



**UNIVERSITI PUTRA MALAYSIA**

***SUSTAINABLE TOURISM AND ENERGY SECURITY AS ANTECEDENTS  
OF LOCAL COMMUNITY'S QUALITY OF LIFE IN MABUL ISLAND,  
MALAYSIA***

**SIEW KAR MAN**

**IKDPM 2020 4**



**SUSTAINABLE TOURISM AND ENERGY SECURITY AS  
ANTECEDENTS OF LOCAL COMMUNITY'S QUALITY OF LIFE IN  
MABUL ISLAND, MALAYSIA**

By

**SIEW KAR MAN**

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

**November 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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**November 2019**

**Chairman : Prof. Sridar Ramachandran, PhD**  
**Institute : Agricultural and Food Policy Studies**

Mabul Island, Semporna, Sabah has received tremendous increase in number of domestic and international visitors since year 2011. The objective of the Malaysian government's effort as formulated in Malaysian 11<sup>th</sup> Plan in achieving sustainable improvement in people's quality of life, sustainable development in tourism industry and energy security should not be overlooked. It is also indicated in the National Ecotourism Plan (NEP) 2016-2025 that more attention is being placed towards the social science studies especially in relation to the local community development. The purpose of this study is to determine the perceived quality of life of an offshore island community and their awareness on both sustainable tourism impacts and perception on energy security. Specifically, the research objectives are i) to determine the socio demographic characteristics of community in Mabul Island; ii) to determine the Mabul Island community's perception of quality of life; iii) to determine the factors influencing community's perceived quality of life in Mabul Island. Face to face interview sessions were conducted among local community residing in Mabul Island. A total of 504 useable questionnaires were collected and used for the analysis. The study has found that Mabul Island community's perception of quality of life is high with an average of 4.5 out of a 5-point Likert scale. The findings also show that eleven variables are significantly influencing the community's perceived quality of life in Mabul Island. The factors are ethnicity (Suluk, Bajau and Bajau Suluk) with significant value of 0.768, 0.762 and 0.814 respectively, occupation (tourism service, business owner and fishermen) with significant value of -0.239,-0.176 and -0.200 respectively, education level (illiterate and

primary school) with significant value of -0.190 and -0.212 respectively, perceived sustainable tourism economic impacts with significant value of 0.063, perceived sustainable tourism social impacts with significant value of 0.123, and perceived energy security with significant value of 0.062. Several recommendations are highlighted with the hope that the current findings add substantially to the understanding of the importance of sustainable development to quality of life, tourism industry and also energy development. This study also hopes that it can assist the concerned parties especially the government to further improve the life quality of rural community through better policy planning.



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

**PELANCONGAN LESTARI DAN KESELAMATAN TENAGA SEBAGAI  
ANTESEDEN KUALITI HIDUP MASYARAKAT TEMPATAN DI PULAU  
MABUL, MALAYSIA**

Oleh

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Pulau Mabul, Semporna, Sabah telah menerima peningkatan dalam jumlah pelawat dari dalam dan luar negara sejak tahun 2011. Pada masa yang sama usaha kerajaan Malaysia, seperti yang terangkum di dalam Rancangan Malaysia ke-11 untuk mencapai penambahbaikan mampan di dalam kualiti kehidupan rakyat, pembangunan lestari untuk industri pelancongan dan keselamatan tenaga harus digembelngkan. Sejak kebelakangan ini, Pelan Ekopelancongan (DEB) 2016-2025 juga menumpukan perhatian kepada kepentingan kajian sains sosial terutamanya terhadap pembangunan komuniti tempatan. Tujuan kajian ini dijalankan adalah untuk mengenalpasti persepsi terhadap kualiti kehidupan oleh masyarakat luar pesisiran pantai dan kesedaran mereka mengenai impak pembangunan pelancongan lestari dan persepsi terhadap keselamatan tenaga. Secara khusus, objektif penyelidikan adalah: i) menentukan ciri-ciri sosio-demografi masyarakat di Pulau Mabul; ii) mengenalpasti persepsi komuniti Pulau Mabul mengenai kualiti kehidupan; iii) mengenalpasti faktor yang mempengaruhi persepsi terhadap kualiti kehidupan komuniti di Pulau Mabul. Temubual bersemuka dijalankan di kalangan masyarakat setempat yang tinggal di Pulau Mabul. Sejumlah 504 helai borang soal selidik diperolehi untuk analisis. Kajian ini mendapati bahawa persepsi komuniti Pulau Mabul tentang kualiti kehidupan adalah tinggi iaitu 4.5 berdasarkan skala Likert 5-mata. Kajian juga menunjukkan terdapat sebelas pemboleh ubah yang signifikan yang mempengaruhi kehidupan masyarakat di Pulau Mabul. Faktor-faktor tersebut termasuk kumpulan etnik (Suluk, Bajau dan Bajau Suluk) dengan nilai signifikan masing-masing sebanyak 0.768, 0.762 dan 0.814, jenis pekerjaan (servis pelancongan, pemilik perniagaan dan nelayan) dengan nilai signifikan masing-masing sebanyak -0.239, -0.176 dan -0.200, tahap pelajaran (buta huruf dan sekolah rendah) dengan nilai signifikan

masing-masing sebanyak -0.190 dan -0.212, persepsi tentang impak ekonomi pelancongan mampan dengan nilai signifikan sebanyak 0.063, persepsi tentang impak sosial pelancongan mampan dengan nilai signifikan sebanyak 0.123, dan persepsi terhadap keselamatan tenaga dengan nilai signifikan sebanyak 0.062. Beberapa cadangan telah diketengahkan dengan harapan penemuan semasa dapat meningkatkan kefahaman terhadap kepentingan pembangunan mampan untuk kualiti hidup, industri pelancongan dan juga pembangunan tenaga dengan ketara. Kajian ini juga berharap dapat membantu pihak-pihak berkenaan terutama kerajaan untuk meningkatkan lagi kualiti kehidupan masyarakat luar bandar melalui perancangan polisi yang lebih baik.



## ACKNOWLEDGEMENTS

First and foremost, I want to give praises and thanks to God for His blessings throughout the master research journey. The obstacles and challenges which occurred have made me tougher by learning from the experiences.

A deep and sincere gratitude goes to my supervisory committee, Professor Dr. Sridar Ramachandran as chairman, Professor Dr. Ahmad Shuib and Dr. Puvaneswaran Kunasekaran as members for giving me the opportunity to conduct the research and providing invaluable guidance throughout the journey. To them, my gratitude and appreciation for their mentorship, knowledge and patience to complete this study.

I would also like to express my special thanks to University Putra Malaysia under Geran Universiti Putra (GUP) Ref. No.: GP-IPS/2017/9539300 for funding this research. Indeed, the funding contributed significantly to the research.

On top of that, I am extremely grateful to have my family members and friends who are always there for me whenever I need them. Their continuous courage and patience be with me all the time.

Not to forget to express my thanks to the stakeholders on Mabul Island.

- (i) The research's respondents, local community who spent their precious time during the research data collection.
- (ii) Translators Mael and Ameng who offered their helps sincerely.
- (iii) Local authority who gave us convenience to conduct the research and providing the statistical data.

This study is not a one-man undertaking. All of you counts. Your support means the most to me. Without you all, this journey won't become such wonderful.



This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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## Declaration by Members of Supervisory Committee

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- the research conducted and the writing of this thesis was under our supervision;
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## LIST OF ABBREVIATIONS

BUSO	bottom-up spill-over theory
EE	Energy efficiency
EMP	Eleventh Malaysia Plan
KeTTHA	Ministry of Energy, Green Technology and Water <i>Kementerian Tenaga, Teknologi Hijau dan Air</i>
NEP	National Ecotourism Plan
QoL	Quality of Life
RE	Renewable energy
SD	Sustainable development
SDG	Sustainable Development Goals
SEDA	Sustainable Energy Development Authority Malaysia
UN	United Nation



# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

Population growth, urbanisation acceleration and economic expansion placed pressure on the earth resources. Moreover, the scarcity of resources and overexploitation of them make the efforts to promote sustainable economic growth and to reduce poverty more challenging. Researches have been studying issues relating to the sustainability of resources. At the global perspective, international recognised organisation, United Nations has been focusing on human development and improving people Quality of life (QoL) throughout the years. Programs for human access to achieve mental, physical and social well-being are always given priority by United Nations. These include accessibility to safe drinking water, sufficient, affordable and nutritious food, sustainable energy, and sustainable use of resources. Therefore, in September 2015, there is adoption of 2030 Agenda for Sustainable Development which aimed at reducing vulnerability, increasing resilience and hence achieving an inclusive and sustainable development for the world (United Nations, 2015).

In the new agenda, 17 Sustainable Development Goals officially announced and the United Nations member countries have adopted the policy on Sustainable Development Goal (SDG) (United Nations, 2015). As a guide, there are 17 integrated and indivisible Sustainable Development Goals and targets (United Nations, 2015). Specifically, this study highlighted goal 3, 7, 11 and 14. Goal 3 is to ensure healthy lives and promote well-being for all at all ages while goal 7 to ensure access to affordable, reliable, sustainable and modern energy for all (United Nations, 2015). Goal 11 aimed to make cities and human settlements inclusive, safe, resilient and sustainable whereas goal 14 to conserve and sustainably use the oceans, seas and marine resources for sustainable development. Goal 3 and 11 related to the dependent variable, QoL in this study. Meanwhile, goal 7 and 14 related to the independent variable, energy security and sustainable tourism.

At national level, Malaysia as one member of United Nations, has adopted the SDGs above. The obvious efforts of Malaysia government in improving well-being of people can be seen from Vision 2020 to the Eleventh Malaysia Plan. In Eleventh Malaysia Plan for the year 2016 to 2020, the government is focusing on programs that deliver high impacts on capital and people economies without increasing too much expenditure to the government (Economic Planning Unit, 2015). The strategy is affiliated to the 17 Sustainable Development Goals (SDG) announced by United Nations General Assembly on 25 September 2015. In addition, the government formulates the Malaysian National Policy on Climate Change (2009) which is intended to ensure climate-resilient development to achieve the national aspirations for sustainability. Among the key objectives of the policy is to focus on climate change challenges by strengthening

economic competitiveness, managing resources wisely, conserving the environment and enhancing the QoL for sustainable development (Ministry of Natural Resources and Environment Malaysia, 2010).

## **1.2 Overview of Quality of Life (QoL)**

QoL has been defined based on the degree of excellence or satisfactory character of life (Szalai, 1980). QoL is a multidisciplinary concept which has been used by researchers in various field of studies such as health and medical care (Hörnquist, 1989), social science specifically in tourism (Uysal, Sirgy, Woo & Kim, 2016), work place employees (Davey & Rato 2014) and environmental management discipline (Awang, Shah, & Aiyub, 2008). A number of researchers have recognised the interrelation between QoL, sustainability and tourism activities (Uysal et al., 2016). Tourism researchers agree that if tourism is able to contribute to the enhancement of QoL of all stakeholders, then there will be long-term successes, sustainability and competitiveness for the industry (Uysal et al., 2016). One of the objectives of any development of the tourism activities is in improvement of tourists' QoL, nonetheless, the QoL of employees of tourism services and local communities should not be neglected as in segment of the fully functioning tourism system (Uysal et al., 2016).

## **1.3 Overview of Tourism in Malaysia**

According to UNWTO Secretary-General Zurab Pololikashvili in United Nation World Tourism Organization (2019), newly growth in tourism industry assured that it is the most powerful drivers of economic growth and development. Scholars also have identified that island has the natural resources which generates great source of income from tourism industry for the community in the island (Ng, Chia, Ho & Ramachandran, 2017). Thus, there is a need to manage this industry in a sustainable way and make sure the real benefits reached the local communities, especially creating job opportunities and entrepreneurship (United Nation World Tourism Organization, 2019). In the past decade, tourism has an annual growth rate of approximately 5 per cent. Until 2020, the number of international travels has doubled compared to 2006 (Ecological Tourism in Europe, 2009). These made tourism as one of the fastest growing industries. In terms of international trade ranking, tourism industry is placed 6<sup>th</sup> after trade in fossil fuels, telecommunication and computer equipment, automotive products, and agriculture. Moreover, in 2007, statistics showed that receipts from tourism and travel services amounted to nearly 3 billion US Dollar per day (Ecological Tourism in Europe, 2009). Tourism is playing a significant role in world's economic activity too. It is among the main creation of employment and major source of foreign exchange earnings for numerous developing countries. (Ecological Tourism in Europe, 2009).

According to World Travel & Tourism Council (2019), travel and tourism sector contributed 10.4% to global gross domestic product (GDP) in 2018. Moreover, 319 million jobs or 10% of total global employment in 2018 are supported by travel and tourism industry in the same year (World Travel & Tourism Council, 2019). In Malaysia, tourism industry has been recognised as a key driver among the services sector. The latest tourism satellite account 2018 revealed that significant contribution of tourism

industry to Malaysia's economy was improved from 14.6% in 2017 to 15.2% in 2018 (Department of Statistic Malaysia, 2019). Moreover, value added of tourism industry achieved RM220.6 billion in 2018 compared to RM200.4 billion in 2017 with a growth rate at 10% (Department of Statistic Malaysia, 2019). According to Tourism Malaysia (2018), Malaysia has received 25.8 million tourist arrivals and they contributed RM84.1 billion receipts to Malaysia in 2018. Meanwhile, the Deputy Chief Minister cum Minister of Tourism, Culture and Environment of Sabah reported that the state tourism industry marked its highest receipts in history at RM8.342 billion in 2018 (Borneo Post Online, 2019, March 26). In Table 1.1 below, although tourist arrivals are increasing in general from 2009 to 2018, nevertheless, there are some fluctuations from year 2014 to 2018. Whereas the receipt figure is increasing in overall (Table 1.1). The growth in tourism indeed contributes positively to the country's economic development and QoL of people (Tourism Malaysia, 2018).

**Table 1.1: Tourist Arrivals and Receipts to Malaysia**

<b>Year</b>	<b>Arrivals (Million)</b>	<b>Receipts (RM billion)</b>
2009	23.65	53.4
2010	24.58	56.5
2011	24.71	58.3
2012	25.03	60.6
2013	25.72	65.4
2014	27.44	72.0
2015	25.72	69.1
2016	26.76	82.1
2017	25.95	82.1
2018	25.83	84.1

(Source: Tourism Malaysia, 2018)

Tourism can bring profitable revenue but at the same time may have negative physical and cultural impacts to the destination. The development of the tourism activities or business, may produce undesired effects on the natural resources if the development is done intensively. As most natural resources and biodiversity are fragile, they can be easily depleted if there is a lack of proper management or an over consumption in tourism development. However, with a well-managed tourism development and a sustainable consumption of the natural resources, tourism can bring a significant contribution to the regional development (Ecological Tourism in Europe, 2009). Hence, sustainable use of natural resources is always being highlighted in the United Nations' programs. For a well-managed tourism must include all parts of tourism business at all levels from international tour operator to small pension owners, the efforts to make tourism more sustainable are totally crucial.

Several important agenda at international level efforts towards sustainability in tourism have been formulated over the years as listed in the Table 1.2 below.

**Table 1.2: Important Agenda at International Level Efforts towards Sustainability in Tourism**

<b>Year</b>	<b>Agenda</b>	<b>Highlights</b>
1999	The Commission for Sustainable Development adopted Decision 7/3 on tourism and sustainable development at its 7 <sup>th</sup> session in New York.	Adopted an international work programme on sustainable tourism development and an invitation to the Convention on Biological Diversity (CBD).
2002	World Summit on Sustainable Development in Rio de Janeiro	Importance of sustainable tourism development.
2002	Implementation of “The Quebec Declaration”	Bringing of different views by NGOs and tourism industry into line in accordance with sustainable tourism.
2004	Establishment of the “International Guidelines for Biological Diversity and Tourism Development”	Involvement of key stakeholders in tourism, conservation, economy and politics in the region and should be completed through a participatory process, which should primarily include the local population.
2006	Establishment of agreement named “Marrakesh Task Force Sustainable Tourism”	Implementation of actions that promote sustainable tourism.
2008	3 <sup>rd</sup> International Conference on Sustainable Tourism in Malta	Conference topics in: <ul style="list-style-type: none"> <li>• Tourism strategies</li> <li>• Tourism impact</li> <li>• Rural tourism</li> <li>• Community involvement</li> <li>• Tourism and protected areas</li> <li>• Tourism as a factor of development</li> <li>• Climate change and tourism</li> </ul>
2010	4 <sup>th</sup> International Conference on Sustainable Tourism in New Forest	Conference topics in: <ul style="list-style-type: none"> <li>• Tourism strategies</li> <li>• Modelling</li> <li>• Emergent strategies for tourism development</li> <li>• Art, architecture and culture</li> <li>• Rural tourism</li> <li>• Environmental issues</li> <li>• Tourism impact</li> <li>• Tourism and protected areas</li> <li>• Climate change and the effects of natural hazards on tourism</li> <li>• Tourism as a tool of development</li> </ul>

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		<ul style="list-style-type: none"> <li>• Community involvement</li> </ul>
2014	Introduction of People Award by World Travel & Tourism Council	Recognition of people are critical for sustainable future. Through this award to motivate awareness of initiatives (encourage people to work and training them relevantly in tourism) which lead the way to open up this sector to new workforce.
2016	Introduction of Environment Award by World Travel & Tourism Council	Addressing climate change as compulsory for any credible sustainable tourism programme
2016	Introduction of Innovation Award by World Travel & Tourism Council	Backed up by measurement and monitoring to achieve sustainability goal and rise the standards.
2017	Designation as the International Year of “Sustainable Tourism for Development”	Identification of sustainable tourism as a crucial component to achieve Sustainable Development Goals (SDGs) 8, 12 and 14 and 2030 Agenda for Sustainable development.

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Adapted from Ecological Tourism in Europe (2009); World bank Group (2017); World Travel & Tourism Council (2016); Wessex Institute (2008); Wessex Institute (2010).

In Malaysia, the government has also made initiatives to achieve sustainable tourism. The major efforts can be seen through the development of National Ecotourism Plan (NEP) since 1996. In the latest National Ecotourism Plan 2016-2025, strategies and actions have been formulated to accomplish an overall sustainable development of the economy while focusing on the conservation of ecotourism sites in the country. In the NEP 2016-2025, success and shortcomings in the implementation of the National Ecotourism Plan 1996 are assessed in order to reformulate policies, strategies and action plans to improve the planning, sustainable management, conservation, financing, promotion and operation of ecotourism sites in the country.

#### 1.4 Energy Security

According to Sarfaraz et al. (2015), energy is among the necessary human requirements that is affected by the development of tourism industry. The World Bank Group (2005) justifies that although there are different definitions of energy security across the countries, all countries share a common interest which is to produce and consume energy at a reasonable cost and sustainable way. The availability of energy at a reasonable cost will facilitate economic growth which will lead to poverty reduction and thus improves the peoples’ quality of lives by increasing their accessibility to modern energy services. In the study by Shyu (2014), the definition of access to electricity for the poor includes the elements of affordability, reliability and sustainability. Shyu (2014) further reinforces

that when providing the minimum amount of electricity to the poor, six categories of basic human needs for energy services must be acknowledged first. The six categories are lighting, space heating, cooling, cooking and water heating, information and communication, and earning a living. The definition of energy security is then supported by Krishnan (2016) who emphasizes that all people and activities must have access to clean and affordable energy when they need it.

Two main issues have been highlighted by the World Bank Group (2005) as a consequence of using fossil fuels to provide energy; these are related to the increasing threat of global warming and the lack of access to clean, healthy, and affordable electricity among the poorest world community. Thus, the World Bank Group (2005) places further emphasis into addressing on the significant number of the poorest and most vulnerable community which do not have access to affordable energy. In Malaysia, the issues relating to the affordability or reliability of supply at affordable prices to tourism destinations, the Ministry of Renewable Energy and Public Utilities (2009) has reinforced that tourism sectors need constant and high-quality electricity supply to enhance the economic growth.

Nevertheless, energy sector is symmetrically related to climate change. The demand for energy is highly dependent on the climate change effects. However, climate change also brings vulnerabilities to the energy sector (Schaeffer et al., 2012). To reduce energy vulnerability, formulation of strategies for energy sustainability are reinforced in the world development policy such as United Nations 17 Sustainable Development Goals, of which the 7<sup>th</sup> goal is concerned with affordable and clean energy. In response to UN 17 Sustainable Development Goals, the Malaysian government, formulated the Malaysian National Policy on Climate Change (2009) and the National Renewable Energy Policy (2009). These are policies to boost the utilisation of indigenous renewable energy (RE) resources by contributing towards national electricity supply security and sustainable socioeconomic development through the creation of new industry and job opportunities (Sustainable Energy Development Authority Malaysia, 2017).

Furthermore, to facilitate growth of RE industry and to ensure a reasonable RE generation costs, the policies also aimed at enhancing awareness on the role and importance of RE. Hence, Renewable Energy Act 2011 (Act 725) and Sustainable Energy Development Authority (SEDA) Act (Act 726) are launched. Tourism development is recognized as a means to produce a close connection between renewable energy and sustainable development especially if a sustainable tourism development can be achieved (Sarfaraz et al., 2015). Besides, energy has been consented as a vital component in economic and social development (Sarfaraz et al., 2015). Accordingly, the energy policy must be constantly reviewed by the government and tourism authorities to ensure the long-term reliability and security of energy supply in order to guarantee energy resources' sustainability, both non-renewable and renewable (Sarfaraz et al., 2015).

## 1.5 Mabul Island

According to Mr. Bianus Kontong who is the Assistant District Officer of Semporna cited in WWF Malaysia (2008):

‘Semporna was identified as a Tourism and Marine Industry Zone in the Sabah Development Corridor blueprint. Tourism is an important feature in Semporna and will continue to be a backbone for the area, with focus given to increase the attraction of this area among both local and international tourists’

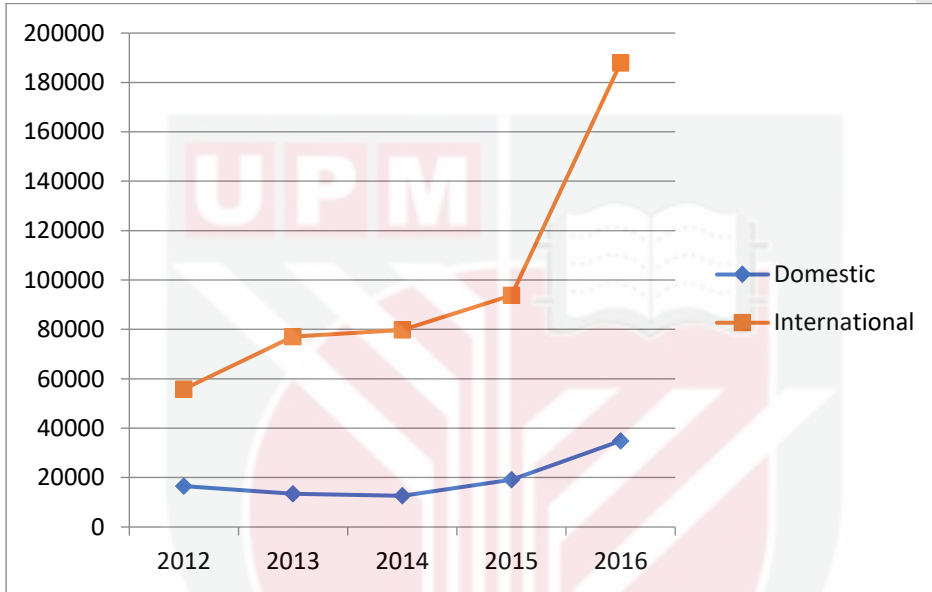
Mabul Island is a small island which has a total area of 20 hectares located in the southeast of Sabah (Jabil & Abdul, 2010). It is one of the 50 surrounding islands within Semporna District (Leem, Kassem & Sumampouw, 2012). Mabul Island has received the most attention as it is located close to the Sipadan Island (approximately 15 to 30 km), which is a renowned tourism destination among scuba diving enthusiasts and is the base for most tourism operators (Jabil & Abdul, 2010; Leem, Kassem & Sumampouw, 2012; Rozelee, Rahman, & Omar, 2015; Zhang, Chung & Qiu, 2016). Mabul also situated within the Coral Triangle, which is an area with the highest coral diversity (Zhang, Chung, & Qiu, 2016). This makes the island an important international tourist destination as a transit point to diving exploration to Sipadan Island which has become a popular tourist destination for muck diving (Zhang, Chung, & Qiu, 2016). Muck diving is a term to describe limited visibility dives at shallow sites. Thus, the main tourists’ activities are snorkelling and diving (Jabil & Abdul, 2010).

The majority of the communities on the island are the Bajau and Suluk, while the Bajau-Suluk emanates from intermarriages, and they are Muslims (Jabil et. Al, 2015). Although Norhaya and Amran (2015) have identified that the Suluk community is the largest community as they form 60% of the total population. The communities in the Mabul Island are living with their strong cultural way of life based their rural traditions (Norhaya & Amran, 2015). Jabil et. Al (2015) also have found that the main income of the communities comes from fishing activities although some are doing business in Semporna Town or operating small-scale businesses in the village. Nevertheless, Norhaya and Amran (2015) have added that the communities in the island cannot break the chain of poverty due to nationality issues and low awareness on the importance of education.

Table 1.3 and Figure 1.1 reveal that domestic and international visitors to Semporna have tripled within five years. The figures indicate a drastic increase of incoming visitors which means tourism development may create impacts, both positive and negative on the community living on the island. Furthermore, as Carlsen & Butler (Eds.), 2011) argue that the impacts of tourism development in island destinations are more severe as a result of combined impacts of economic, environmental and social change accelerate in the future which put more pressure on the tourism destinations. Hence, it is important to understand the process of island tourism development and the journey to sustainability. Therefore, it crucial to know the impacts of the tourism development especially in Mabul Island which is an offshore island with very limited natural land resources.

**Table 1.3: Tourism Statistics at Semporna Jetty, Sabah**

	2012	2013	2014	2015	2016
<b>Domestic</b>	16622	13504	12626	19119	34869
<b>International</b>	55857	77058	79763	93738	187870
<b>Total</b>	72479	90562	92389	112857	222739



**Figure 1.1: Tourist arrivals at Semporna Jetty, Sabah**

## 1.6 Problem Statement

This study is conducted based on justification of both the past literature gap and real issues related to the study area. The selection of Mabul Island as the study site is in view of the fact that it is one of the proposed 60 ecotourism clusters in the Malaysia National Ecotourism Plan (NEP) 2016-2025 in view of its superb natural resources (Ministry of Tourism and Culture Malaysia, 2016). Besides, the plan has also been giving more attention to the importance of social science studies especially in relation to local community development.

The communities in the Mabul Island are directly or indirectly contributing to the tourism sector and the local economy of Semporna. The fishermen in island supply live reef fish and other marine products to the seafood restaurants; and tourism facilities and services established in Mabul have been advertised to make the island as one of the tourist attractions in the country (Chuah, 2016). Yet, the communities in Mabul are not receiving appropriate amount of attention in terms of development from the government because the population density of the island is still below the national density of 96 people per sq.



km (World Bank Group, 2019). Thus, basic infrastructure and services including the supply of electricity are always in a poor condition. This is supported by the findings of Norhaya and Amran (2015) in which the Suluk and Bajau communities on Mabul Island do not have supplies of electricity power and clean water although the tourism is highly developed on the island. Most of them are poor and do not have identification card to get access to jobs; even if they manage to get jobs, they usually get salaries below the minimum rate. Besides, information on the attitude and behaviour of the communities towards tourism must be analysed because it is the foundation for successful and sustainable tourism development (Norhaya & Amran, 2015). Therefore, the perception of the communities in Mabul on their life quality is essential to be determined.

As the number of tourist arrivals increases, the potential for competition between visitors and community for the consumption of scarce energy resources that are available in an off shore tourism destination island like Mabul will cause significant effects on the livelihood of the community. Questions about the problems brought about by the tourism development in Mabul have been raised; Norhaya and Amran (2015) have even concluded that the communities in Mabul are beginning to feel the pressure for their survival. Consequently, the resource depletion could damage the availability and quality of the resources which will then cause negative effects on the tourism industry (reduction in tourist arrivals and expenditures). In addition, the tourism destination will lose its attraction which will deteriorate the community well-being (World Travel Organization, 2004). A recent study has confirmed that increasing visitors can cause uncontrollable usage of marine resources which will lead to downgrading of the tourism industry (Nurasilah, 2016). Since Mabul Island is among the 60 ecotourism clusters in NEP 2016-2025, hence the island has to work towards sustainable tourism goal too.

Mabul is located 31.4 km away from the mainland of Semporna, the island has no electric power transmission network and has limited supply of renewable solar energy which the only solar energy project located at the Mabul Island police station. Moreover, the communities in the island are still depending almost totally on diesel generators for electrical power supplies which is non-environmentally friendly and costly (Das, Tan, Yatim, & Lau, 2017). Yet, the electricity supplies are only provided beginning at sun set and only last throughout the night. The diesel fuel required for the generators to generate electricity has to be imported from Semporna. The fuel cost is shared among those families who consume the electricity and it is not considered affordable for all families. Among some members of the communities especially the poverty-stricken Bajau community, there are families who cannot afford to even have the basic necessities of clean water and electricity (Norhaya & Amran, 2015; Chuah, 2016).

In terms of the definition of energy security, in Mabul there is no continuous energy supply and energy efficiency. In the context of Maslow hierarchy needs, basic physiological needs have to be satisfied before going for the next level of needs. The basic physiological needs have previously included water, food, heat and sex; however, Gopinath and Meher (2018) has claimed that electricity should be considered also as one of the human basic needs on earth because energy or electricity are necessary for heat, food and water processing. The communities in Mabul are oblivious to the possibilities of shortage of energy since they are not entirely dependent of energy supplies from the government, furthermore they are living with the minimum supply of electricity. For the

communities to become knowledgeable about the importance of sustainable energy and their vulnerability in energy usage, it is necessary to determine the level of their perception on the concept of energy security. As an alternative to the present method of supplying power, use of renewable energy sources could be enhanced. However, before the provision of renewable energy, the local communities should be made aware or educated on the importance of the alternative sources of energy which will cause fewer negative impacts to the environment.

The communities should be made aware of the relationships of ecotourism, their economy, generation of income and thus the improvement of their standard of living. However, Mabul Island communities have realized that outsiders, especially Chinese entrepreneurs and local politicians are gaining most of the benefits from tourism industry (Siti & Radieah, 2017). Hence, this study is also aimed at finding the reality, that is, how far the benefits of ecotourism development have affected the perceived QoL of Mabul communities. So far several social science studies conducted specifically in Mabul were on issues of stateless Bajau Laut community (Ali, 2010), impacts of diving tourism to fishing community (Jabil, Mohamad, Rosmiza & Mazdi, 2015), impacts of tourism development on social identity of local communities (Norhaya & Amran, 2015), challenges of ecotourism sector (Siti & Radieah, 2017), environmental tourism impacts of tourists (Rozelee, Rahman, & Omar, 2015). Studies relating to perception on QoL of local communities with respect to sustainable tourism in Mabul are still scarce. Although competition of demands for natural resources has been acknowledged (Brunt, 2013), studies of security of energy issues in Mabul Island are still lacking among researchers.

Therefore, this study is conducted to bridge the research gap on impacts of sustainable tourism on QoL among communities in Mabul Island by including the component of energy security. Since socio-economic factors have been found to be positively correlated with respondent's knowledge about energy and environmental issues (Sovacool, 2016), in the present study the influence of socio-demographic characteristics will be identified as well.

## **1.7 Research Questions**

As Mabul Island becomes renowned tourism island destination in the world, it is important to determine the effects of tourism development and utilization of energy resources on the QoL of the local communities. The welfare of local communities on the island who share their living environment with the tourists cannot be taken for granted too. Thus, this study aims at articulating the links of the communities' perceived QoL to perceived sustainable tourism impacts and perceived energy security. Hence, the study comprises of the following research questions:

1. What are the different socio-demographic characteristics of the local communities in Mabul Island?
2. How do the local communities perceive their overall QoL, sustainable tourism impacts and energy security?
3. What are the factors relating to the socio demographic characteristics, perceived sustainable tourism impacts and perceived energy security that have influences on the local community's perception of QoL?

## **1.8 Research Objectives**

The general objective of this study is to comprehend the significance relationships of awareness on sustainable tourism, energy security and perceived QoL for the local communities in Mabul Island. Therefore, the specific objectives are:

- i. To determine the socio-demographic characteristics of the communities in Mabul Island.
- ii. To determine the Mabul Island community's perception on overall QoL, sustainable tourism impacts and energy security.
- iii. To determine the significant factors among socio-demographic characteristics, perceived sustainable tourism impacts and perceived energy security influencing on perceived QoL among the communities in Mabul Island.

## **1.9 Significance of Study**

Perceived QoL is recognised as an abstract form of non-economic measure of values of tourism (Perdue, Tyrrell and Uysal, 2010). In terms of the practical contribution, the values found from this study are useful for the tourism management to achieve certain development goals. At the same time, the values can be viewed as a measure of the success of investments in tourism. This study is also conducted to enhance the knowledge and awareness of public and government about energy security specifically with respect to the availability, affordability and sustainability of supply of energy and the sustainability of tourism industry.

Since government planners have increasingly put attention to community's QoL in tourism planning and development, therefore, the study can be a reference for the government planners or policy makers while they are reviewing or making new policies, and taking actions to improve the current rural community well-being in Malaysia. Hence, it can facilitate towards the achievement of sustainability goals. Besides, community developers or organisations who are interested to contribute to the production of sustainable energy can utilise the results of this study. Hence, the local communities will be able to have a better lifestyle with a better energy distribution to them.

In terms of theoretical contribution, the study is also hoped to contribute to the existing body of knowledge in sustainable tourism, energy security and QoL studies in Malaysia. The newly developed scales for the indicators of energy security and sustainable tourism can be replicated by future researchers too. Instead of measuring only the impacts of sustainable tourism towards QoL of the community, this study has included an additional measurable variable which is the perception of energy security towards QoL of the community.

## **1.10 Operational Definition of Key Terms**

The operational definition of key terms which used within the scope of this study are explained as follows.

**Perceived QoL:** Perceived or perception speaks of the awareness, consciousness, knowledge and understanding of the local community. World Health Organisation (1997) defined QoL as

*“individuals’ perception of their position in life in the context of culture and value system where they live and in relation to their goals, expectation, standard and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, level of independence, social relationship, personal beliefs and their relationship to salient features of their environment.” (p.1)*

In this study, perceived QoL refers to subjective aspects of QoL such as happiness, life satisfaction, sense of overall well-being, standard of living and welfare of the local community (Bohnke, 2005).

**Sustainable Tourism:** Sustainable tourism in this study refer to the definition by UNWTO (2016) which is tourism that takes full account of its current and future economic impacts, social impacts and environmental impacts, addressing the needs of host communities, industry, visitors, and environment.

**Energy Security:** Scope of energy security in this study refers to sustainable energy supply in terms of availability, affordability, accessibility, and acceptability (Cox, 2016; Sovacool, 2011; Sovacool 2016 and Sovacool & Brown, 2010).

**Local Community:** Generally, local community are described as a group of people with a common identity living within the same geographic area and who may be involved in related aspects of livelihood. For the purpose of this study, local community refers to villagers who live in Mabul Island with some common interests and shared cultures. They have a strong bonding with the island either culturally, socially, economically or spiritually (Borrini, 1992, cited in Borrini, Kothari & Oviedo, 2004).

### 1.11 Organisation of Thesis

This thesis is organised into five chapters. The first chapter is mainly for the background and preview to the research, reasons the research need to be conducted refer to the literature and practical gap, the objectives, and the contribution of the research. The second chapter is followed by a comprehensive literature review or past studies related to the variables concerned in the thesis. The theoretical background of the research is included here. Next, the third chapter is methodology which contains information such as study area, questionnaire constructs, data collection methods, and measurements of data. Then, fourth chapter of the thesis presents the research findings and discussion. These findings are compared and discussed with previous findings. The last chapter is regarding the summarisation of the findings and recommendation for further work.

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