bross IDJ, 1971, "Critical Levels, Statistical Language and Scientific Inference," in Godambe VP and Sprott (eds) Foundations of Statistical Inference. Toronto: Holt, Rinehart & Winston of Canada, Ltd.
- Brouwer, A. M., & Mosack, K. E. (2015). Expanding the theory of planned behaviour to predict healthy eating behaviours: Exploring a healthy eater identity. *Nutrition & Food Science*, 45(1), 39-53.
- Brundtland, G. H. (1987). Our common future. World Commission on Environment and Development: Brussels.
- Buckingham, K. C., David, J. N. W., & Jepson, P. (2013). Environmental reviews and case studies: diplomats and refugees: panda diplomacy, soft “cuddly” power, and the new trajectory in panda conservation. *Environmental Practice*, 15(3), 262-270.
- Bulte, E. H., & Horan, R. D. (2003). Habitat conservation, wildlife extraction and agricultural expansion. *Journal of Environmental Economics and Management*, 45(1), 109-127.
- Calia, P., & Strazzera, E. (1998). Bias and Efficiency of Single Vs. Double Bounded Models for Contingent Valuation Studies: A Monte Carlo Analysis. Working Paper.
- Campbell, D. T. (1963). Social attitudes and other acquired behavioural dispositions.
- Carson, R. T. (1997). Contingent valuation surveys and tests of insensitivity to scope. In *Determining the value of non-marketed goods* (pp. 127-163). Springer, Dordrecht.
- Carson, R. T. (2000). *Contingent valuation: a user's guide*.
- Carson, R. T., Flores, N. E., & Meade, N. F. (2001). Contingent valuation: controversies and evidence. *Environmental and resource economics*, 19(2), 173-210.
- Carson, R. T., Wright, J. L., Carson, N. C., Flores, N. E., & Alberini, A. (1995). *A Bibliography of Contingent Valuation Studies and Papers.*, CA. San Diego: Natural Resource Damage Assessment.
- Chiam, C. C., Alias, R., Khalid, A. R., & Rusli, Y. (2011). Contingent Valuation Method: Valuing Cultural Heritage. In *Singapore Economic Review Conference (SERC)*, Singapore.
- Christie, M., Hanley, N., Warren, J., Hyde, T., Murphy, K., Wright, R. (2004). A valuation of biodiversity in the UK using choice experiments and contingent valuation. *Applied Environmental Economics Conference*, 26 March, The Royal Society.
- Chu, C., & Long, Z. (1983). vicissitudes of the giant panda [Chinese wildlife, endangered species]. *Acta zoologica sinica*.
- Cohen, D., & Crabtree, B. (2006). *Qualitative research guidelines project*.

- Coleman, L., & Clark, J. (1999). *Cryptozoology A To Z: The Encyclopedia Of Loch Monsters Sasquatch Chupacabras And Other Authentic M.* Simon and Schuster.
- Colléony, A., Clayton, S., Couvet, D., Saint Jalme, M., & Prévot, A. C. (2017). Human preferences for species conservation: Animal charisma trumps endangered status. *Biological conservation*, 206, 263-269.
- Convention on Biological Diversity, GA Res 50/111, UN GAOR, 50th sess, 96th plen mtg, Agenda Item 96(a), Supp No 12, UN Doc A/RES/50/111 (20 December 1995, adopted 16 February 1996).
- Cook, J. M. (2011). *Valuing protected areas through contingent valuation: a case study of Chitwan National Park, Nepal.* Toronto, Ontario, Canada: Tesis de grado para optar por el título de Magíster en Ciencias Aplicadas, Wilfrid Laurier University.
- Cooper, C., Larson, L., Dayer, A., Stedman, R., & Decker, D. (2015). Are wildlife recreationists conservationists? Linking hunting, birdwatching, and pro-environmental behaviour. *The Journal of Wildlife Management*, 79(3), 446-457.
- Cox, P. A., & Elmqvist, T. (2000). Pollinator extinction in the Pacific Islands. *Conservation Biology*, 14(5), 1237-1239.
- Dev Pandey, K., Buys, P., Chomitz, K., & Wheeler, D. (2006). *New tools for priority setting at the global environment facility.* World Bank Development Research Group Working Paper. Washington DC: World Bank.
- Dodds, R., Graci, S. R., & Holmes, M. (2010). Does the tourist care? A comparison of tourists in Koh Phi Phi, Thailand and Gili Trawangan, Indonesia. *Journal of Sustainable Tourism*, 18(2), 207-222.
- Dorfman, R. (1965). *Measuring benefits of government investments; papers presented at a conference of experts held November 7-9, 1963.*
- Duffus, D. A., & Dearden, P. (1990). Non-consumptive wildlife-oriented recreation: A conceptual framework. *Biological conservation*, 53(3), 213-231.
- Edwards, P. J., & Abivardi, C. (1998). The value of biodiversity: where ecology and economy blend. *Biological conservation*, 83(3), 239-246.
- Egler, F. E. (1964). Pesticides—in our ecosystem. *American Scientist*, 52(1), 110-136.
- Englewood Cliffs (n.d), NJ: Prentice-Hall.
- Esterberg, K. G. (2002). *Qualitative methods in social research.*
- Evans, J. (2004). What is local about local environmental governance? Observations from the local biodiversity action planning process. *Area*, 36(3), 270-279.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research.*

- Fox, S. G. (2002). Analysis of Ecotourism: The Municipal Reserve " Curichi Cuajo" Buena Vista, Bolivia (Doctoral dissertation, Michigan Technological University).
- Frykblom, P. (1997). Hypothetical question modes and real willingness to pay. *Journal of Environmental Economics and Management*, 34(3), 275-287.
- Garshelis, D. L. (2002). Misconceptions, ironies, and uncertainties regarding trends in bear populations. *Ursus*, 321-334.
- Groning, K., and M. Saller (1999). *Elephants: A Cultural and Natural History*. Konemann, New York, 482.
- Gubrium, J. F., & Holstein, J. A. (1997). *The new language of qualitative method*. Oxford University Press on Demand.
- Gunthorsdottir, A. (2001). Physical attractiveness of an animal species as a decision factor for its preservation. *Anthrozoös* 14 (4):204–215.
- Han, F., Yang, Z., Wang, H., & Xu, X. (2011). Estimating willingness to pay for environment conservation: a contingent valuation study of Kanas Nature Reserve, Xinjiang, China. *Environmental Monitoring and Assessment*, 180(1-4), 451-459.
- Han, H., Hsu, L. T. J., & Sheu, C. (2010). Application of the theory of planned behaviour to green hotel choice: Testing the effect of environmental friendly activities. *Tourism management*, 31(3), 325-334.
- Hanemann, M., Loomis, J., & Kanninen, B. (1991). Statistical efficiency of double-bounded dichotomous choice contingent valuation. *American journal of agricultural economics*, 73(4), 1255-1263.
- Hanemann, W. M. (1984). Welfare evaluations in contingent valuation experiments with discrete responses. *American journal of agricultural economics*, 66(3), 332-341.
- Hanemann, W. M. (1994). Valuing the environment through contingent valuation. *Journal of economic perspectives*, 8(4), 19-43.
- Hanemann, W. M. (2006). The economic conception of water. *Water Crisis: myth or reality*, 61, 74-76.
- Hanley, N., Mourato, S., & Wright, R. E. (2001). Choice modelling approaches: a superior alternative for environmental valuation?. *Journal of economic surveys*, 15(3), 435-462.
- Harris, C. C., Driver, B. L., & McLaughlin, W. J. (1989). Improving the contingent valuation method: a psychological perspective. *Journal of environmental economics and management*, 17(3), 213-229.
- Hirth, R. A., Chernew, M. E., Miller, E., Fendrick, A. M., & Weissert, W. G. (2000). Willingness to pay for a quality-adjusted life year: in search of a standard. *Medical Decision Making*, 20(3), 332-342.

- Horton, B., Colarullo, G., Bateman, I. J., & Peres, C. A. (2003). Evaluating non-user willingness to pay for a large-scale conservation programme in Amazonia: a UK/Italian contingent valuation study. *Environmental Conservation*, 30(2), 139-146.
- Hoyos, D. (2010). The state of the art of environmental valuation with discrete choice experiments. *Ecological economics*, 69(8), 1595-1603.
- Ibrahim, I., & Aziz, N. A. (2012). The roles of international NGOs in the conservation of bio-diversity of wetlands. *Procedia-Social and Behavioural Sciences*, 42, 242-247.
- Ibrahim, I., Aziz, N. A., & Hanifah, N. A. (2012). The laws of wetness: the legislative framework in Malaysia regarding wetlands conservation. *Procedia-Social and Behavioural Sciences*, 50, 574-581.
- Ing, C. I., & Kunasekaran, P. (2016). Types of Memorable Tourism Experiences at GPCC in Zoo Negara Malaysia. *Asia-Pacific Journal of Innovation in Hospitality and Tourism APJIHT*, 171.
- Jin, J.J., Wang, Z.S., Ran, S.H. (2006). Comparison of contingent valuation and choice experiment in solid waste management programs in Macao. *Ecological Economics* 57, 430e441.
- Kaffashi, S., Yacob, M. R., Clark, M. S., Radam, A., & Mamat, M. F. (2015). Exploring visitors' willingness to pay to generate revenues for managing the National Elephant Conservation Center in Malaysia. *Forest Policy and Economics*, 56, 9-19.
- Kamri, T. (2013). Willingness to pay for conservation of natural resources in the Gunung Gading National Park, Sarawak. *Procedia-Social and Behavioural Sciences*, 101, 506-515.
- Kang, K. H., Stein, L., Heo, C. Y., & Lee, S. (2012). Consumers' willingness to pay for green initiatives of the hotel industry. *International Journal of Hospitality Management*, 31(2), 564-572.
- Karimi, S. (2008). Ecotourism development in Isfahan: challenges and opportunities.
- Kashif, M., & De Run, E. C. (2015). Money donations intentions among Muslim donors: an extended theory of planned behaviour model. *International Journal of Nonprofit and Voluntary Sector Marketing*, 20(1), 84-96.
- Keane, A., Gurd, H., Kaelo, D., Said, M. Y., de Leeuw, J., Rowcliffe, J. M., & Homewood, K. (2016). Gender differentiated preferences for a community-based conservation initiative. *PloS one*, 11(3), e0152432.
- Kerr, G. (2001, January). Contingent valuation elicitation effects: Revisiting the payment card. In 2001 Conference (45th), January 23-25, 2001, Adelaide (No. 125686). Australian Agricultural and Resource Economics Society.
- Krutilla, J. V. (1967). Conservation reconsidered. *The American Economic Review*,

57(4), 777-786.

- Kumar, B. (2012). Theory of planned behaviour approach to understand the purchasing behaviour for environmentally sustainable products.
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of consumer marketing*, 18(6), 503-520.
- Lee, C. K., & Han, S. Y. (2002). Estimating the use and preservation values of national parks' tourism resources using a contingent valuation method. *Tourism management*, 23(5), 531-540.
- Lee, Y. K., Kim, S., Kim, M. S., & Choi, J. G. (2014). Antecedents and interrelationships of three types of pro-environmental behaviour. *Journal of Business Research*, 67(10), 2097-2105.
- Leong, P. C. (2005). Environmental attitudes and willingness to pay for highland conservation: the case of Fraser's Hill, Malaysia. Unpublished M. Sc. thesis, Universiti Putra Malaysia, Selangor, Malaysia.
- Leslie, H. M. (2005). A synthesis of marine conservation planning approaches. *Conservation Biology*, 19(6), 1701-1713.
- Li, S., McShea, W. J., Wang, D., Lu, Z., & Gu, X. (2012). Gauging the impact of management expertise on the distribution of large mammals across protected areas. *Diversity and distributions*, 18(12), 1166-1176.
- Liebe, U., Preisendörfer, P., & Meyerhoff, J. (2011). To pay or not to pay: Competing theories to explain individuals' willingness to pay for public environmental goods. *Environment and Behaviour*, 43(1), 106-130.
- Lindberg, K., & Lindberg, K. (1991). Policies for maximizing nature tourism's ecological and economic benefits (pp. 20-21). Washington, DC: World Resources Institute.
- Lindburg, D., & Baragona, K. (Eds.). (2004). *Giant pandas: biology and conservation*. Univ of California Press.
- Lipset, S. M. (1959). Some social requisites of democracy: Economic development and political legitimacy. *American political science review*, 53(1), 69-105.
- Loomis, J. B. (2000). Can environmental economic valuation techniques aid ecological economics and wildlife conservation?. *Wildlife Society Bulletin*, 28(1), 52-60.
- Loomis, J. B., & White, D. S. (1996). Economic benefits of rare and endangered species: summary and meta-analysis. *Ecological Economics*, 18(3), 197-206.
- López-Mosquera, N., & Sánchez, M. (2012). Theory of Planned Behaviour and the Value-Belief-Norm Theory explaining willingness to pay for a suburban park. *Journal of environmental management*, 113, 251-262.

- Macdonald, D. W., Boitani, L., Dinerstein, E., Fritz, H., & Wrangham, R. (2013). Conserving large mammals. *Key Topics in Conservation Biology* 2, 277-312.
- MacKinnon, J., & De Wulf, R. (1994). Designing protected areas for giant pandas in China. In *Mapping the diversity of nature* (pp. 127-142). Springer, Dordrecht.
- Macmillan, Douglas C., Elizabeth I. Duff, and David A. Elston. (2001). "Modelling the Non-Market Environmental Costs and Benefits of Biodiversity Projects Using Contingent Valuation Data." *Environmental and Resource Economics* 18 (4):391–410.
- Mahat, H., Hashim, M., Nayan, N., Saleh, Y., & Haron, S. M. S. (2017). Sustainable Consumption Practices of Students through Practice-Oriented Approach of Education for Sustainable Development. *International Journal of Academic Research in Business and Social Sciences*, 7(6), 703-720.
- Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in India. *International journal of contemporary hospitality management*, 19(5), 364-377.
- Marzluff, J. M. (2001). Worldwide urbanization and its effects on birds. In *Avian ecology and conservation in an urbanizing world* (pp. 19-47). Springer, Boston, MA.
- Mehralian, G., Nazari, J. A., Nooriparto, G., & Rasekh, H. R. (2017). TQM and organizational performance using the balanced scorecard approach. *International Journal of Productivity and Performance Management*, 66(1), 111-125.
- Menozi, D., Fioravanzi, M., & Donati, M. (2015). Farmer's motivation to adopt sustainable agricultural practices. *Bio-based and Applied Economics*, 4(2), 125.
- Delgado, J., LaPlanche, R., & Turck, M. (2004). U.S. Patent No. 6,801,909. Washington, DC: U.S. Patent and Trademark Office.
- Mezghani, K. (2014). Switching toward Cloud ERP: A research model to explain intentions. *International Journal of Enterprise Information Systems (IJEIS)*, 10(3), 46-61.
- Miller, J. R., & Hobbs, R. J. (2002). Conservation where people live and work. *Conservation biology*, 16(2), 330-337.
- Miller, K. K., & McGee, C. T. K. (2001). Toward incorporating human dimensions information into wildlife management decision-making. *Human Dimensions of Wildlife*, 6(3), 205-221.
- Mitchell, R. C., & Carson, R. T. (1989). Using surveys to value public goods: the contingent valuation method. *Resources for the Future*.
- Mladenov, N., Gardner, R. J., Flores, E. N., Mbaiwa, E. J., Mmopelwa, G., & Strzepek, M. K. (2007). The value of wildlife-viewing tourism as an incentive for conservation of biodiversity in the Okavango Delta, Botswana. *Development Southern Africa*, 24(3), 409-423.

- MOF, W. (1989). A comprehensive survey report on China's giant panda and its habitat.
- Mohammad, N. (2011). Environmental law and policy practices in Malaysia: An empirical study. *Australian Journal of Basic and Applied Sciences*, 5(9), 1248-1260.
- Mohammad, N. (2011). Environmental law and policy practices in Malaysia: An empirical study. *Australian Journal of Basic and Applied Sciences*, 5(9), 1248-1260.
- Mohd. Shahwahid Hj. Othman. (2008). *Mainstreaming the Environment: Incorporating Economic Valuation and Market-based Instruments in Decision Making*. Penerbit Universiti Putra Malaysia
- Moran, D. (1994). Contingent valuation and biodiversity: measuring the user surplus of Kenyan protected areas. *Biodiversity & Conservation*, 3(8), 663-684.
- Morrison, J. C., Sechrest, W., Dinerstein, E., Wilcove, D. S., & Lamoreux, J. F. (2007). Persistence of large mammal faunas as indicators of global human impacts. *Journal of Mammalogy*, 88(6), 1363-1380.
- Naidoo, R. (2008). The role of economic valuation in the conservation of tropical nature. *Economics and Conservation in the Tropics: A Strategic Dialogue*. San Francisco, Conservation Strategy Fund, Resources for the Future, and the Gordon and Betty Moore Foundation, 6.
- Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., Van Tol, G., & Christophersen, T. (2008). Conservation and use of wildlife-based resources: the bushmeat crisis. Secretariat of the Convention on Biological Diversity, Montreal. and Center for International Forestry Research (CIFOR), Bogor. Technical Series, 50.
- Nik Mustapha, R. A. (1993). Valuing Outdoor Recreational Resources In Tasik Perdana Using Dichotomous Choice Contingent Valuation Method Economics. *Malaysian Journal of Agricultural*, 10, 39-50.
- Nordin, N. A., & Ling, S. M. (2016). Awareness of Domestic Visitors towards Giant Panda Conservation Programme in Zoo Negara, Malaysia. *Asia-Pacific Journal of Innovation in Hospitality and Tourism APJIHT*, 89.
- Norton, B. G. (1986). Conservation and preservation: a conceptual rehabilitation. *Environmental Ethics*, 8(3), 195-220.
- Nunes, P. A., Van Den Bergh, J. C., & Nijkamp, P. (2003). *The ecological economics of biodiversity: methods and policy applications*. Edward Elgar Publishing Ltd.
- Odunga, P., & Folmer, H. (2004). Profiling tourists for balanced utilization of tourism-based resources in Kenya.
- Olsen, W. (2004). Triangulation in social research: qualitative and quantitative methods can really be mixed. *Developments in sociology*, 20, 103-118.

- Ozdemir, S., Johnson, F. R., & Whittington, D. (2016). Ideology, public goods and welfare valuation: An experiment on allocating government budgets. *Journal of choice modelling*, 20, 61-72.
- Pate, J., & Loomis, J. (1997). The effect of distance on willingness to pay values: a case study of wetlands and salmon in California. *Ecological economics*, 20(3), 199-207.
- Pavlou, P. A., & Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: An extension of the theory of planned behaviour. *MIS quarterly*, 115-143.
- Pearce, D. W., & Barde, J. P. (Eds.). (1991). *Valuing the environment: six case studies*. Earthscan.
- Pearce, D. W., & Moran, D. (1994). *The economic value of biodiversity*. Earthscan.
- Pearce, D., Barbier, E., & Markandya, A. (2013). *Sustainable development: economics and environment in the Third World*. Routledge.
- Pearce, D.W. and Turner K., 1990, "Economics of Natural Resources and the Environment", Harvester Wheatsheaf, New York and London.
- Peng, J., Jiang, Z., Qin, G., Huang, Q., Li, Y., Jiao, Z., ... & Liu, X. (2007). Impact of activity space on the reproductive behaviour of giant panda (*Ailuropoda melanoleuca*) in captivity. *Applied Animal Behaviour Science*, 104(1), 151-161.
- Phillips, A. (1998). *Economic Values of Protected Areas: Guidelines for Protected Area Managers, Task Force on Economic Benefits of Protected Areas of the WCPA of IUCN in Collaboration with the Economics Service Unit of IUCN*. IUCN.
- Phillips, A. (1998). *Economic Values of Protected Areas: Guidelines for Protected Area Managers, Task Force on Economic Benefits of Protected Areas of the WCPA of IUCN in Collaboration with the Economics Service Unit of IUCN*. IUCN.
- Phua, M. H., & Minowa, M. (2005). A GIS-based multi-criteria decision making approach to forest conservation planning at a landscape scale: a case study in the Kinabalu Area, Sabah, Malaysia. *Landscape and Urban Planning*, 71(2-4), 207-222.
- Pimm, S. L., Russell, G. J., Gittleman, J. L., & Brooks, T. M. (1995). The future of biodiversity. *Science*, 269(5222), 347-350.
- Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative research in accounting & management*, 8(3), 238-264.
- Radam, A., Mansor, S. A., Said, A., & Merican, A. (2002). Willingness of local tourists to pay for conservation of tourism sports in the Damai District Sarawak. *ASEAN Journal on Hospitality and Tourism*, 1, 53-63.
- Ramli, F., & Ramachandran, S. (2016). Motivation to Visit the Giant Panda Conservation Centre in Zoo Negara, Malaysia. *Asia-Pacific Journal of Innovation in Hospitality and Tourism APJIHT*, 155.

- Ran, J., Du, B., & Yue, B. (2009). Conservation of the endangered giant panda *Ailuropoda melanoleuca* in China: successes and challenges. *Oryx*, 43(2), 176-178.
- Ran, J., Du, B., & Yue, B. (2009). Conservation of the endangered giant panda *Ailuropoda melanoleuca* in China: successes and challenges. *Oryx*, 43(2), 176-178.
- Ran, J., Liu, S., Wang, H., Sun, Z., Zeng, Z., & Liu, S. (2003). Habitat selection by giant pandas and grazing livestock in the Xiaoxiangling Mountains of Sichuan Province. *Acta Ecologica Sinica*, 23(11), 2253-2259.
- Ran, J., Liu, S., Wang, H., Zeng, Z., Sun, Z., & Liu, S. (2004). A survey of disturbance of giant panda habitat in the Xiaoxiangling Mountains of Sichuan Province. *Acta theriologica sinica*, 24(4), 277-281.
- Ran, J., Zeng, Z., Wang, H., Liu, S., Fu, J., & Liu, S. (2005). A survey of the giant panda population and habitats in the Xiaoxiangling Mountains. *Acta theriologica sinica*, 25(4), 345-350.
- Rao, C. (2013). Ecotourism as a tool for conservation of coast redwoods in Santa Cruz, California. San Jose State University.
- Rekola, E. P. M. (2001). The theory of planned behaviour in predicting willingness to pay for abatement of forest regeneration. *Society & Natural Resources*, 14(2), 93-106.
- Ressurreição, A., Gibbons, J., Kaiser, M., Dentinho, T. P., Zarzycki, T., Bentley, C., ... & Edwards-Jones, G. (2012). Different cultures, different values: The role of cultural variation in public's WTP for marine species conservation. *Biological Conservation*, 145(1), 148-159.
- Riera, P., & Signorello, G. (Eds.). (2012). Good Practice Guidelines for the Non-Market Valuation of Forest Goods and Services. European Science Foundation.
- Ross, S., & Wall, G. (1999). Evaluating ecotourism: the case of North Sulawesi, Indonesia. *Tourism management*, 20(6), 673-682.
- Ruben, D. H. (2015). Explaining explanation. Routledge.
- Rudzitis, G., & Johansen, H. E. (1991). How important is wilderness? Results from a United States survey. *Environmental Management*, 15(2), 227-233.
- Sains, K. (1998). National policy on biological diversity.
- Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill building approach. John Wiley & Sons.
- Sha, J. C., Bernard, H., & Nathan, S. (2008). Status and conservation of proboscis monkeys (*Nasalis larvatus*) in Sabah, East Malaysia. *Primate Conservation*, 23(1), 107-120.
- Shelby, B., & Heberlein, T. A. (1987). Carrying capacity in recreation settings. Oregon

State University Press.

- Sherman, S. J., & Fazio, R. H. (1983). Parallels between attitudes and traits as predictors of behaviour. *Journal of personality*, 51(3), 308-345.
- Shoka, D. (2006). *An Analysis of Tourist Preferences for the Development of Ecotourism in Uaxactún, Guatemala, Using Choice Experiments* (Doctoral dissertation).
- Shultz, S., Pinazzo, J., & Cifuentes, M. (1998). Opportunities and limitations of contingent valuation surveys to determine national park entrance fees: evidence from Costa Rica. *Environment and Development Economics*, 3(1), 131-149.
- Spash, C. L., Urama, K., Burton, R., Kenyon, W., Shannon, P., & Hill, G. (2009). Motives behind willingness to pay for improving biodiversity in a water ecosystem: Economics, ethics and social psychology. *Ecological Economics*, 68(4), 955-964.
- Stevens, T. H., Echeverria, J., Glass, R. J., Hager, T., & More, T. A. (1991). Measuring the existence value of wildlife: what do CVM estimates really show?. *Land Economics*, 67(4), 390-400.
- Stone, M., & Wall, G. (2004). Ecotourism and community development: case studies from Hainan, China. *Environmental management*, 33(1), 12-24.
- Strauss, A., & Corbin, J. M. (1997). *Grounded theory in practice*. Sage.
- Sun, C., Yuan, X., & Xu, M. (2016). The public perceptions and willingness to pay: from the perspective of the smog crisis in China. *Journal of Cleaner Production*, 112, 1635-1644.
- Swanson, T. (2003). Introduction to property rights and biodiversity conservation: Convergence or conflict?. *Land Economics*, 457-459.
- Szell, A. B. (2012). Attitudes and perceptions of local residents and tourists toward the protected area of Retezat National Park, Romania.
- Tan, P. S., & Norzaini, A. (2011). Hubungan antara komitmen terhadap alam sekitar dengan tingkah laku mesra alam sekitar dalam kalangan pelajar universiti. *Jurnal Personalita Pelajar*, 14, 11–22. [In Malay]
- Tanrıvermiş, H. (1998). Willingness to pay (WTP) and willingness to accept (WTA) measures in Turkey: May WTP and WTA be indicators to share the environmental damage burdens: A case study. *Journal of Economic Cooperation Among Islamic Countries*, 19(3), 67-93.
- Thomson, A. (2007). The Annapurna Conservation Area Project: tourists as agents of development and environmental management in the high Himalaya?. *International Journal of Environment and Sustainable Development*, 6(4), 405-421.
- Tisdell, C., Wilson, C., Nantha, H.S. (2006). Public choice of species for the 'Ark': phylogenetic similarity and preferred wildlife species for survival. *J. Nat. Conserv.*

14 (2):97–105.

- Togridou, A., Hovardas, T., & Pantis, J. D. (2006). Determinants of visitors' willingness to pay for the National Marine Park of Zakynthos, Greece. *Ecological Economics*, 60(1), 308-319.
- Turpie, J. K., Heydenrych, B. J., & Lamberth, S. J. (2003). Economic value of terrestrial and marine biodiversity in the Cape Floristic Region: implications for defining effective and socially optimal conservation strategies. *Biological conservation*, 112(1-2), 233-251.
- Uozumi, A. (2010). *Do Zoos Work at Raising Awareness?: Quantifying the Impact of Informal Education on Adults Visiting Japanese Zoos* (Doctoral dissertation, Department of Life Sciences, Silwood Park, Imperial College London).
- Velleman, P. F., & Hoaglin, D. C. (1981). *Applications, basics, and computing of exploratory data analysis*. Duxbury Press.
- Vina, A., Bearer, S., Chen, X., He, G., Linderman, M., An, L., ... & Liu, J. (2007). Temporal changes in giant panda habitat connectivity across boundaries of Wolong Nature Reserve, China. *Ecological Applications*, 17(4), 1019-1030.
- Vogt, C. A., & Williams, D. R. (1999). Support for wilderness recreation fees: The influence of fee purpose and day versus overnight use. *Journal of Park and Recreation Administration*, 17(3).
- Wallace, G. N., & Pierce, S. M. (1996). An evaluation of ecotourism in Amazonas, Brazil. *Annals of Tourism Research*, 23(4), 843-873.
- Walpole, M. J., & Goodwin, H. J. (2001). Local attitudes towards conservation and tourism around Komodo National Park, Indonesia. *Environmental conservation*, 28(2), 160-166.
- Walsh, R. G., Johnson, D. M., & McKean, J. R. (1989). Issues in nonmarket valuation and policy application: a retrospective glance. *Western Journal of Agricultural Economics*, 178-188.
- Wan, A., & Puvaneswaran, K. (2016). Wildlife value orientations towards Giant Panda Conservation Centre (GPCC) at Zoo Negara, Malaysia. *Asia-Pacific Journal of Innovation in Hospitality and Tourism*, 5(3), 123-134.
- Wang, P. W., & Jia, J. B. (2012). Tourists' willingness to pay for biodiversity conservation and environment protection, Dalai Lake protected area: Implications for entrance fee and sustainable management. *Ocean & Coastal Management*, 62, 24-33.
- Whelan, H. (1988). Nature tourism. *Environmental Conservation*, 15(2), 182-182.
- Williams, S. (Ed.). (2004). *Tourism: New directions and alternative tourism* (Vol. 4). Taylor & Francis.

- Willig, R. D. (1976). Consumer's surplus without apology. *The American Economic Review*, 66(4), 589-597.
- Xu, W., Ouyang, Z., Jiang, Z., Zheng, H., & Liu, J. (2006). Assessment of giant panda habitat in the Daxiangling Mountain Range, Sichuan, China. *Chinese Biodiversity*, 14(3), 223-231.
- Yamane, T., (1967). *Statistics, An Introductory Analysis*, 2nd Ed., New York: Harper and Row.
- Yang, R., Zhang, F., & Lou, W. (1981). A preliminary discussion on the cause of the disastrous death of the giant panda. *Acta Theriologica Sinica*, 1(2), 127-135.
- Yee, T. P., & Johari, S. (2016). Visitor Satisfaction towards Facilities of the Giant Panda Conservation Centre, Zoo Negara Malaysia: An Exploratory Analysis. *Asia-Pacific Journal of Innovation in Hospitality and Tourism APJIHT*, 5(3), 71-88.
- Yiming, L., Zhongwei, G., Qisen, Y., Yushan, W., & Niemelä, J. (2003). The implications of poaching for giant panda conservation. *Biological Conservation*, 111(2), 125-136.
- Yuan, H., Liu, D., Sun, L., Wei, R., Zhang, G., & Sun, R. (2004). Anogenital gland secretions code for sex and age in the giant panda, *Ailuropoda melanoleuca*. *Canadian journal of zoology*, 82(10), 1596-1604.
- Zaiton, S. (2008). Willingness to pay in Taman Negara: A contingent valuation method. *International Journal of Economics and Management*, 2(1), 81-94.
- Zhang, D., Huang, G., Yin, X., & Gong, Q. (2015). Residents' waste separation behaviours at the source: Using SEM with the theory of planned behaviour in Guangzhou, China. *International journal of environmental research and public health*, 12(8), 9475-9491.
- Zheng, W., Xu, Y., Liao, L., Yang, X., Gu, X., Shang, T., & Ran, J. (2012). Effect of the Wenchuan earthquake on habitat use patterns of the giant panda in the Minshan Mountains, southwestern China. *Biological conservation*, 145(1), 241-245.
- Zhou, Z., & Pan, W. (1997). Analysis of the viability of a giant panda population. *Journal of Applied Ecology*, 363-374.
- Ziffer, K. A. (1989). Ecotourism: The uneasy alliance (No. 1). *Conservation International*.
- Zoo Negara Malaysia (2013). *Zoo Negara Annual Report*.
- Zoo Negara Malaysia (2015). *Zoo Negara Annual Report*.

Online References

- Brehob, K. (2001). Usability glossary. Retrieved from <http://www.usabilityfirst.com>.
- DBKL Budget Bulletin, (2017). DBKL Budget Speech by Y.BHG Datuk Seri Hj. Mhd. Amin Nordin Bin Abd. Aziz, Kuala Lumpur Mayor. Dewan Bandaraya Kuala Lumpur. Retrieved from http://www.dbkl.gov.my/index.php?option=com_jdownloads&view=finish&cid=733&catid=7&m=0&lang=en.
- Emory University (2015). What is conservation? Retrieved from <http://www.carlos.emory.edu/conservation/what-conservation>.
- Environmental Management & Research Association of Malaysia [ENSEARCH] (2013). Retrieved from (<http://ensearch.org/global-gateway/environmental-ngos-in-malaysia/>).
- IUCN, 2008. IUCN Red list of threatened species. <http://www.iucnredlist.org>
- Kirakowski, J., 1998. "Questionnaires in Usability Engineering," Retrieved from <http://www.ucc.ie/hfrg/resources/qfaq1.html>.
- NRE, 2014. Ministry of Natural Resources and Environment (NRE). Retrieved from (<http://www.nre.gov.my>).
- Oxford Dictionary (2015). Conservation. Retrieved from (<http://www.oxforddictionaries.com/definition/english/conservation>).
- Panda Diplomacy, 2017. China Giant Panda Diplomacy History, Travel China Guide, www.travelchinaguide.com/tour/panda/diplomacy.htm.
- RankRed, 2016. 17 Megadiverse Countries in the World. Retrieved from (<http://www.rankred.com/top-10-megadiverse-countries-in-the-world/>)
- Secretariat of the Convention on Biological Diversity (n.d.). Retrieved from <https://www.cbd.int/abs/>
- Selangor State. Government of Selangor Gazette (2012). Retrieved from https://www.academia.edu/9820410/27hb_Disember_2012_GOVERNMENT_OF_SELANGOR_GAZETTE_PUBLISHED_BY_AUTHORITY.
- The Nixon Foundation, 2015. Retrieved from <http://www.nixonfoundation.org>.
- Wikipedia (2015). Conservation. Retrieved from <https://en.wikipedia.org/wiki/Conservation>.
- World Wildlife Fund (WWF, 2015). Panda Conservation Success. WWF, Washington, DC. Available at <http://wwf.panda.org/>.
- York University (2014). Six Functions of Non-Governmental Organizations in A Democratic Society. Retrieved from <http://marksw.blog.yorku.ca/2014/02/11/five-functions-of-non-governmental-organizations-in-a-democratic-society/>.