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**EVALUATING THE ECOTOURISM SUSTAINABILITY OF
LANGKAWI ISLAND, MALAYSIA: A COMMUNITY-
RESOURCE ADMINISTRATOR PERSPECTIVE**



RAZIEH ABEDI

**MASTER OF TOURISM MANAGEMENT
UNIVERSITI UTARA MALAYSIA
2024**

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LANGKAWI ISLAND, MALAYSIA: A COMMUNITY-
RESOURCE ADMINISTRATOR PERSPECTIVE**



RAZIEH ABEDI (826036)

UUM
Universiti Utara Malaysia

**A thesis submitted to the Ghazalie Shafie Graduate School of Government in
the fulfilment of the requirement for the Master of Tourism Management
Universiti Utara Malaysia**



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Pemeriksa Dalam : **DR. AMIRUL HUSNI AFFIUDDIN** Tandatangan (Signature)

Tarikh : **11 DISEMBER 2023**
Date

Nama Pelajar : RAZIEH ABEDI (826036)
(Name of Student)

Tajuk Tesis : EVALUATING THE ECOTOURISM SUSTAINABILITY OF LANGKAWI
(Title of the Thesis) ISLAND, MALAYSIA: A COMMUNITY-RESOURCE ADMINISTRATOR
PERSPECTIVE

Program Pengajian : MASTER OF SCIENCE (TOURISM MANAGEMENT)
(Programme of Study)

Penyelia Pertama : DR. MUNA MARYAM Tandatangan
(First Supervisor) AZMY (Signature)

Penyelia Kedua : DR. GELAREH Tandatangan
(Second Supervisor) ABOOALI (Signature)


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ABSTRAK

Ekopelancongan merupakan bentuk pelancongan yang pesat dan lestari, dan menawarkan faedah sosial, alam sekitar, serta ekonomi. Walaubagaimanapun, bagi memastikan kelestarian ekopelancongan, adalah penting untuk menilai dan mengatasi isu-isu berpotensi seperti degradasi alam sekitar, impak budaya, dan jurang ekonomi. Kajian ini bertujuan untuk mengisi jurang literatur dengan mengkaji pandangan penduduk tempatan dan penduduk asing di Pulau Langkawi, Malaysia, berkenaan kelestarian ekopelancongan. Dengan menimbangtara pandangan pihak berkepentingan iaitu pentadbir sumber, penduduk tempatan, dan penduduk asing, kajian ini menggunakan kerangka hubungan pihak berkepentingan dan kelestarian untuk menilai dimensi alam sekitar, ekonomi, dan sosio-budaya ekopelancongan. Secara keseluruhan terdapat potensi kelestarian ekopelancongan di Pulau Langkawi. Dapatan kajian mendapati kelestarian sosio-budaya adalah kuat, manakala kelestarian ekonomi adalah rendah. Kelestarian alam sekitar berada dalam julat berpotensi lestari. Kajian ini juga menganalisis tahap kelestarian bagi setiap hubungan pihak berkepentingan. Dari segi tahap kelestarian setiap hubungan pihak berkepentingan, pengaruh penduduk tempatan terhadap pentadbir sumber mencapai tahap kelestarian tertinggi, diikuti oleh pengaruh penduduk asing terhadap pentadbir sumber. Pengaruh pentadbir sumber terhadap penduduk tempatan dan terhadap penduduk asing menunjukkan tahap kelestarian yang berbeza. Keputusan ini menekankan kepentingan interaksi antara pihak berkepentingan dan pengaruh mereka terhadap kelestarian ekopelancongan. Implikasi teoretikal kajian ini menyumbang kepada naratif ekopelancongan dari segi aplikasi kerangka kelestarian, interaksi pihak berkepentingan, dimensi kelestarian, dan kepentingan melibatkan penduduk tempatan dan penduduk asing untuk mencapai matlamat kelestarian. Kajian ini meningkatkan pemahaman mengenai faktor-faktor yang mempengaruhi kelestarian dan memberi pandangan kepada pembuat dasar, pentadbir, dan pihak berkepentingan yang terlibat dalam amalan ekopelancongan lestari. Dengan menggalakkan kerjasama dan mengurangkan impak negatif, pandangan-pandangan ini menyumbang kepada pembangunan ekopelancongan lestari secara keseluruhan di Pulau Langkawi.

Kata Kunci: Kelestarian, Ekopelancongan, Pihak Berkepentingan Ekopelancongan, Langkawi

ABSTRACT

Ecotourism is a rapidly growing and sustainable form of tourism that offers social, environmental, and economic benefits. However, to ensure ecotourism sustainability, it is necessary to evaluate and address potential issues such as environmental degradation, cultural impact, and economic disparities. This study aims to fill a gap in the literature by examining the perspectives of local and foreign residents in Langkawi Island, Malaysia, regarding the sustainability of ecotourism. By considering the viewpoints of resource administrators, local residents, and foreign residents as key stakeholders, the study employs a stakeholder relationship-sustainability framework to assess the environmental, economic, and socio-cultural dimensions of ecotourism. Overall, Langkawi Island has the potential for ecotourism sustainability. This research found that socio-cultural sustainability is relatively strong, while economic sustainability is less favourable. Environmental sustainability falls within the potentially sustainable range. The study further analysed the sustainability levels within each stakeholder relationship. The effect of local residents on resource administrators achieved the highest sustainability level, followed by the effect of foreign residents on resource administrators. The effect of resource administrators on local residents and foreign residents showed varying levels of sustainability. These results highlight the importance of stakeholder interactions and its influence on ecotourism sustainability. The study's theoretical implications contribute to the narratives of ecotourism on the application of sustainability frameworks, stakeholder interactions, dimensions of sustainability, and the importance of involving local and foreign residents for achieving sustainability goals. The study enhances understanding of the factors influencing sustainability and provides insights for policymakers, administrators, and stakeholders involved in sustainable ecotourism practices. By fostering collaboration and minimizing negative impacts, these insights contribute to overall sustainable ecotourism development in Langkawi Island.

Keywords: Sustainability, Ecotourism, Ecotourism Stakeholders, Langkawi

ACKNOWLEDGEMENT

I am deeply grateful to those who have supported and guided me throughout my academic journey, making the completion of this thesis possible. Their unwavering encouragement, mentorship, and trust have been invaluable.

Foremost, my sincere appreciation goes to my dedicated supervisor, Dr. Muna Maryam Binti Azmy. Her profound guidance and continuous support have illuminated my path, allowing me to navigate the complexities of this journey with confidence. I am also grateful for the invaluable insights shared by Dr. Gelareh Abooali during her tenure at UUM, which have significantly contributed to the development of this work.

I extend my heartfelt gratitude to my family, especially my mother and my sister, whose unwavering beliefs in me have provided the foundation upon which I built this endeavour.

A special mention is reserved for my dearest friend, Dr. Rabiah Adawiah Binti Abu Seman, who has guided me through the challenges of academia and life in a foreign land. Her encouragement and unwavering friendship have been instrumental in shaping both my scholarly pursuits and personal growth.

I am humbled by the multitude of remarkable individuals who have played a role in this journey, directly and indirectly. To all those whose contributions have impacted this thesis in ways they may not even realize, I offer my heartfelt thanks.

In retrospect, the completion of this is a result of the harmonious blend of family, friends, kindness, and love. I dedicate this thesis to all those who have been a part of this remarkable journey.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter begins with section 1.2 providing the background and a summary of the main research conducted on the topic of ecotourism sustainability. Subsequently, section 1.3 moves on to outline the rationale and logic of this study by identifying the gaps in the relevant literature and underlying how this research will fill these gaps. Sections 1.4 and 1.5 introduce the questions of the study, as well as, the specific aim of this research and its supporting objectives, respectively. Next, sections 1.6 and 1.7 clarify the significance and scope of this research accordingly. Finally, the operational definitions of key terms used in this study will be presented at the end of this chapter.

1.2 Background of the Study

For several decades, tourism has developed to a large extent due to an ease of international movement around the globe (Arslanturk et al., 2011). According to the World Tourism Organization, the number of international tourists' visits worldwide escalated from 952 million in 2010 to 1461 million in 2019 (World Tourism Organization, 2020a), and the number of tourists arriving in Malaysia rose from 23.65 million in 2009 to 26.1 million in 2019 (Tourism Malaysia, 2021; World Tourism Organization, 2020b).

On one hand, tourism is a tactical industry, fascinated by businesses due to the fact that it creates advantages and profits for many in terms of economic and social development (Parra-López & Martínez-González, 2018). On the other hand, it can adversely affect a region by impacting natural resources and increasing pollution, changing consumption patterns, and socio-economic cultural heritage loss (Kostić & Jovanović Tončev, 2014; Lansing & De Vries, 2007; Lee & Syah, 2018; Maingi, 2019; Salleh et al. 2014). Consequently, in order to reduce the negative impacts and enhance positive impacts of tourism activities on the environment, society and economy, the concept of “sustainable tourism” has gained a lot of attention over the past few decades (Estêvão et al., 2019; Yadav et al., 2018). As it is a multiple-functional term, there is no broadly accepted definition for sustainability, thus, making sustainability research non-consistent and subjective (Moore et al. 2017). The World Tourism Organization defines sustainable tourism development as “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (World Tourism Organization, 2020c, “Sustainable Development” section, para. 1). This definition highlights the fact that sustainable tourism development is multi-dimensional, involving economic, social, and environmental aspects, and necessitating the incorporation of various stakeholders, who are present and future tourists, the government, and the community (World Tourism Organization, 2020c).

A number of approaches have been proposed for sustainable tourism development, one of which is ecotourism, a concept of development which focuses on sustainability (Ah et al., 2018). The International Ecotourism Society (TIES) defines ecotourism as “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” (The International

Ecotourism Society, 2019, “What is Ecotourism” section, para. 1). The present study, however, will adopt Björk’s (2000) definition for the concept of ecotourism because firstly, it encompasses the main elements of ecotourism identification developed in earlier studies and secondly, it incorporates main ecotourism stakeholders such as the government, the residents, and the private sector, the characteristic which is pertinent to this research. Björk (2000) defines ecotourism as “an activity where the authorities, the tourism industry, tourists and local people co-operate to make it possible for tourists to travel to genuine areas in order to admire, study and enjoy nature and culture in a way that does not exploit the resources, but contributes to sustainable development” (Björk, 2000, p. 196-197).

The varied ways in which ecotourism is defined indicate that this form of tourism is a multiplex concept involving incorporation of many players (stakeholders) such as the local community, human resource administrators, tourists, tour operators, etc. in order to achieve economic, socio-economic, and environmental objectives (Cobbinah, Black, & Thwaites, 2015; Courvisanos & Jain, 2006; Drumm & Moore, 2005). The underlying purposes of ecotourism are the preservation of natural areas, delivering high-quality travel experiences to tourists, boosting local economies, environmental education, and local enablement (Ross & Wall, 1999b). These seem to be in line with the principles of sustainable tourism development, which is basically the reason ecotourism is considered as one of the approaches towards sustainable tourism development (Khanra et al., 2021). However, to be a tool for the conservation of the natural habitats and species, ecotourism must be tackled with an evaluative perspective (Khanra et al., 2021). Evaluating ecotourism systematically can lead to a better understanding of its dynamics, in addition to a clearer identification of its strengths and weaknesses. Thus, as a consequence, it can contribute to the management,

planning, and decision-making of ecotourism (Khanra et al., 2021; Ross & Wall, 1999a).

As highlighted in the literature, the concept of sustainability in tourism is a multidimensional concept consisting of environmental, economic, social, and cultural aspects (Nijkamp, Soeteman & Bergh, 1990; Pulido-Fernández et al., 2015; Zhang, 2016). Ecotourism can have positive effects on the environment by enlarging forest areas, preserving biodiversity, expanding vegetation, and encouraging the use of renewable energy systems; on the economy by generating income directly and indirectly; on the society by keeping peace, harmony, and collaborative development of the society; and on culture by bringing cultural awareness and respect towards sensitivity of the host place with different customs (Anup et al., 2015; Mohd Noh et al., 2020). However, its fast-paced growth has potential risks, some of which are economic (unbalanced expansion, disproportional income, increasing cost of living), environmental (climate change, shortage of water and other natural resources, energy overconsumption, greenhouse gas emissions), and socio-cultural (sex tourism, human trafficking, endangered cultural and heritage values) (Azam et al., 2018), which necessitate its constant evaluation to make sure it is practiced in a sustainable manner (Khanra et al., 2021).

1.2.1 Stakeholders in Ecotourism and the Relationship-sustainability Framework

The process of sustainable tourism development is by nature the kind of planning and management that unifies the interests of different stakeholders involved in the tourism of a destination in a viable and calculated way (Vaso et al., 2013). Stakeholders, cooperation and involvement of whom are essential elements of success of the tourism industry, contribute to achieving the sustainability goals in tourism (Kasim, Yussuf &

Park, 2017; Ng et al., 2017; Robson & Robson, 1996). Byrd (2007) states that “without stakeholders’ involvement, the term sustainable development would just be a marketing slogan or, at best, a topic for theoretical debate”. When each stakeholder group contributes positively to other stakeholder groups in social, economic, and environmental aspects, sustainability can be fulfilled (Ng et al., 2017). Accordingly, the evaluation of sustainability from the viewpoints of stakeholder groups can be a good representative of the true status of the sustainability level of tourism and ecotourism of a site or destination (Salman et al., 2021). Based on the relationship-sustainability framework described in the following section, this study aims to evaluate Langkawi Island’s ecotourism sustainability from the realization of multiple stakeholders.

This study employs a framework which is grounded on the premise that ideal ecotourism develops synergistic relations between tourism, resource administrators, and local communities if managed properly; this conceptual framework is believed to address the gap between ecotourism theory in the literature and its implementation in practice (Ross & Wall, 1999a). Ecotourism is viewed as a potential tool to achieve sustainable development while conserving natural ecosystems (Salman et al., 2021). There have been many definitions of the term “ecotourism” in the literature; however, the actual circumstances under which it can be implemented, promoted, managed, and assessed are not clarified and are highly dependent on the site and stakeholders’ involvement (Khanra et al., 2021; Salman et al., 2021). Furthermore, although there is a considerable amount of literature which underlines the advantageous potentials of it, there is an increasing number of studies which mention and conclude that ecotourism of particular sites do not manage to meet the standards set by the definition of the term (Bhusal, 2007; Dangi & Gribb, 2018; KC et al., 2021; Musa et al., 2004; Poudel, 2014;

Ross & Wall, 1999a; ; Zhao & Jia, 2008). For example, although ecotourism supports the conservation of natural resources and local culture as well as women empowerment, it also can cause an increase in the price of basic goods and in the solid waste management problems, when the number of ecotourists grows (KC et al., 2021).

To rephrase, there is a noticeable gap between the theory of ecotourism and its (successful) practice (Courvisanos & Jain, 2006; Ross & Wall, 1999a). To address this gap, Ross and Wall (1999a) have developed a framework which can contribute to reaching an equilibrium between the sustainability and development by encouraging interactive and collaborative relations between resource administrators, the local community, and tourists. Moreover, Ross and Wall (1999a) believe that this conceptual framework can be utilised to evaluate the level of ecotourism in certain sites (Figure 1.1).

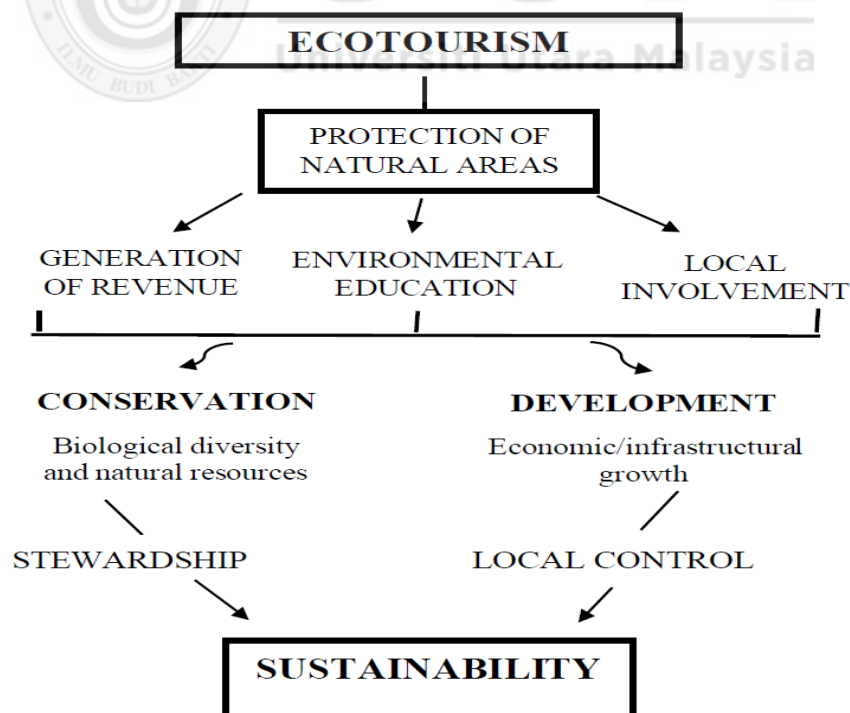


Figure 1.1 Ecotourism: An Effort for Sustainability. Taken from Ross and Wall (1999a)

Ross and Wall (1999a) believe that for successful ecotourism, resource administrators, visitors, and the local community collaborate in a synergistic manner (Figure 1.2).

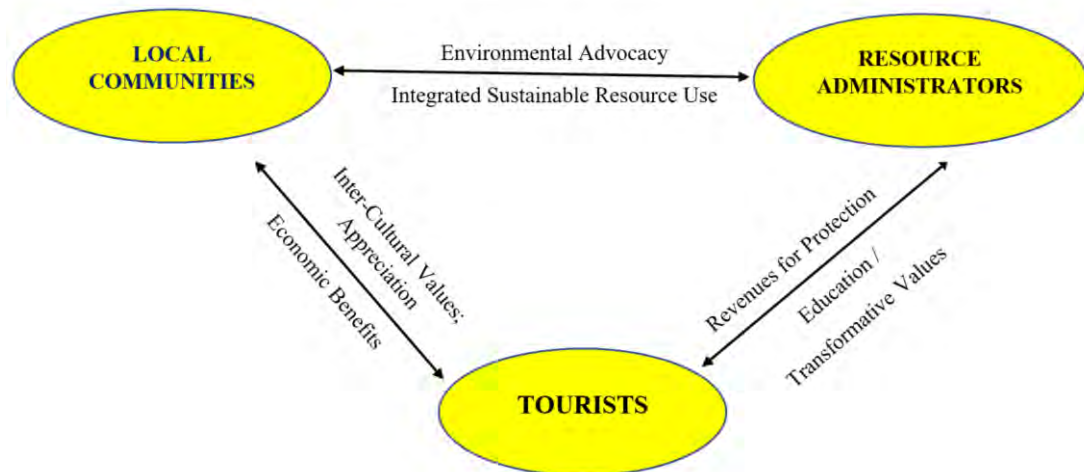


Figure 1.2 Relationship Sustainability Framework. Taken from Ross and Wall (1999a)

Ross and Wall (1999a) designed a set of indicators based on their proposed framework to evaluate the relationships between the three stakeholder groups in ecotourism sustainability, but their suggested indicators take into account only the viewpoints of researchers. To consider the perspectives of ecotourism stakeholders on this matter, this study uses the Sustainable Ecotourism Indicators System (SEIS) developed by Tsaur et al., Lin, & Lin (2006).

Quite a few studies have assessed the status of the ecotourism sustainability according to the contributions which each main stakeholder group makes to the others in this regard, using the relationship sustainability framework proposed by Ross and Wall (1999a) (Dwyer & Edwards, 2000; Ng. et al. 2017; Ross & Wall, 1999b; Stone & Wall, 2004; Tsaur et al., 2006; Setini et al., 2021).

1.3 Statement of the Problem

Langkawi is rich in spectacular natural resources which have made it attractive to tourists. Therefore, fostering positive impacts of tourism to guide Langkawi as sustainable ecotourism destination is of utmost importance (Kasim et al., 2017; Mohd Ismail et al., 2020). According to a study by Omar, Othman and Mohamed (2014), which was based on the Tourism Area Life Cycle (TALC) model by Butler (1980), Langkawi Island had begun to show signs of a stagnation stage as of 2012, which should be taken as a warning to maintain the sustainability of its ecotourism. Langkawi Development Authority (LADA) has been using the Langkawi Tourism Blueprint since 2012, as a guideline to meet the needs of tourism stakeholders and engage them in tourism to achieve a more sustainable tourism industry in the island (Langkawi Development Authority, 2021a).

Tourism has helped to revitalize the economy of the island in numerous ways such as employment opportunities, income generation, infrastructure development like accommodation, transportation, and hospitality products and services (Kasim et al., 2017; Salleh et al., 2014; Samat & Harun, 2013; Shamshiry et al., 2011). Despite these benefits, this growth has brought about some detrimental effects to the island such as the decrease of natural resources and increase in the amount of solid waste (Salleh et al., 2014; Samat & Harun, 2013; Shamshiry et al., 2011). For example, one site in Langkawi called Kilim Karst Geoforest Park (KKGFP), a historically noted ecotourism attraction, which presents nature enthusiasts with plenty of fascinating experiences, often encounters challenges of sustainable development and must be well-preserved and protected (Fauzi et al., 2017). According to Azman et al. (2011) and Khoshkam and Jaafar (2016), Kilim Karst Geoforest Park and the whole of Langkawi Geopark are exposed to two principal dangers, one of which is concerned with the carrying

capacity and ecology of ecotourism sites and the other, with the environmental degradation and pollution.

Therefore, the assessment of the sustainability level of Langkawi Geopark ecotourism is essential for its long-term survival as a tourist attraction and revenue-making source for the community (Shamshiry et al., 2011). This needs the collaboration and engagement of all the key stakeholders of the industry such as LADA, other governmental and non-governmental organizations, and the local community. When local communities in Langkawi are provided with education and knowledge of community capacity building, they tend to show more support and collaboration for tourism developmental plans (Ibrahim et al., 2019; Marzuki and Khoo, 2016).

For the community, LADA ensures that tourism infrastructure and improvement of community amenities have a positive effect on the community development (Langkawi Development Authority, 2021b). Projects such as “My Community Naturally Langkawi”, educational programs via Langkawi Tourism Academy and Geopark ambassadors, free educational courses provided for the local communities, tourism events like “The Ironman Malaysia Langkawi” are examples of the initiatives taken in this regard (LADA Annual Report, 2018). However, according to a study by Kasim et al. (2017), LADA faces challenges in the engagement of the stakeholders, such as a lack of power in monitoring the private lands, the uncertainty of the commitments and efforts by the locals, all of which necessitate the demand for more collaborative measures by the authorities.

Elfithri et al. (2021) provided a foundation for evaluating the sustainability of ecotourism by studying water and environmental sustainability in Langkawi,

employing a combination of qualitative and quantitative research methods. Chan et al. (2020) evaluated eco-tourism sustainability in Langkawi by examining the cultural and social aspects that underpin heritage conservation, using social network analysis methodology and theory. Isa et al. (2022) contributed to the evaluation of ecotourism sustainability by addressing awareness, education, and conservation initiatives at a specific ecotourism site in Langkawi by using qualitative research methods. Ab Rashid et al. (2021), studied ecotourism in Langkawi Island by employing a quantitative research methodology to evaluate the factors and effects of local community involvement in the ecotourism industry. Fauzi and Misni (2018), in a study on ecotourism in Langkawi, particularly within the Kilim Karst Geoforest Park, employed an in-depth professional and expert interview methodology to identify threat factors in Geopark areas. Such previous studies have certainly contributed to the evaluation of ecotourism sustainability in Langkawi Island. However, to further enhance the understanding of ecotourism sustainability in Langkawi Island, it is imperative to explore diverse stakeholder perspectives, thereby enriching the existing body of knowledge in ecotourism studies.

Nevertheless, there are several studies conducted on Langkawi Island which have considered the perceptions of the different stakeholders in regard to ecotourism and its impacts. For example, Marzuki and Khoo (2016) examined the strategies to empower the local community in tourism from the perspectives of different stakeholders. The study that involved government and non-governmental agencies, community leaders and tourism business operators concluded that related authorities and tourism planners need to consider local community's opinions to ensure maximum positive consequences of such strategies (Marzuki & Khoo, 2016). Their study focuses on the community capacity building programmes provided for the local community in

Langkawi such as Langkawi Tourism Academy. They discovered that, although these strategies for community capacity building were facilitating in improving the living standards of the local community, such strategies were not providing optimum results because they were being conducted mainly with the traditional top-down approach (Marzuki & Khoo, 2016).

Elfithri et al. (2018) used a multistakeholder approach to evaluate the perceptions of local government agencies, local authorities, private entities, non-governmental agencies, and the local community on the issues of water and environmental sustainability of Langkawi Island. They identified sewage discharge, solid waste management, lack of awareness, land clearing, forest area reduction, mangrove exploitation, water quality deterioration, and tourism and recreation activities as key issues in Langkawi geopark, which needed better management to ensure the sustainability of the destination. For instance, Langkawi municipal council is concerned about the increase in the amount of solid waste at a specific site, Kilim Karst Geoforest Park (Shamshiry et al., 2011). Another sustainability issue in Langkawi ecotourism is uncontrolled and immoderate tourism activities in Kilim Karst Geoforest Park (Ghani, 2020). For example, high speed boat tours have caused strong hits in the water which have been leading to noise pollution, the erosion of the mangrove riverbank as well as excessive accumulation of cadmium in Kilim River (Mansor et al., 2019; Mohd Fauzi et al., 2017; Nasher et al., 2013; Syarafina, Fauzi, & Misni, 2018). Another example is a shortage of expert guides on boat tours, cave tours and fish farms to inform and advise travellers and visitors so as not to damage the ecosystem (Fauzi et al., 2017; Ismail, 2019; Thompson et al., 2018). Furthermore, eagle and monkey feeding activities could weaken these animals' hunting abilities, and

bat cave tours imbalance the wildlife habitat of these animals (Fauzi et al., 2017; Ismail, 2019; Thompson et al., 2018).

Ng et al. (2017) believe since the involvement of stakeholders is essential in ensuring the future sustainability of a tourist destination, therefore, subjective indicators are preferable to objective ones in measuring the sustainability of tourism. Some studies in this field have also done this evaluation subjectively, but from the viewpoints of one stakeholder group (see for example, Ross & Wall, 1999b). Still, there are a few studies which have considered the concept of stakeholder relationship in evaluating the sustainability of an ecotourism site (see Ng et al., 2017 and Tsaur et al., 2006 for example), but they mainly used the outlooks of three groups of stakeholders who are resource administrators, local community, and tourists.

A few studies have examined the benefits and challenges of tourism to Langkawi Island from the perspectives of the local community (Azizan et al., 2020; Ibrahim et al., 2019; Padang et al., 2021). Padang et al. (2021) found that locals are only moderately aware of the notion of the Langkawi Geopark, and they believed the duty-free status of the island benefitted them more than the geopark. Locals thought of tourists as the main stakeholder group in the tourism development of the island, improving their well beings. Therefore, the study concluded that community empowerment should be strengthened as a strategy to increase their awareness of and benefit from the geopark. In a study by Azizan et al. (2020), residents were categorized according to their contacts with tourists into four groups which were extensive contact, partial contact, neutrally concerned with tourism, and no contact with tourism. They concluded that different resident groups showed different levels of awareness and acknowledgment of tourism impacts in Langkawi Island and therefore, specific socio-

cultural features of host residents should be considered in tourism studies (Azizan et al., 2020).

To sum up, the importance of community involvement in tourism activities and its positive effects towards achieving successful sustainable tourism development in Langkawi Island have been highlighted by quite a few studies (Azizan et al., 2020; Elfithri et al., 2018; Mohd Salleh et al., 2014; Ibrahim et al., 2019; Marzuki & Khoo, 2016; Padang et al., 2021). In most of these studies the sociodemographic characteristics of the community have been identified as potential influential factors in their involvement in tourism development (Azizan et al., 2020; Ibrahim et al., 2019). These characteristics mainly include age, length of residency on the island, race, gender, and educational backgrounds. However, foreign residents have hardly ever been included in the studies of community involvement in ecotourism in Langkawi, which is similar to a worldwide trend, and can be considered a gap in the literature given the rising number of them worldwide (Dutt et al., 2018).

Various sustainable environmental studies have included foreign community as one of the important stakeholders (González et al., 2019; Hannonen, 2018; Özyurt et al., 2018). Foreign residents in a destination have been identified with various terms like “residential tourists”, “second homeowners”, “lifestyle tourists”, “retirement tourists”, “migration tourists”, “expatriates” etc. according to their purpose in the destination (Abuhjeeleh et al., 2019; Bowen & Schouten, 2008; González et al., 2019; Hannonen, 2018; Honkanen et al., 2016; Özyurt et al., 2018; Salazar & Zhang, Y., 2013).

What all these groups have in common is that they choose non-hotel accommodations for their long stays (Honkanen et al., 2016; Müller, 2006). Second home or residential

tourists are different from other tourists in the sense that they develop strong emotional connections with their second home and the town where it is located and this makes them valuable and undeniable local agents in the destination (Honkanen et al., 2016). They also differ from tourists in the sense that they do not travel to discover new places or meet new people. Their daily routines, gardening for example, mainly include the ones which they would do in their first homes too. Therefore, residential tourists' activities lie halfway between the ones carried out by locals and by tourists (Hannonen, 2018; Müller, 2006).

Studies in the literature about this population group have either evaluated the economic, environmental, and socio-cultural impacts of this community on the host destination (Casado-Diaz, 1999; Gascón, 2016; Huete & Mantecón, 2012; Rico-Amoros et al., 2009), or the viewpoints of this community about the quality of life and their consumption patterns in the destination (Alarcón et al., 2010; Morote et al., 2017). In addition, the international immigrants who live in a country mainly for business purposes, generally known as expatriates, have the potential to have a key impact on improving the tourism industry of the host country (Abuhjeeleh et al., 2019; Dutt, Ninov & Haas, 2016; Tan et al., 2014), and influence visitors' evaluation and choice of a destination by word of mouth (Abdellatif et al., 2015; Özyurt et al., 2018). It has been noted in the literature that considering the viewpoints of this group can be eventually beneficial to the host community (Adu-Gyamfi & Shaw, 2021) because they were tourists before choosing a specific destination as their permanent residence (Bowen & Schouten, 2008; González et al., 2019; Ursinus, 2016). Thus, disregarding foreign residents leads to ignoring an important aspect of travel and tourism infrastructure behaviour (Back, 2020; Honkanen et al., 2016; Müller, 2006).

Ursinus (2016) examined the motivations of European residential tourists in Langkawi Island, and their experiences of the local culture, local development, and local government and institutions. His study found that European residents in Langkawi tend not to be integrated into the local community. Ease of communication with friends and families back home via the Internet as well as receiving regular visitors from their home country were mentioned as some causes of the lack of transnational identities between foreign residents and local residents in Langkawi (Ursinus, 2016). As a result, the international community in Langkawi have overlaps with both the local community and tourists as mentioned in the literature and may have quite different perceptions of the tourism sustainability than the other two groups (Bowen & Schouten, 2008; González et al., 2019; Honkanen et al., 2016; Ursinus, 2016).

A few studies have highlighted the fact that communities and residents are heterogeneous groups, and each of them have their own demographic, behavioural, and psychological attributes which affect their general understandings of tourism (Dutt et al., 2018; Sharpley, 2014). Bearing that in mind, a more detailed definition of the term “resident” will help towards a more subtle characterisation of their realisations and outlooks to tourism (see for example Šegota, Mihalič, & Kuščer, 2017). As it was mentioned in the previous section, this study will highlight the perspectives of key stakeholder groups on the ecotourism sustainability in Langkawi Island, using an adapted version of the relationship sustainability framework proposed by Ross and Wall (1999a), and the indicator set suggested by Tsaour et al. (2006). The key stakeholder groups surveyed in Tsaour et al.’s (2006) study are the local community, the visitors, and the resource administrators of a destination. However, in the present study, the residents are subcategorised into local and foreign populations as local residents have special rights and privileges which international residents do not

(Garbutt, 2011), so they are affected by tourism sustainability differently and can have quite different perceptions of it. On the other hand, studies have shown that foreign residents in a destination tend not to engage with local communities and they usually build their own territories separate from local communities. For example, in Langkawi, Malaysia, most foreign residents socialise with each other, which leads to an absence of social interaction with the local residents (Ursinus, 2016) (see also Fechter, 2016 and Lehmann, 2014 for examples of working expatriates; see McWatters, 2008; Noorloos, 2013; Truly, 2002 for instances of retired foreign immigrants), thus, they can have quite different mindsets about tourism and its sustainability aspects in the place of their residence.

Residents in a destination are not a homogenous group all having the same features or interests as mentioned in the literature, bringing about the necessity of categorising them into different groups of stakeholders, not only one (Garrod et al. 2012). Most research in this regard considers all residents as one stakeholder group, which may not be a true indicative of their viewpoints (Dutt et al., 2018). Even when they have been considered as heterogenous groups, they have been segmented into different groups, mostly based on their interests in and benefits from tourism, taking into account the principles of social exchange theory (Lundberg, 2015; Šegota et al., 2017). There is a limited amount of literature and empirical work carried out in this area which is the gap that this study is going to address.

This study seeks to fill gaps in our understanding of ecotourism sustainability in Langkawi Island using a new approach. Unlike previous research applying the relationship-sustainability theoretical framework by Ross and Wall (1999a) in various contexts, this study pioneers its use specifically in Langkawi's unique ecotourism

setting. While the framework has been used in assessing multiple stakeholders like tourists, administrators, and the local community in previous studies, those studies treated the local community as one undifferentiated group. In contrast, our study takes a novel approach by applying the framework and, for the first time, distinguishing local residents into two categories: local and foreign residents. This distinction is crucial for a more detailed understanding of diverse perspectives. By including the foreign residents as a significant stakeholder group, the study not only brings a fresh perspective but also aims to address crucial gaps in existing literature on ecotourism sustainability in Langkawi. The findings of this research have the potential to offer new insights for tourism management and contribute valuable information for planning ecotourism initiatives in the region.

1.4 Research Questions

This study addresses the following research questions:

1. What is the sustainability level of ecotourism in Langkawi Island?
2. What is the influence of each stakeholder group on other stakeholder groups (resource administrators, local residents, and foreign residents) in terms of the sustainability level of ecotourism in Langkawi Island?

1.5 Research Objectives

To answer research question one, we have derived the following objectives:

1. To evaluate the overall sustainability level of ecotourism in Langkawi.
2. To evaluate socio-cultural sustainability of ecotourism in Langkawi.
3. To evaluate economic sustainability of ecotourism in Langkawi.
4. To evaluate environmental sustainability of ecotourism in Langkawi.

To answer research question two, we have derived the following objectives:

1. To evaluate the influence of the resource administrators on the local residents' level of sustainability of ecotourism in Langkawi Island.
2. To evaluate the influence of the resource administrators on the foreign residents' level of sustainability of ecotourism in Langkawi Island.
3. To evaluate the influence of the local residents on the resource administrators' level of sustainability of ecotourism in Langkawi Island.
4. To evaluate the influence of the foreign residents on the resource administrators' level of sustainability of ecotourism in Langkawi Island.

1.6 Significance of the Study

The indication of the level of achievement of ecotourism goals in a site can be used as a guideline for applying suitable management policies for the ecotourism of a site or system.

Assessing the ecotourism status will raise resource administrators' awareness of current sociocultural, economic, and environmental conditions, help them evaluate and pilot management practices, predict potential challenges, and design strategies to maintain the good status and manage present or potential challenges to the ecotourism of a site, which will, in turn, benefit the local and international residents of the island in many aspects.

A comprehensive representation of the ecotourism sustainability in Langkawi Island will aid policymakers and managers to plan strategically for the tourism development of the island.

Ecotourism destinations demand more sustainable practices than other sites. Moreover, a positive collaboration between local (Malaysian) and foreign (non-Malaysian) communities and resource administrators is essential in achieving sustainability. Thus, using the sustainability results of this study, resource administrators can design strategies to monitor relationships among the stakeholders and to attempt to steer clear of the projects which will disrupt these relations. Resource administrators can foster strong relationships among stakeholders and minimise any negative ones to ensure the overall sustainable development of Langkawi Island in economic, sociocultural, and environmental aspects. The practical significance of this study is directed to the authorities of Langkawi Island as well as to all the residents who gain from the ecotourism growth. Results can be used by both public and private sectors for future sustainable tourism planning and management. In addition, they can also be used as motivating guidelines for future studies in academic areas, as there is a paucity of research with regards to evaluation of sustainable ecotourism from the perspectives of stakeholders of small islands tourism.

This study could work towards raising the awareness of all the stakeholders and also the locals and foreigners of the host community, as well as the tourists themselves. With a better understanding of sustainability issues, multiple stakeholders can work together to sustain the ecosystem and environment of the island as much as possible. Sustaining the ecosystem in Langkawi Island may guarantee short-term, as well as long-term environmental and economic benefits of tourism in the island. The findings can be applied by authorities in the tourism industry to manage residents' opinions of tourism sustainability and boost their support for it, which will hopefully, lead to a more sustainable development of ecotourism in general.

1.7 Scope of the Study and Delimitations

The current study focuses on the concept of ecotourism sustainability in Langkawi Island from the perspectives of key stakeholders. The perceptions of key ecotourism stakeholders will be evaluated as an indicator of the overall ecotourism sustainability of the island, considering the effect of synergistic relations between these groups (Ross & Wall, 1999a).

Langkawi Island has been chosen as the area of study, as it is a top tourist destination in the country and going through tourism development which may not be sustainable in some respects (Kasim et al., 2017; Salleh et al., 2014; Samat & Harun, 2013; Shamshiry et al., 2011). The samples are selected from the population of local residents, foreign residents, and resource administrators (government officials) involved in the tourism industry of the island. The data for this study was collected commencing from January 2022. The research is experimental and quantitative in nature. The scope of this research is limited to the tourism of Langkawi Island. The results might not be generalized to other destinations because each destination and site has its own characteristics and no one formula can be applied to all (Byrd, 2007; Ioannides, 1995).

1.8 Operational Definitions of the Key Terms

- ❖ Ecotourism: Ecotourism is “an activity where the authorities, the tourism industry, tourists and local people co-operate to make it possible for tourists to travel to genuine areas in order to admire, study and enjoy nature and culture in a way that does not exploit the resource, but contributes to sustainable development” (Björk, 2000).

- ❖ Economical sustainability of ecotourism: Economic sustainability addresses “long-term viability of economic operations, fairness and equity of benefits distribution, employment and income-earning opportunities, and poverty alleviation” (World Tourism Organization, 2020c, “Sustainable Development” section, para. 5).

Based on the indicators used in this study, economical sustainability is measured by the extent to which Langkawi Island resource administrators provide economic benefits and compensation for the communities of local and foreign residents, create employment opportunities and acceptable incomes for them, and the degree to which local and foreign residents share in the distribution of tourism revenues, make economic contribution for conservation of Langkawi Island, as well as the range of their engagement in tourism-related employment.

- ❖ Environmental sustainability of ecotourism: Environmentally sustainable development is “the development that is compatible with the maintenance of essential ecological processes, biological diversity, and biological resources” (Richins, 2009, p. 6).

Based on the indicators used in this study, environmental sustainability is measured by the extent to which Langkawi Island resource administrators are conserving natural resources like water and forests, are providing sustainable harvest in farming, fishing, and hunting, and are improving the residents’ living environment and quality of life, as well as the degree to which Langkawi Island’s communities of local and foreign residents are interfering with natural resources in Langkawi Island, putting pressure in resource exploitation and surrounding development, polluting Langkawi Island’s

environment, and also the extent to which their livelihood activities are a threat to Langkawi Island's ecosystem.

- ❖ Sociocultural sustainability of ecotourism: Social sustainability is “the minimisation of the potential tensions, which may arise as a result of the widening gap between those who benefit from tourism and those who do not” (Carbone, 2005,). Cultural sustainability is “the material and non-material well-being, intragenerational equity, maintenance of diversity, precautionary principle, maintenance of cultural systems, and recognition of independence” (Throsby, 2003).

Based on the indicators used in this study, socio-cultural sustainability is evaluated by the extent to which Langkawi's local community's daily living is disturbed by ecotourism activities in Langkawi Island, Langkawi Island resource administrators provide the local community with environmental education opportunities to improve their environmental consciousness, in addition to the level of interaction between Langkawi Island resource administrators and the local community, Local community's support for resource conservation, and their participation in Langkawi Island's ecotourism management and planning.

- ❖ Stakeholders: Stakeholders, or more precisely speaking, legitimate stakeholders, are those who affect or are affected by the conduct of an organization (Freeman, 1994). Stakeholders in this study are defined and separated as groups of local residents, foreign residents and resource administrators.
- ❖ Local community: In this study, local community are in fact all the residents of the island, who are heterogeneous groups comprising of local residents and

foreign residents, and each have their own demographic features and their frames of mind which can affect their overall approach and viewpoints to tourism (Fallon & Kriwoken, 2003; Gu & Ryan, 2010; Sharpley, 2014).

- ❖ Resource administrators of ecotourism: According to Webster Dictionary (Merriam-Webster Dictionary, 2021), (resource) administrators are those who manage and supervise the execution, use, or conduct of an activity, or those who perform the activity. Based on this definition, resource administrators include a wide variety of tourism actors in planning, managing, performing, and promoting tourism.

In the present study, however, resource administrators of tourism in Langkawi Island are the officials of governmental tourism organizations who are responsible for planning, managing, and practicing ecotourism in the island. These organizations include the Langkawi Development Authority (the LADA), Langkawi Geopark Discovery Centre (which is under the authority of the LADA), Langkawi Forestry Department (which is involved in the ecotourism of the island), Ministry of Tourism (which is essentially based in mainland of Alor Setar, but has a committee of actors who frequently visit the island for meetings with LADA authorities; hence, are directly involved in the ecotourism policy planning of Langkawi, and Tourism Malaysia (which has three centres in the island engaging mostly in promotion of tourism).

- ❖ Sustainable tourism: sustainable tourism is “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (World Tourism Organization, 2020c).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter starts with the general definitions and key studies on sustainable tourism along with detailed descriptions of its dimensions in section 2.2 followed by a discussion on ecotourism as a strategy for sustainable tourism, and the related literature on its evaluation in section 2.3. A detailed description of the area under study, which is Langkawi Island, as well as an account of the current status of ecotourism and sustainable ecotourism in the island, and also the related studies which have been conducted will be discussed in section 2.4. The following section of 2.5 consists of the relevant literature of stakeholders' involvement in ecotourism worldwide, as well as in Langkawi Island. Section 2.6 investigates the different stakeholders' relationships in sustainable tourism development in Langkawi Island. Finally, in section 2.7, after recognizing the variables for the study, the researcher will present a conceptual framework as an illustration of the through flow of this work.

2.2 Sustainable Tourism

The World Tourism Organization (UNWTO) defines tourism as “a social, cultural, and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or

non-residents) and tourism has to do with their activities, some of which involve tourism expenditure” (World Tourism Organization, 2020d, “Glossary of Tourism Terms” section, para. 1)

Governments have realized that they can make a lot of financial, political, and cultural profit in attracting tourists by empowering their tourism industry. The Malaysian government, like most other governments around the world, has planned big projects and taken a lot of measures to improve tourism industry in the country, which have to a large extent been successful (Mosbah & Saleh, 2014; Giap, Gopalan, & Ye, 2016; Tourism Malaysia, 2021). Giap et al. (2016) have identified Malaysia’s government’s investment in infrastructure such as improving airport facilities, in addition to the government’s funding for promoting tourism as the main contributing factors to the country’s travel and tourism industry development. According to Tourism Malaysia and the World Tourism Organization, the number of tourist arrivals to this country has risen from 23.65 million in 2009 to 26.1 million in 2019 (Tourism Malaysia, 2021; World Tourism Organization, 2020b). There are many reasons behind this success such as natural and cultural resources, proper government planning, effectively conducted promotional projects, and the wide-ranging political situation (Mosbah & Saleh, 2014).

National tourism organizations (NTOs) have contributed significantly to the expansion of tourism in the Association of Southeast Asian Nations (ASEAN) by carrying out the responsibility of organizing, administrating, and managing tourism, and working towards the fast growth of tourism sectors in the Philippines, Malaysia, Singapore, and Thailand. Such a rapid development has caused economic progress in these ASEAN

countries; nonetheless, badly managed tourism in these areas has also brought about environmental and cultural deterioration (Chong, 2020).

As stated by World Tourism Organization (2020e), millions of tourists choose islands for their travel destinations every year because these regions are rich in cultural and natural heritage due to their distinctive geographical locations; however, this trend has caused some issues for these destinations, such as susceptibility to danger. For instance, Chong (2020) studied the effects of mass tourism on Bali Island in Indonesia and suggested that mass tourism development not only influences the local environment, economy, and business governance but also the people, culture, heritage, and traditions. His study indicates that although mass tourism in Bali still provides economic development opportunities and contributes to the progress of retail, transportation, and entertainment in addition to food and beverage industry, it has caused some issues such as improper waste management, cultural complications, and disorderly conducted tourism (Chong, 2020).

As stated by Salleh et al. (2014), reckless behaviours towards and inadequate management of the environment by a society that is pre-occupied with rapid growth can adversely influence the actual environment. The increasing number of domestic and international travellers each year can also cause unpleasant effects on the economic sector. Therefore, planning and implementing sustainable tourism programmes in all touristic areas are necessary, especially those which are both highly vulnerable to human invasion and abuse and are irreplaceable by anything else. In other words, the continual fast-paced expansion of tourism can be fruitful in terms of the economic development of tourism destinations and their communities (Maingi, 2019). However, unplanned expansion puts intense pressure upon destinations and

their resources, even endangering their long-term existence (Maingi, 2019). Accordingly, the concept of “sustainable tourism” has gained a lot of importance and attention over the past few decades in order to reduce the negative impacts and to enhance positive impacts of tourism activities on the environment, society and culture (Yadav et al., 2018). Thus, the need to combine sustainability concerns with strategic planning of tourism activities has attracted much attention and led to a lively debate about sustainable tourism (ST) (Estêvão al., 2019).

Kostić and Jovanović Tončev (2014) emphasise the necessity of sustainable tourism development by reasoning that sustainable tourism makes the least adverse effect on, and at the same time, contributes to the general growth of the environment and local culture by creating employment opportunities for the local community and pleasant experiences for both tourists and the host community. In another research, Lee & Syah (2018) studied the effects of tourism on an island destination and concluded that tourism growth correlates positively with environmental degradation. Therefore, since there is increasing concern for the adverse effects of tourism development on the environment, economy, sociology, and culture of a destination, more attention is being paid to the sustainable form of tourism (Lansing & De Vries, 2007).

There have been many definitions for sustainable tourism in tourism research history, but as it is a multiple-function term, there is no broadly accepted definition for sustainability (Kiezel, Piotrowski, & Wiechoczek, 2019; Tosun, 2001; World Tourism Organization, 2020c; Zifkos, 2015). Zifkos (2015) regards sustainability as anything that contributes to the continual improvement of life conditions over time, in other words, the well-being of individuals and societies, at present and in the future. Kiezel et al. (2019) view the concept of sustainable tourism as the pursuit of the balance

between the desires of tourists or organizers and the host community. In their study, they introduced the idea of sustainable development as the condition in which the principal goal of development is to guarantee meeting the fundamental material needs of both the present and future generations together with ensuring the context for flourishing human potentials (Kiezel et al., 2019). Tosun (2001) defines sustainable development as a development policy that manages natural, human, and financial/physical resources properly, and considers it advantageous, for it eliminates the detrimental impacts of mass tourism and establishes alternative configurations of tourism.

Sustainability fundamentals touch on the environmental, economic, and sociocultural perspectives of tourism development; thus, an acceptable equilibrium must be created between these three aspects to ensure its long-term sustainability (World Tourism Organization, 2020c). In other words, the concept of sustainable tourism development is based on three theoretical pillars, indicating the economic, environmental, and socio-cultural effects of tourism (Padin, 2012; Richins, 2009, Saputra et al., 2017). This idea has been woven into all levels and stages of the tourism industry, from policies at destination levels to the global tourism strategies (Mihalic, 2016). Tourism in a national park, for instance, can be considered sustainable only when it contributes to the eco-logical, socio-cultural, and economic goals set for the park (García-Melón et al., 2012). Such objectives signify economic enhancement of the local community in a destination, conservation of natural resources (like water, biota, landscape, or energy), perpetuation of cultural values, and livability of the tourist destination (García-Melón et al., 2012). Jankovic, Luburic, and Sofranac (2017) state that the notion of sustainable development as a universal concept entails maintaining a balance among economic, social, and environmental demands to be able to ensure the fulfilling

of the requirements of both the present and future generations as well as to decide on the most suitable management and planning processes. Each of these dimensions are addressed in more detail in the following sections.

2.2.1 Economic Sustainability of Tourism

As the tourism industry is increasingly experiencing many challenges worldwide owing to its rapid development, concerns over the adverse economic effects of tourism are on the rise, which emphasizes the necessity of assessing the economic sustainability of tourism attractions (Calgaro et al., 2014; Logar, 2010). The economic sustainability of tourism growth is defined as “the net economic improvements for the local economy that tourism development can produce in the long term, taking into account all the diverse impacts that affect the different sectors and industries of the local economy” (Garrigós-Simón, Galdón-Salvador, & Gil-Pechuán, 2015). According to Carbone (2005), “economic sustainability refers to the additional income provided to locals to compensate them for the burden that the presence of tourists may cause”. The tourism sustainability of a destination in general, and the economic sustainability of tourism in particular need to be assessed to ensure its usefulness. Richins (2009) defines economic sustainability as “tourism development that is economically efficient and resources that are managed so they can support future generations”. According to the World Tourism Organization, economic sustainability addresses “long-term viability of economic operations, fairness and equity of benefits distribution, employment and income-earning opportunities, and poverty alleviation” (World Tourism Organization, 2020c, “Sustainable Development” section, para. 5). Choi and Sirakaya (2006) identified economic sustainability with the process of “optimizing the development growth rate at a manageable level with full consideration of the limits of the destination environment”.

Most studies evaluating the economic sustainability of tourism development have utilized large-scale objective indicators such as gross domestic product, employment rate, and investment, while evaluating this issue from the perspectives of local stakeholders using subjective indicators is significantly important as they are influenced by it and can have their unique perceptions of the concept. The local community is directly impacted by the economic sustainability of tourism development through the creation of new employment opportunities, leading to improved well-being and increased income for residents. This direct effect is perceived positively, as evident in the recognition of tourism as an income generator. Moreover, the economic development resulting from tourism positively influences the general infrastructure of the area, indirectly benefiting the local community. Additionally, the community acknowledges the importance of planning and managing tourism destinations sustainably, emphasizing the need for responsible development. The local community, as a key stakeholder, plays a crucial role in shaping future tourism strategies and is willing to support sustainable tourism if perceived personal benefits, including economic, socio-cultural, and infrastructural advantages, are significant (Muresan et al., 2016). This underscores the interconnectedness of economic sustainability and the overall well-being of the local residents in the context of tourism development.

2.2.2 Socio-cultural Sustainability of Tourism

Social sustainability is defined as “the minimisation of the potential tensions, which may arise as a result of the widening gap between those who benefit from tourism and those who do not (Carbone, 2005). Cultural sustainability is characterized as “the protection of local rituals, customs, and norms in the face of the different lifestyles

brought by tourists” (Carbone, 2005). Richins (2009) states that “cultural sustainability suggests people’s control of their lives, is compatible with the culture and values of those affected, and its intention is also to maintain and strengthen community identity”. To maintain social sustainability, various interactions between the host community and tourists should be evaluated so that negative impacts can be minimized, and incompatibilities will be controlled (Yu et al., 2016).

Yu et al (2016) put an emphasis on the importance of relations between tourism societies, communities, individuals, and government officials so that balanced social conditions can be gained. By balanced social conditions, they mean circumstances in which “fairness and good quality of life in tourism industry with considering equality, equity, employment, health, social cohesion, education and knowledge, social infrastructure, support for community, accessibility, good governance, local purchasing, public participation, protecting and enhancing cultural heritage, economic self-sufficient, sustaining tourist satisfaction and ethics” can be achieved (Nugraheni et al., 2019).

Cultural sustainability is “the material and non-material well-being, intragenerational equity, maintenance of diversity, precautionary principle, maintenance of cultural systems, and recognition of independence” (Throsby, 2003, p. 184-186). In other terms, cultural sustainability is organized around the preservation of heritage, vitality, economic viability, diversity, locality, eco-cultural resilience, and eco-cultural civilization (Soini & Birkeland, 2014). It is a guideline for tourists to act in a manner that is appropriate, respectful, and true to the local culture being portrayed (O’Neil et al., 2015). The Global Sustainable Tourism Council (2016) defined the criteria of

cultural sustainability to ensure tourism is done in a respectful manner toward local populations or site with a code of conduct for visitors, focusing on heritage protection, intellectual property rights and accurate site interpretation.

2.2.3 Environmental Sustainability of Tourism

The environment has growingly been acknowledged as a principal component of tourism (Mason, 2020). However, although there is a symbiotic relationship between tourism and the environment (Williams, 2009), this symbiotic balance has not been maintained since the emergence of mass tourism in 1960 by tourism activities which are increasingly becoming threats to the environment, instead of an impetus to sustaining it (Mason, 2020). Basically, environmental sustainability signifies the maximum reduction of the adverse effects of mass tourism on the environment (Carbone, 2005). Richins (2009) refers to environmental or ecological sustainable tourism development as “the development that is compatible with the maintenance of essential ecological processes, biological diversity, and biological resources”. Clearly, achieving such a compatibility requires continuing assessment of the tourism development (Richins, 2009).

Environmental sustainability is essential for long-lasting competitiveness of the tourism industry (Hu & Wall, 2005). Increasing consciousness towards the environment worldwide indicates that perspectives on consumerism are evolving, and there are growing demands for products which are environmentally friendly and ethnically right (Holden, 2016). The tourism industry is certainly not exempted from this trend, as there has been a growing call for high-quality environmental attractions and cleanliness for the tourism sector (Holden, 2016). By way of example, environmental pollution, overpopulated destinations, noise pollution, disturbing

constructions, and non-maintained infrastructures have been reported to adversely affect tourists' travel experiences (Hu & Wall, 2005).

2.3 Ecotourism: A Form of Sustainable Tourism

Ecotourism, as a strategy to achieve both conservation and sustainable development objectives, has gained a lot of attention as a type of alternative tourism development (Jamaliah & Powell, 2018). There are various definitions for the concept of ecotourism in the literature, however, they all share the elements of nature, preservation, education, and local development (Wondirad, Tolkach, & King, 2020). Ecotourism is consistent with the essence of sustainable tourism including “a minimum impact on the environment, preserving nature, respect for local customs and traditions, interest in a country's history and culture, training of intercultural communication, local economy support by choosing local products, business support, which protects cultural heritage, paying attention to political, environmental and public events, and reducing the use of non-renewable resources” (Barkauskienė and Snieška, 2013). Since ecotourism is closely related with natural resources and subcultures, it is an indispensable element of sustainable tourism (Stefanica & Vlavian-Gurmeza, 2010).

There are a few features which specify ecotourism from the broader concept of sustainable tourism such as its active contribution to the preservation of natural and cultural resources, engaging local residents in tourism planning and practice, which results in their general well-being, communicating the natural and cultural characteristics of a destination to travellers, and suiting for independent as well as small-scale tour travellers (World Tourism Organization, 2020c). However, ecotourism development can be accompanied by social, economic, and environmental merits and drawbacks (Zambrano et al., 2010). Ecotourism can help the economy by

offering occupational and economic opportunities, such as jobs on tourism products and services like engaging in travel agencies, hospitality, restaurant, and transportation businesses (Jalani, 2012; Reimer & Walter, 2013), and also enhancing local entrepreneurship (Ahmad and Mara, 2014). Moreover, ecotourism development boosts the residents' quality of life, promotes diverse cultures, and builds on local infrastructures (Nyaupane & Poudel, 2011). Local community empowerment, which is accomplished by educating and involving them in different levels, can also be considered as one of the benefits of ecotourism development (Sutawa, 2012). In addition, Liu et al. (2014) prove a positive and direct correlation between the economic merits of ecotourism development and residents' support for the environment. As ecotourism focuses on a destination's natural environment, this form of tourism includes cultural qualities and preservation; moreover, it not only involves minimal visitor impact, but it also ensures local communities' active socio-economic engagement (Azis et al., 2018). According to Nadir Ali Shah (2017, p. 2) ecotourism is "an ethical and responsible form of tourism which provides an opportunity for healthy recreational activities and adventure. It explores the ecological, cultural, historical, and archaeological treasures of a natural area while preserving its integrity and enhancing economic development opportunities for local communities". In natural protected areas, for instance, ecotourism can be an impulsion for economic investment and eventually a tool for conserving the species and habitats of the area (López-Espinosa de Los Monteros, 2002). In other words, ecotourism supports the fundamentals of sustainable tourism regarding economic, socio-cultural, and environmental effects of tourism (Cater & Cater, 2015).

However, ecotourism development can be followed by some disadvantages for natural resources and wildlife (Zhou et al., 2013), unintended changes in the ecology (Martin,

2007), as well as soil erosion and extinction of species (Dixit and Narula, 2010). Therefore, even though ecotourism development has the potential to improve socio-cultural as well as economic dimensions of residents, its ungoverned development can raise crimes and diminish authentic cultures (Motlagh et al., 2020), the fact which necessitates proper management and practicing sustainable development of ecotourism.

To summarize, ecotourism, as the fastest-growing form of world tourism, is a strategy to sustainable development which offers sociocultural, environmental, and economic advantages; however, it could also cause some issues such as environmental and cultural degradation and even economic disproportion (Barkauskienė and Snieška, 2013). The principal components in the development of ecotourism are “the respect for the ecosystem integrity, local participation and economic opportunities for the local community” (Barkauskienė & Snieška, 2013). Therefore, constant evaluation of the sustainability of ecotourism should be given a lot of attention in the planning and practice stages of the industry (Khanra et al., 2021).

2.4 Langkawi Island

Small islands are and have always been popular tourist destinations for many reasons and as stated by Pratt (2015), SIDS (Small Island Developing States) are origins of unique and lively cultures, diversity, and heritage. As Sheldon (2005) suggests, each island has its uniqueness, and that uniqueness needs to be nurtured and strengthened through sustainable tourism policies. Since island ecosystems are prone to destruction by human populations, and face various threats such as “invasive species, climate change, natural and environmental disasters, land degradation and marine pollution”, their preservation is vital (Sheldon, 2005). Even though each small island has a unique

geographical structure, origination history, distinctive location, and biophysical characteristics on its own, all small islands share some common challenges and issues that limit their development processes (Calado et al., 2014). It is stated in the literature that the glamour of small islands depends on a combination of diverse lifestyles, aboriginal cultures, distinctive land formations, biota, marine and coastal resources, and thus, management strategies in environmental, sociocultural, and economic aspects of tourism in small islands must be practiced in order to maintain such a mystique (Lockhart, 1997; Sheldon, 2005). Natural resources are by nature scarce and endangered; therefore, proper management strategies should be implemented conserving distinctive environments and living species of small islands (Calado et al., 2014).

Langkawi Island is made of an archipelago of 99 islands in the Andaman Sea and is located in the northwest Malaysia (Langkawi Municipal Council, 2011). All in all, Langkawi has an area (including the surrounding islands) of about 478.48 km² and is formed with tropical islands which are rich in geodiversity of significant value at regional and global scales (Jones & Syura, 2020). Of these islands, only three are populated: Langkawi Island, Dayang Bunting Island and Tuba Island (Jones & Syura, 2020). Langkawi Island is covered with forested mountains and hills with native plants, as well as limestone structures (Fauzi et al., 2017). The island has a hot, humid, and tropical climate throughout the year (Fauzi et al., 2017). Langkawi Geopark is the first geopark to be established in Malaysia and Southeast Asia (The Star Online, 2015). Langkawi Geopark comprises of three regions known as Machinchang Cambrian Geoforest Park, Kilim Karst Geoforest Park, and Dayang Bunting Marble Geoforest Park, all of which have contributed to the uniqueness and richness of this island with their distinctive natural features (Fauzi et al., 2017).

2.4.1 Langkawi Island as an Ecotourism Destination

Langkawi Island has been a thriving tourist attraction since the late 1940s, with significant tourism developments initiated in 1948. However, the real impetus for tourism growth on the island emerged in the mid-1980s (Kasim et al., 2017). The island's appeal as a popular ecotourism destination is rooted in its rich natural resources, including rivers, mountains, tropical forests, mangrove forests, and coral reefs. Additionally, its abundance of cultural and historical heritage has contributed to its popularity (Jones & Syura, 2020).

Langkawi's accessibility via air and sea, efficient road networks within the island, and the presence of numerous tourist information centres have further fuelled the rapid development of tourism (Kasim et al., 2017). The island's geodiversity, biodiversity, along with its cultural elements such as traditions, legends, and myths, position it as a major ecotourism centre in Asia (Azman et al., 2011).

Ecotourism activities in Langkawi, such as mangrove tours, visits to historical sites, birdwatching, boat rides, snorkelling, and scuba diving, have attracted both domestic and international tourists (Ah et al., 2018). The Malaysian government, through the Ministry of Tourism Malaysia, actively promotes the country's tourism industry globally, and Langkawi has been a key focus in these efforts (Langkawi Development Authority, 2021b). Hence, the government's attempts to promote the island as a universal ecotourism destination have been fruitful (Langkawi Development Authority, 2021b). In this regard, some of the measures taken to promote tourism in one of the country's most popular tourist destinations like Langkawi, are providing duty-free shopping and ecotourism activities (Langkawi Development Authority, 2021b; Hamnett et al., 2011).

In line with these initiatives, Langkawi Geopark stands out as a notable ecotourism destination that seamlessly combines nature exploration with human development (Syarafina et al., 2018). Since achieving geopark status, Langkawi Geopark has gained recognition and drawn increasing numbers of nature lovers each year (Mohd Fauzi et al., 2017). As part of its ecotourism offerings, the geopark provides a range of attractions, infrastructure, and facilities, including boat tours, eagle and monkey feeding, and bat cave tours in Kilim Karst Geopark. However, it is crucial to consider the potential impacts of these activities on the island's ecosystem, balancing the benefits and potential harms (Kasim et al., 2017).

2.4.2 Impacts of Tourism on Langkawi Island

Over the past four decades, the island has shifted dramatically from being mainly a heavenly and peaceful tropical island accenting fishing and agricultural activities to an island developed and promoted for tourism (Omar et al., 2014). As one of the top holiday centres in Malaysia, Langkawi Island has undergone massive developments in tourism industry (Langkawi Development Authority, 2021b). Namely, it used to be a sheer peaceful tropical island where the principal source of revenue for its residents was from small-scale and traditional farming and fishing, whereas at present it has been converted into a global holiday destination in which tourism-based businesses and activities have provided the local community with employment opportunities (Omar et al., 2011; Salleh et al., 2014). According to Langkawi Development Authority (LADA), tourism is the main sector of the economy in Langkawi (Langkawi Development Authority, 2021b).

Generally, the agricultural- and- fishing-based economy of Langkawi Island is believed to be in the process of being overhauled by a tourism-driven economy (Kasim

et al., 2017). When agriculture was Langkawi's main industry, its economy struggled for many reasons including lack of adequate irrigation and agricultural methods on top of shortage of fields (Kasim et al., 2017). Nevertheless, since it was declared a duty-free island in 1987, Langkawi's socio-economic growth pattern has improved, making it a profit-making commercialised centre (Kasim et al., 2017). Tourism has helped to revitalize the economy of the island in plenty of ways such as employment opportunities, income generation, infrastructure development like accommodation, transportation, and hospitality products and services (Kasim et al., 2017). Despite these benefits, this growth has brought about some harm to the island, which necessitates the application of sustainable strategies in the island's tourism industry (Kasim et al., 2017).

According to LADA, the number of tourist arrivals to Langkawi Island has grown considerably in the past decades (Langkawi Development Authority, 2021c). This increase has raised the demand for accommodations and other tourism-dependent businesses (Kasim and Dzakiria, 2015). The tourism industry has played a significant role in the growth of a small island like Langkawi. Moreover, the expansion of tourism in turn has induced direct and indirect influences on the local community (Salleh et al., 2014). Langkawi Geopark is the first UNESCO geopark in Malaysia, and in South-east Asia (The Star Online, 2015). It was granted this status due to many reasons, the main of which being its unique flora and fauna characteristics (The Star Online, 2015). Accordingly, this geopark attracts many visitors each year who naturally participate in many touristic activities, which benefits the environment, culture, and economy of the island, but at the same time has the potential to threaten its environment, culture, and economy (Kasim et al., 2017).

In high season, the number of visitors exceed the carrying capacity of the park, and more boat tours to mangrove jungles are provided, which bring about a higher speed of the boats, and the fact that some trips are not accompanied with expert tour guides to inform the visitors and prevent them from damaging the ecosystem (Kasim et al., 2017). Besides, the high speed of boats causes strong hits in water which lead to the erosion of the mangrove riverbank (Kasim et al., 2017). In addition, eagle and monkey feeding is performed as an attractive tourist activity which not only leads to water pollution but also tampers with the nature of these animals and disrupts their well-being (Kasim et al., 2017). They are fed with chicken fat which produces waste in water, which has received a lot of criticism from naturalists and scientists (Kasim et al., 2017). As for other activities, such as bat cave tours and fish farms, visitors sometimes are not accompanied with educated tour guides to prevent them from uncontrolled harmful behaviours towards these spots, which cause wildlife imbalances (Kasim et al., 2017). Chaos and noise from visitors are very likely to disturb the wildlife of bats in caves (Kasim et al., 2017). Other issues have been water and noise pollution stemming from mangrove tour activities, floating restaurants, and fish farms (Mansor et al., 2019; Mohd Fauzi et al., 2017; Syarafina et al., 2018).

2.4.3 Sustainable Ecotourism in Langkawi Island

According to (Diamantis, 1999), ecotourism revolves around three main elements: nature-based experiences, educational components, and a commitment to sustainability that includes economic and social considerations.

Langkawi positions itself as an ecotourism destination by embracing key elements outlined by Diamantis (1999). Firstly, the island's natural allure, characterized by lush hills, pristine beaches, and clear waters, provides a foundation for nature-based

experiences. This commitment to preserving the environment is rooted in the 1989 Langkawi Declaration on Environment. Additionally, Langkawi's partnership with Universiti Kebangsaan Malaysia (UKM) since 1996 underscores its dedication to understanding and conserving the island's biodiversity, geodiversity, and cultural richness (Langkawi Gazette, 2018).

A pivotal aspect of Langkawi's ecotourism strategy involves integrating educational components. The establishment of the Langkawi Research Centre (Pusat Penyelidikan Langkawi or PPL) in 2002 exemplifies this commitment. PPL engages in a range of activities, including research, scientific expeditions, seminars, workshops, and educational programs. The emphasis on geopark development principles and the distinctive features of Langkawi UNESCO Global Geoparks is reinforced through the popular PPL Gallery, functioning as an educational hub open to the public (Langkawi Gazette, 2019).

To ensure sustainability, Langkawi implements protective measures for its biological and cultural sites. Noteworthy initiatives include declaring areas as Permanent Forest Reserves and establishing the Pulau Payar Marine Park to safeguard mangrove forests and marine ecosystems. Collaborations with the Kedah State Art and Cultural Department, Langkawi Municipal Council, and LADA further demonstrate Langkawi's commitment to conserving cultural sites. Conservation efforts extend to traditional villages and fishing communities, such as Padang Matsirat, Kota Mahsuri, Kampung Kilim, Kuala Triang, and Teluk Tuba. The Laman Padi initiative exemplifies the island's dedication to preserving and showcasing traditional paddy farming for ecotourism purposes (Langkawi Gazette, 2019).

In addition to these efforts, Langkawi acknowledges the challenges posed by the Tourism Area Life Cycle (TALC) model developed by Butler (1980). According to a study by Omar et al. (2014), which is based on the TALC model, Langkawi Island has begun to show signs of the stagnation stage. These signs include dependence on recurrent visits by local tourists and changes in property ownership. Consequently, bearing Langkawi's present stage of TALC in mind, and the fact that this island is one of the country's principal tourist destinations and accordingly, should be a role model for other destinations regarding the sustainability aspect, Langkawi should take this TALC as a warning. Various stakeholders who are involved in this island's tourism should take preventive and corrective initiatives to extend the consolidation phase and ward off the stagnation stage of the island (Omar et al., 2014). Fostering the positive impacts of tourism as a way towards sustainable tourism development is explicitly essential in the context of Langkawi, as this island has numerous fascinating natural resources which add to its touristic attractions (Kasim et al., 2017; Mohd Ismail et al., 2020; Thompson et al., 2018).

Tourism growth in Langkawi Island has become one of the economic development engines in the archipelago of Langkawi, creating more jobs for the locals and generating wealth and income for the people on the island (Kasim et al., 2017; Langkawi Development Authority, 2021b). Therefore, it can be in the right direction, but tourism has brought about many challenges in the region which necessitates the authorities to focus on the sustainability programmes (Ghani, 2020; Ismail, 2019; Mansor et al., 2019; Mohd Fauzi et al., 2017; Syarafina et al., 2018). According to Langkawi Geopark Blueprint 2011-2015, development endangers the distinctive and unique resources of any environment which is ecologically sensitive, and Langkawi is no exception in that matter (Langkawi Development Authority, 2021a). Therefore, the

assessment of the sustainability level of Langkawi Geopark ecotourism is essential for its long-term survival as a tourist attraction and revenue-making source for the community.

Effective management of ecotourism can play a pivotal role in bolstering the sustainability of environmental, economic, and socio-cultural aspects in a destination. This positive impact is realized through the enhancement of local community well-being, heightened public awareness about environmental significance, and the provision of financial support for conservation endeavors, particularly in economically challenged regions lacking viable alternatives (Weaver 2001). Consequently, a constructive synergistic relationship between tourism, natural resources, and the community is established, as emphasized by previous studies (Ross and Wall 1999a, b; Xu et al. 2009). Given the diverse objectives inherent in ecotourism, this study adopts a multi-stakeholder approach to assess its sustainability in Langkawi. Specifically, the perspectives of resource administrators and the community, (encompassing both local and foreign residents in this study), are considered to comprehensively understand the various interests, roles, and responsibilities involved (Shams 2012; Liu et al. 2013).

The sustainability standards for ecotourism destinations may differ based on both place and time considerations. The use of subjective measures as indicators mirrors the variability in these factors (Tsaor et al., 2006). To evaluate how sustainable the ecotourism in Langkawi is, this study uses subjective measures to examine the relationships between resources administrators and the community in sustainable ecotourism. This study attempts to explore stakeholders' perceptions to evaluate

sustainability of an ecotourism site based on an indicator system that covers economic, socio-cultural, and environmental dimensions.

2.5 Stakeholders in Ecotourism Industry

Many studies in the literature have emphasized the importance of sustainable tourism development (Estêvão et al., 2019; Guerreiro, 2019; Kiezel et al., 2019; Kostić & Jovanović Tončev, 2014; Lansing & De Vries, 2007; Lu & Nepal, 2009; Padin, 2012; Salleh et al., 2014; Zifkos, 2015), and the management of sustainable tourism (Lansing & De Vries, 2007; Plummer & Fennell, 2009; Yadav et al., 2016; Yadav et al., 2018). Furthermore, many others have pointed out the wide variety of challenges that the authorities of tourist destinations face while practicing their sustainable tourism programmes (Jankovic et al., 2017; Kristianto, Fahrudin, and Salim, 2019; Rosyidie et al. 2018; Tosun, 2001; Victoria et al., 2013; Yadav and Sahu, 2015; Yadav et al., 2016; Yadav et al., 2018). Yadav et al. (2016) indicate that one of the major challenges for the implementation of STM (Sustainable Tourism Management) in a destination is to create a profitable and environmentally sustainable tourism sector, while concurrently acquiring a pleasant practice for tourists and sustaining the standard of living of the local people. This conclusion implies the importance of various stakeholder groups (tourists and local communities) in achieving sustainable tourism. In addition, lack of coordination among various stakeholders has been identified as a barrier to successful implementation of sustainable ecotourism plans (Jankovic et al., 2017; Victoria et al., 2013; Yadav et al., 2018).

Mohamad et al. (2019) define a stakeholder as “a group or individual who has a legitimate interest in the destination activities and thus has either the power to affect the destination performance and/or has a stake in its performance”, or “the people and

organizations who are involved in or affected by an action or policy and can be directly or indirectly included in the decision-making process”. Any individual or group who is identified with an organization can be considered a stakeholder; however, those who affect or are affected by the conduct of an organization are regarded legitimate stakeholders (Freeman, 2010). Moreover, stakeholder theory suggests that an organization may gain decisive and important advantages by involving legitimate stakeholders constructively (Freeman, 1994).

Since ecotourism entails various purposes, its development naturally necessitates the involvement of multiple stakeholders such as visitors, residents, governments, management officials, etc. with different aspirations, roles, and responsibilities (Liu, Li, & Pechacek, 2013; Tsaur et al., 2006). In a study, for example, Kummitha (2020) emphasizes the importance of proper and active participation of different stakeholders for a successful practice of ecotourism sustainability and considers local populations, local organizations, tourism enterprises and visitors as key stakeholder groups at the study area of Mangala Jodi Ecotourism Trust in India.

In addition, the success of tourism in a destination has been proved to have a positive correlation with the involvement of the stakeholders in the industry (Amerta, 2017; Kasim et al., 2017; Su, Wall, & Ma, 2014). To achieve the STM in practice, there is a need for coordination among different stakeholders such as the local community, NGOs (Non-Governmental organizations), forest department officials, tour operators, and hoteliers (Yadav et al., 2016). In a study, Wondirad et al. (2020) concluded that improper, unbalanced, and ill-defined collaboration between ecotourism stakeholders on one hand hinders the goals of sustainable ecotourism development, and on the other hand, brings about community resentment to development works. Instances of main

ecotourism stakeholders that should be engaged are “tourists, suppliers, local governments, accommodation and tourism agencies, local communities, NGOs (Non-Governmental organizations), ecological groups, to mention a few” (Katsoni & Dologlou, 2016, p. 20).

Amerta (2017) considers local community, the government, and investors (which he defines as those who are directly involved in tourism and are in unmediated contact with tourists) as key stakeholder groups in tourism whose participation in and support for tourism in the study area of Jasri Tourism Village have contributed to tourism development. Ecotourism is a multi-faced and integrated phenomenon and cannot be practised only by one individual group (Hikmah et al., 2020). In their study, the government, the private sector, and the local community are identified as the principal stakeholders in ecotourism development in Indonesia whose involvement would contribute to the success and growth in the industry (Hikmah et al., 2020). Examples of private sector actors are hotel and restaurant businesses and rental businesses situated in the ecotourism destination; the local community are the people residing in the ecotourism area; and the government is in fact the regional and the central government of the destination (Hikmah et al., 2020).

State actors of different positions (federal, state and local), non-state actors such as independent establishments, and non-governmental organisations (NGOs) are the main ecotourism stakeholders whose cooperative interaction ensures sustainable ecotourism (Gan et al., 2019). Gan et al. (2019) highlighted the issue of unilateral manner of water management, wastewater treatment, and solid waste management in Belum-Temengor in Malaysia and asserted that a cooperative stakeholder involvement is required as the best management strategy of such issues in this destination. In

another study, where the perspectives of stakeholder groups on the biodiversity conservation of protected areas in Saudi Arabia were examined, the public sector, the private sector, and Non-Governmental Organizations (NGOs) were selected as primary stakeholder groups (Al-Tokhais and Thapa, 2019).

Kasim et al. (2017, p. 3) introduced “local host communities or individual hosts, official and unofficial representatives, local authority or national government, politicians, religious leaders, civil society organizations, special interest groups, the academic community, or other businesses” as stakeholders. Su et al. (2014) also emphasised the important role of stakeholder’s involvement in ecotourism and identified different governmental organizations, governance agencies, and the community as main groups. In their study, they mentioned that visitors should be offered high-quality tourism experiences, natural resources must be preserved, and the benefits for the local people need to be ensured at the same time (Su et al., 2014).

Although the importance of strategic collaboration between stakeholders in tourism growth has been highlighted in tourism studies to a large extent, there is still no proper implementation and practice in this matter (Kasim et al., 2017). Overall, the issues that hamper the implementation of sustainable tourism are stakeholder-related and are associated with priorities, organisation, and resources (Victoria et al., 2013). The growth in tourism generates economic, social, and environmental impacts on a destination, which can be both positive and detrimental (Victoria et al., 2013). Therefore, to achieve sustainable tourism development objectives, such impacts should be continuously observed so pre-emptive measures can be taken when required (Victoria et al., 2013). Accordingly, some methods for evaluating sustainable-based performance of tourism have been suggested; however, its assessment is extremely

complicated because not only the term has unclear boundaries, but it also involves diverse aspects and stakeholders with different interests (Estêvão et al., 2019). This consistent monitoring requires the involvement of all legitimate and relevant stakeholders and their effective cooperation (Estêvão et al., 2019). Therefore, participation and cooperative partnership of all stakeholders is essential for the eventual success of tourism (Kasim et al., 2017). There have been many evaluations of the sustainability of tourism; however, there seems to be a requirement for a more successful implementation of this concept in recent debates in the field. Obviously, the most prominent of such requirements is the engagement of all stakeholder groups in tourism (Mihalič, 2016). For instance, Wang et al. (2021) conducted a study on the sustainability of ecotourism stakeholders in ecologically fragile areas. They analysed the interaction among the key stakeholder groups of ecotourism, namely local governments, tourism enterprises, and residents, and found no equilibrium in these interactions (Wang et al., 2021).

In this study residents (local and foreign residents) and resource administrators are considered as main stakeholder groups of ecotourism in the study area of Langkawi Island. It is supposed that a symbiotic relationship among the main stakeholder groups will eventually lead to a successful and sustainable ecotourism practice in a destination (Ross & Wall, 1999a). In the following section, each group and its role will be discussed, and then the effectiveness of their relationships will be elaborated.

2.5.1 Residents as Stakeholders in Ecotourism

There are many studies which have evaluated residents' positive or negative perceptions of the sustainability of tourism based on three components of economic,

sociocultural, and environmental sustainability (Šegota et al., 2017). There is a belief that “understanding resident perceptions and responses is fundamental to the successful and sustainable development of tourism” (Sharpley, 2014, p. 14). And according to Šegota et al. (2017), this belief is the principal motive of an increase in the studies examining residents’ perceptions of tourism. Furthermore, one other reason the concept of residents’ attitudes toward tourism has gained prominence over the past few decades is the idea of sustainable tourism development. Consequently, the literature in tourism sustainability has witnessed an emphasis on the role of empowering residents as important stakeholders in the development of tourism industry (Šegota et al. 2017). It has been argued that empowering residents leads to their acknowledgment and control over tourism, which in turn will lead to the growth of the industry (Boley et al., 2014; Tanova & Ajayi, 2016).

A great deal of literature highlights the necessity of comprehending the needs and aspirations of local communities in order to ease their engagement in ecotourism (Foucat, 2002; Langholz, 1999; Malek-zadeh, 1996; Ross & Wall, 1999a; Scheyvens, 2003; Su et al., 2014; Xu et al., 2009). The local community, as one of the key stakeholder groups, plays various important roles in ecotourism development (Scheyvens, 2003). Constructive engagement of the local community in ecotourism, as well as granting them balanced distributions of the industry’s benefits can be considered a vital factor in its conceptualization (Ross & Wall, 1999a). Therefore, the local community should be empowered so that they can observe, monitor, and gain from ecotourism (Ross & Wall, 1999a). By way of example, when local residents take part in ecotourism planning and practice, they comprehend and appreciate the importance and value of their cultural resources, and consequently raise their

awareness of resource preservation (Foucat, 2002). Additionally, the financial advantages that residents receive from engaging in ecotourism activities in the form of income and job opportunities can be strong motivations for them to assist endeavours in resource conservation (Malek-zadeh, 1996). Moreover, local involvement in ecotourism is likely to lessen their dependence on resource consumption careers such as commercial agriculture, hunting, and logging (Langholz, 1999). This shift away from traditional livelihood can in turn support sustainability by reinforcing the connection between ecotourism and conservation (Xu et al., 2009). As the livelihood of the residents in a destination of a protected area is highly dependent on and related to the natural resources, community involvement is not only favourable but also vital for successful ecotourism to occur (Su et al., 2014).

Amerta (2017) in a study, proved tourism growth to be in a positive correlation with the development of community tourism because the local community, as one of the principal stakeholder groups, have the potential to play important roles in both the early planning and development stages of tourism planning. In the early stages, the locals contributed to tourism by showing “commitment and community support, maintaining the cleanliness of the environment, improving the quality of human resources, and exploring the potential of local tourism”; moreover, they play a significant role in the development of the Jasri Tourism Village by “providing supporting tourism facilities, establishing supporting institutions of tourism, and introducing and promoting Jasri tourism potential” (Amerta, 2017, p. 4). In short, the engagement of the local community and their gains from tourism are an integral part of the concept of ecotourism (Ross & Wall 1999a, b).

However, the term "resident" has not been properly defined in the tourism literature (Dutt et al., 2018). It has been argued by some researchers that communities and residents are heterogeneous groups, each with their own demographic characteristics and ways of thinking that may influence their general approach and views on tourism (Fallon & Kriwoken, 2003; Gu & Ryan, 2010; Sharpley, 2014). For the same reason, Garrod et al. (2012) also emphasize the importance of categorizing residents into separate stakeholder groups. Although most research in the tourism literature has identified all residents as a single stakeholder group in the local community (See, for example, Sautter & Leisen, 1999; Sheehan & Ritchie, 2005), there are still studies that have attempted to consider the different subgroups of residents as distinct stakeholder groups (Easterling, 2005; Lindberg & Veisten, 2012; Lundberg, 2015; Šegota et al., 2017). However, the factors used to identify each subgroup have been defined differently in different studies. In some studies, residents have been categorized according to their interests in and gains from tourism, based on the foundations of social exchange theory (See, for example, Lundberg, 2015; Šegota et al., 2017). In another study based on a stakeholder perspective, local residents were categorised into various stakeholder groups according to their kinds of residency in that destination, including "born-heres", 'come-heres', 'retired-heres' and 'second-home-heres' (Easterling, 2005, p. 53). Each group was assumed to have certain stakes in tourism which affected their outlooks towards tourism impacts in the destination. Motivated by Easterling (2005), Lundberg (2017, p. 3) explored two separate categories of local residents that were "second homeowners and permanent residents". Lindberg & Veisten (2012) also took into consideration the heterogeneity of residents in examining their different perspectives towards impacts of tourism. They argued that desires and perspectives towards tourism development impacts could be different between local

residents, non-local domestic residents, and international residents (Lindberg & Veisten, 2012). For instance, a proposed development may be embraced by local residents as a way to expand the economic benefits for the locals whereas, non-local residents, as another citizen group, may disapprove of it because it is likely to harm the environment (Lindberg & Veisten, 2012). In this study, however, the residents of the destination under study, Langkawi Island in Malaysia, are categorized into two major groups of local residents and foreign (international) residents. Local residents are Malaysian people living on the island, and the foreign residents are non-Malaysian residents living on the island.

Existing literature points out push and pull factors into establishing the foreign (international) population in a country; some of which are political and economic stability, infrastructure, and cultural adjustment, good climate, nature, and environment (Abuhjeeleh et al., 2019; Seyedimany, 2014; Tanova & Ajayi, 2016). In the context of Malaysia, Tan and Ho (2014) identified “political stability, good infrastructure and consistent economic growth” as principal pull factors of this increase. According to Statistical Report of Market data (Statistica, 2021), the number of international immigrants in Malaysia increased noticeably from roughly 1.91 in 2005 to approximately 3.43 in 2019.

Such an increase can be an opportunity towards tourism growth if observed and examined thoroughly from a tourism standpoint (Abuhjeeleh et al., 2019). For instance, Tan and Ho (2014) pointed out the influential role of foreign residents in developing the tourism industry of Malaysia. In their study, they concluded that an increase in this population in the country leads to a rise in the number of retirees who

reside in Malaysia as their second home (Tan and Ho, 2014). This, in turn, attracts more visitors to this destination by boosting the experiential image of the host country (Tan and Ho, 2014). In addition, this eventually encourages more travellers to consider Malaysia as their future second home destination when they retire (Tan and Ho, 2014). For instance, Abdellatif et al. (2015) concluded that expatriate employees' culture is an important determinant in visitors' evaluation and choice of a destination. As a result, considering their viewpoints towards the sustainability of ecotourism could be beneficial in a destination's ecotourism development (Abdellatif et al., 2015).

2.5.2 Resource Administrators as Stakeholders in Ecotourism

In quite a few studies, the word "the government" has been utilized as an umbrella term for all the resource administrators involved in planning, decision making, and the practice of tourism (Amerta, 2017; Kubickova & Campbell, 2020; Nugraha et al., 2020). In Jasri tourism village, for instance, the government has been identified as the key resource administrator. This stakeholder group has contributed to tourism by promoting national community empowering programme, providing education, guidance, support, and good marketing (Amerta, 2017). In another study, Nugraha et al. (2020) also identified the main roles of the government as a key stakeholder group in the development of the Tourism Village known as Serangan Village. They highlighted creating a tourism awareness group and providing infrastructure and facilities to contribute to tourism in the destination (Nugraha et al., 2020). In addition, the government officials organized meetings with the participation of the tourism awareness group, government agencies, academics, private parties, village community organizations, and local communities with the purpose of arriving at optimal solutions

for issues and difficulties in the process of development in tourism (Nugraha et al., 2020).

Ganie and Dar (2018) highlighted the fundamental role of the involvement of human resource administrators in tourism as a service-based industry. In their study, they found a positive correlation between human resource administrators and tourism development (Ganie and Dar, 2018).

Governments play multifaceted roles in the tourism industry, acting as entrepreneurs, policymakers, plan developers, and service providers in hospitality and tourism (Kubickova & Campbell, 2020). They constitute key stakeholders in this sector, and their perspectives on the sustainability performance of a destination can serve as reliable indicators of the prevailing circumstances. In essence, understanding the viewpoints of governments, given their diverse roles, is crucial for assessing the sustainable practices within a destination.

2.6 Stakeholders' Relationships and Sustainable Development of Ecotourism in Langkawi Island

In a study which was conducted on the problem of lack of local community involvement in tourism planning of Langkawi Island, government officials, private company officials or entrepreneurs, residents, and interested groups such as non-government organisations (NGOs) were identified as the main stakeholder groups of tourism in Langkawi (Marzuki, 2015). The same study identified that this lack of involvement of the local community in tourism planning was caused by weaknesses of the Malaysian Planning System, using a “top-down” strategy (Marzuki, 2015). Another study by Marzuki and Khoo (2016) also identified an issue of the “top-down” approach with regards to strategies for community capacity building.

The government prepared a first plan for the development of Langkawi Island; the objective of “the Langkawi Structure Plan 1990-2005” was “to encourage, develop and guide physical development in Langkawi to achieve an aim to become a tourism destination centre and also to increase local residents’ socio-economic level and maintain the quality of the environment” (Hamnett et al., 2011). Complaints made in relation to tourism were not considered and the explanation given was that tourism issues were beyond the scope of this development plan which was contradictory to what the plan aimed to achieve (Marzuki, 2015).

A second plan was then developed, “The Langkawi Local Plan 2001-2015” which aimed to review and update the former plan: “to create Langkawi Islands as international tourism destinations based on local identity and environment friendly features and to improve the quality of life of residents” (Hamnett et al., 2011). For this plan, the local community was involved, but due to lack of understanding of the planning process, it was mostly ineffective in terms of providing constructive comments or ideas to improve the plan (Marzuki, 2015). It was also argued that information was given during a session, but nothing happened afterwards regarding to comments and complaints (Marzuki, 2015).

After this, another plan was launched to develop Langkawi Island in 2011, called the “Langkawi Tourism Blueprint” with the goal of promoting the island among the top 10 best islands and ecotourism destinations by 2015. This plan was successful in increasing tourist arrivals, income from tourism, job opportunities, investment values on the island and is still in action in 2021 (Langkawi Development Authority, 2021a).

The definition adopted by Malaysia's National Ecotourism Plan (2016-2025) for ecotourism is "Tourism experiences evolved through collaboration between the government, the private sector and local communities that include the following elements: respect for nature, contribution to conservation, benefit to local communities, with components of education and awareness, sustainability - ecologically, economically, socio-culturally and ethically" (Malaysia's National Ecotourism Plan , 2016-2025, p. 18). This definition emphasizes the key roles of stakeholder groups of the government as the resource administrator, and also the local communities in ecotourism, which in turn justifies its evaluation from their perspectives.

LADA faces many challenges in the engagement of all the stakeholders such as a lack of power in monitoring the private lands, the uncertainty of the commitments and efforts by the locals related to a lack of understanding, all of which necessitate the demand for more collaborative measures by the authorities (Azizan et al., 2020; Kasim et al., 2017; Padang et al., 2021). One of the issues faced is the lack of comprehension by the private sector stakeholders on the need to change their business strategies, as they argue they know better than LADA on how to handle their activities (Kasim et al., 2017; Padang et al., 2021). This results in a lack of participation in important trainings to raise standards, for example, boat tours are involved in non-sustainable practices such as eagle feeding or using unsuitable boats for the mangrove areas that disrupt its ecology (Kasim et al., 2017). The study also explains how and justifies why a destination management organization (DMO), here LADA, can adopt a corporate social responsibility (CSR) approach to mitigate the complexity it faces in dealing with all its stakeholders to enhance the sustainability of its tourism (Kasim et al., 2017).

2.7 The Conceptual Framework of the Study

The features of the local community and the resource administrators affect a destination's potential for sustainable ecotourism development (Ross & Wall, 1999b). In a symbiotic and collaborative relationship between residents and resource administrators, the local community has the role of stewards of biodiversity and at the same time gain advantages from it (Ross & Wall, 1999a). Local communities gain economic benefits from ecotourism and can be empowered by it in the form of more employment opportunities and higher incomes (for example, by providing accommodation, food and tour guiding services, by selling local products, etc.) (Cater & Cater, 2015; Drumm & Moore, 2005; Ross & Wall, 1999a, 1999b; Scheyvens, 1999). In addition, by engaging in ecotourism activities and hosting ecotourists, residents can gain infrastructural advantages in education and for their households (KC et al., 2021). This, in turn, is likely to improve social relationships and the health of the local population, leading to both higher attractiveness of a destination and the long-term sustainability of its ecotourism (Drumm & Moore, 2005). In this way, local communities will develop positive frames of mindset towards ecotourism, which successively can lead to their greater support for and involvement in ecotourism activities designed by the resource administrators (Cobbinah et al., 2015). Drumm & Moore (2005) also highlights the cultural empowerment of the local community by tourists being interested in learning about traditional cultures from them as one of the benefits of ecotourism for the residents. Educating and cultivating interest among the local community will lead to a better apprehension of the influences of tourism from the aspect of the community, which will nourish the tourism industry (Byrd, 2007). In a case study in Akamas Region in Cyprus, for example, it was found that the local community objected the government officials for not consulting them in a tourism development project of building a natural park and threatened to interfere with the

development (Ioannides, 1995). It was observed that the lack of trust between the local community and the resource administrators disrupted the sustainable development of tourism (Ioannides, 1995). Therefore, we can conclude that the sustainability of tourism will not be carried out successfully with a top-down approach, i.e., not taking the interests of stakeholders in consideration.

In theory, a rewarding ecotourism pattern is fundamental to the dynamics among principal stakeholders in ecotourism to the extent that each contributes constructively to the other (Ross & Wall, 1999a). Furthermore, it has been noted in the literature that shifts in the economic, sociocultural, and environmental aspects of tourism are the main influential elements in ecotourism sustainability and these three facets are inter-related and each one has impacts on the others (Briassoulis, 2001; McCool, 1995; Nijkamp, Soeteman & Bergh, 1990; Pulido-Fernández et al., 2015; Twining-Ward & Butler, 2002; Zhang, 2016). Thus, a modified version of the Ross and Wall (1999a) relationship sustainability framework inspired by the adopted version of this framework in Tsaur et al.'s study (2006) will be the basis of this research which is depicted in Figure 2.1.

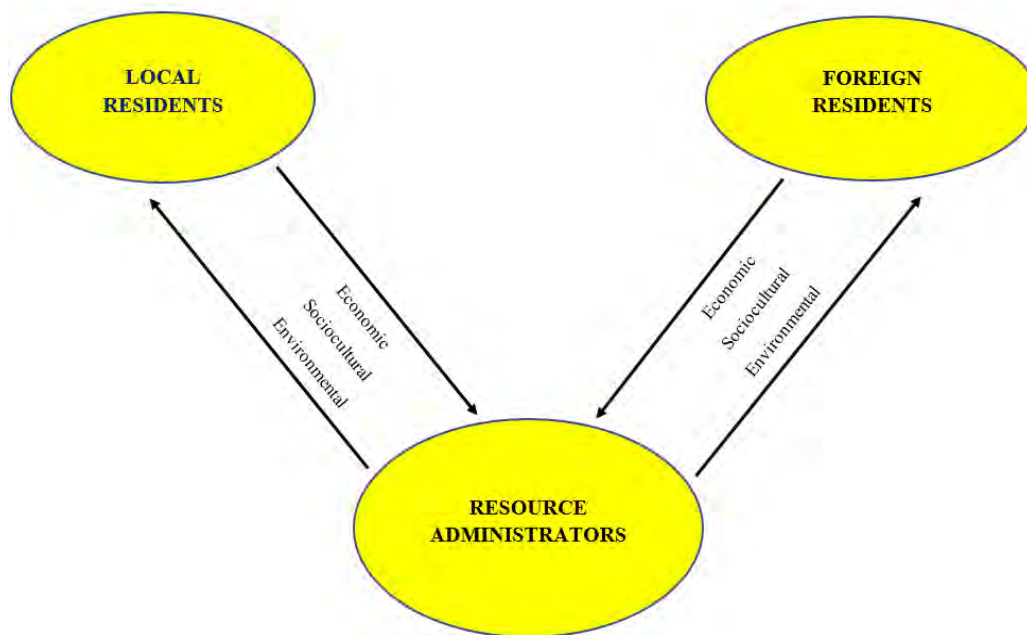


Figure 2.1 The Conceptual Framework of the Study

Although the necessity of stakeholders' participation in tourism planning, management, and practice is emphasized widely in the literature, the form of participation (workshops, surveys, etc.) and the actual participation largely depends on the characteristics of a special destination (Byrd, 2007; Ioannides, 1995). There is no one formula for all destinations; thus, this study uses the insights of three stakeholder groups who are the local residents community, the foreign residents community, and the resource administrators to evaluate the economic, sociocultural, and environmental ecotourism sustainability of Langkawi Island. This will hopefully add a new perspective to the literature. However, due to the lack of indicators in the literature on the relationship between local and foreign residents to evaluate the influence on sustainable tourism, it was therefore excluded from this study. We will then only look at the relationship between the two different types of residents with the resource administrators. Sustainable ecotourism can be evaluated in terms of economic

advantages earned by the local community, the admission of the culture and the society, and the conservation of the environment (Saputra et al., 2017). Thus, this study plans to measure the ecotourism sustainability of Langkawi Island in general as well as in each of the above-mentioned aspects.



CHAPTER THREE

RESEARCH METHODS

3.1 Introduction

This chapter will elaborate on the research method used to address the objectives and questions of this study. Firstly, in section 3.2., the research design for this study will be described. Section 3.3. will elaborate on the sampling design with a description of the participants of the study, the sample size chosen, and how data was collected. Section 3.4 will present how the questionnaire was created. Finally, section 3.5 identifies the data processing and analysis method for this study.

3.2 Research Design

This study utilizes a quantitative research design to gather respondents' viewpoints on the stakeholders involved in tourism on the island. Adopting a cross-sectional approach, the data is collected at a single point in time. The quantitative method, aligned with the positivist paradigm, provides a structured approach to data collection and analysis. The study employs questionnaires to administer surveys and obtain a substantial amount of data from a diverse sample of participants, enabling the identification of trends and relationships across various stakeholder groups.

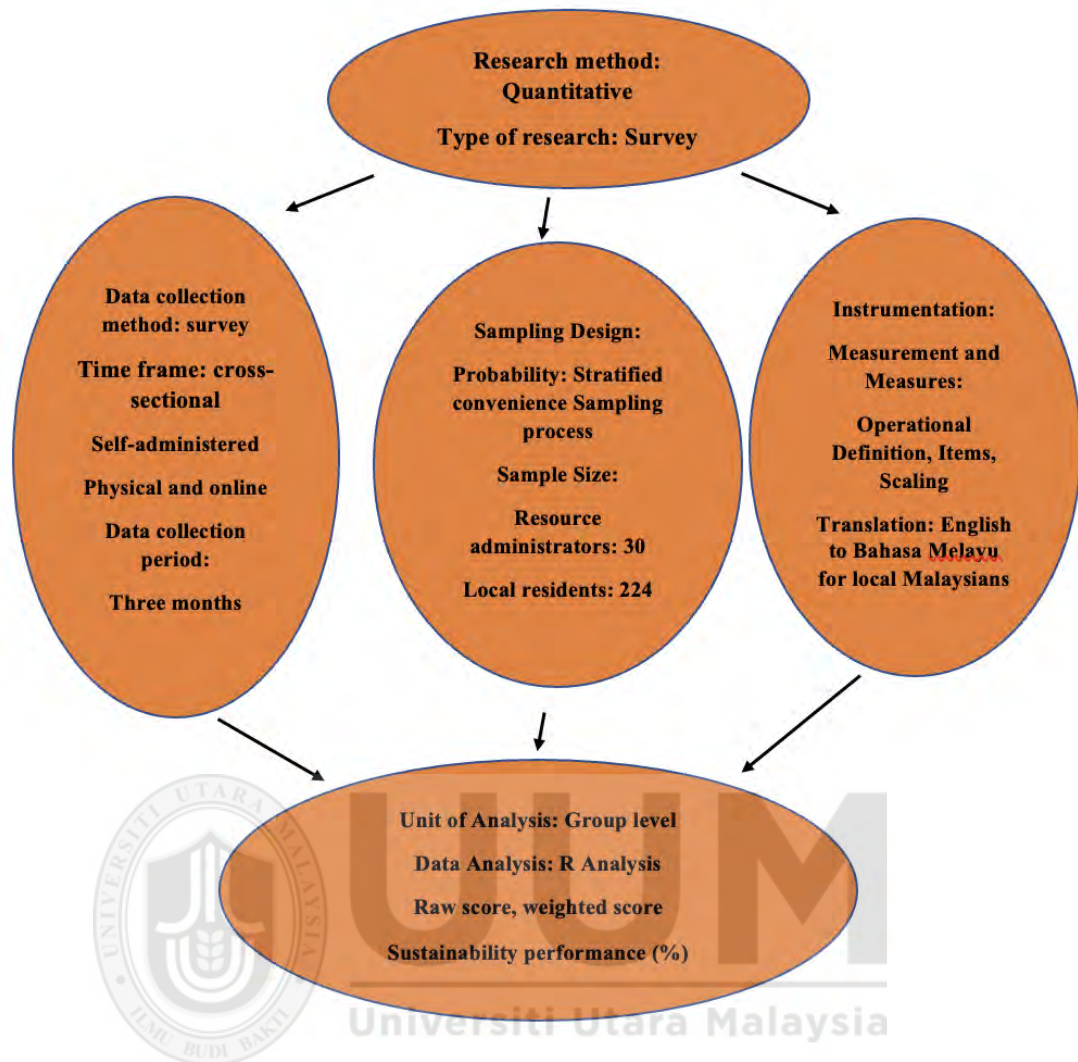


Figure 3.1 The Research Design of the Study

3.3 Sampling Design

3.3.1 Participants in the Study

The study selected three distinct stakeholder groups to participate: the local residents (comprising 88.2% of the Langkawi population), foreign residents (constituting 11.8% of the population), and resource administrators. The latter group includes key agencies vital to Langkawi's tourism development and environmental management:

1. Langkawi Development Authority (LADA): Established in 1990 under Malaysian law, LADA plays a central role in overseeing Langkawi's tourism planning and development. It is responsible for promoting the island as an

international tourism destination and actively manages Langkawi's UNESCO Geopark status. LADA's efforts include encouraging local eco-tourism, implementing regulations aligned with Global Geopark standards, and overseeing Geopark management in accordance with UNESCO guidelines (LADA Annual Report, 2020; Azman et al., 2011).

2. Langkawi Geopark Discovery Centre: Comprising eight distinct zones, this centre serves as an educational hub with engaging exhibitions, displays, photography, and digital and interactive media. It is integral to the understanding and promotion of Langkawi's unique geological and ecological features (Langkawi UNESCO Global Geopark Discovery Centre, 2023).
3. Langkawi Forestry Department: Tasked with managing, planning, protecting, and developing the Permanent Reserved Forests (PRF) in line with the National Forestry Policy (NFP) 1992 and the National Forestry Act (NFA) 1984, the Forestry Department plays a crucial role in preserving Langkawi's natural habitats (Forestry Department Peninsular Malaysia, 2014).
4. Tourism Malaysia: Operating under the Ministry of Tourism, Arts and Culture Malaysia, Tourism Malaysia focuses on promoting tourism in Malaysia and overseas. Since its establishment in 1972, it has played a prominent role in the international tourism arena (Tourism Malaysia Marketing Plan, 2022-2026).

The resource administrators respondents were used as subjects to assess the effect of local and foreign communities on resource administrators; the local community respondents were used as subjects to evaluate the effect of resource administrators and foreign residents on the local community, and the foreign residents respondents were

used as subjects to evaluate the effect of the local community and the resource administrators on the foreign community.

3.3.2 Sample Size

The unit of analysis for this research was divided at the group level for each stakeholder, and as the subjects within each group were homogenous within the group, but heterogenous among the three stakeholder groups, therefore, restricted/complex probability sampling in the form of stratified convenience sampling process was used as the sampling design (Sekaran & Bougie, 2016). Since the population of all stakeholder groups were not equal and the local residents population was much larger than the population of the foreign residents in Langkawi, and also much bigger than the number of resource administrators, a disproportionate stratified convenience sampling was identified to be the most suitable for determining the sample size of this study (Sekaran & Bougie, 2016). As the characteristics of any sample obtained using convenience sampling must be inspected to determine how well the sample represents the population (Sedgwick, 2013), when the subjects were approached, first they were asked if they were residents of Langkawi or if they were tourists visiting the island. After confirming they were residing in Langkawi, the questionnaire was given to them. As of 2019, Langkawi Island's population stood at 111,500, comprising 88.2% local citizens, including resource administrators, (98,343), 11.8% foreign residents (13,157) (Department of Statistics Malaysia, 2020). The distribution of employees in key administrative bodies on the island was as follows: LADA and Langkawi Geopark Discovery Centre (350), Tourism Malaysia Centres (10), the appointed committee of the Ministry of Tourism for Langkawi (20), and the Langkawi Forestry Department (30) (Aznil Monif, Personal Communication, 2021). Utilizing the sample size formula

proposed by Krejcie and Morgan (1970) and considering the population percentages, the calculated sample size for this study should have been 384. This breakdown includes 337 local residents, 45 foreign residents, and 1.25 resource administrators. Adhering to the recommended guidelines by Sekaran and Bougie (2016) that each group in a stratified convenience sampling technique should have a sample size between 30 and 500, the study allocated the minimum feasible sample size for the resource administrator group, which was set at 30. Consequently, the total planned sample size for the study was 412.

However, due to some surveys remaining unanswered, the actual number of respondents whose surveys underwent analysis in the study amounted to 284 individuals. The distribution of the sample size across different population groups is detailed in Table 3.1.

Table 3.1
Sample Size of the Study

Population Group	Total Population Size	Sample size	Number of Respondents
Local residents	97,933	337	224
Foreign residents	13,157	45	30
Resource administrators	410	30	30

3.3.3 Data Collection

Questionnaires were distributed to the three groups of stakeholders in person and/or via email. Each of the two ways of distributing survey questionnaires has its pros and cons; online electronic questionnaires are more convenient to administer, but at the same time may not receive a high response rate (Sekaran & Bougie, 2016). On the other hand, personally administered questionnaires provide the advantage of clarification of any doubts by the researcher, but at the same time can be cumbersome

and time consuming (Sekaran & Bougie, 2016). For the purpose of this study, we first performed electronic surveys online to all stakeholder groups. However, the response rate to the emails was not very encouraging, and the researcher did not have access to all the respondents' email addresses. Therefore, most questionnaires were administered personally on paper. The online questionnaires were created as Google forms and were open for 3 months. The self-administered questionnaires were printed out and distributed to the respondents in person.

For the stakeholder group of resource administrators, an attempt was made to reach them via email and afterwards, in an attempt to increase the response rate, follow-up emails were sent to them to make sure they participated in the survey. However, as direct access to the email addresses of respondents in this group was limited, and as only a few responded to the emails, the questionnaires were printed on paper and handed to them in their offices. For the stakeholder group of local residents, the questionnaires were first translated into Bahasa Melayu for ease of understanding, and their version of the questionnaires was both in English and Bahasa Melayu. This group of respondents were mainly approached and were handed the hard copy of questionnaires in public areas such as restaurants or shops. For the stakeholder group of foreign residents in Langkawi, the questionnaires were both sent to the subjects via email and given the printed surveys in person depending on the availability and ease of access to either their email addresses or themselves in person.

3.4 Research Instrument

The use of stakeholders' perceptions of each other's sustainability experiences is considered a robust and accurate method for evaluating the sustainability of Langkawi

in this study. The rationale behind this approach is rooted in the theoretical framework proposed by Ross and Wall (1999a), which emphasizes the significance of positive perceptions within local communities for the sustainability of ecotourism. As depicted in figure 1.2, when residents hold positive perceptions, recognizing the finite nature of natural resources and valuing their unique environment, they are more likely to engage in stewardship practices. Furthermore, the positive impact is heightened when supplementary income from tourism contributes to the economic well-being of the community. This positive perception not only fosters stewardship but also encourages advocacy for the protection of natural resources, thereby creating a shared commitment to ecological preservation (Ross and Wall, 1999a).

By evaluating stakeholders' perceptions of each other, the study aims to gauge the extent to which positive perceptions exist within the community and between different stakeholders involved in ecotourism. This method is considered reliable as it reflects the actual experiences and sentiments of those directly impacted by ecotourism activities. The use of perceptions helps capture the nuanced and subjective aspects of sustainability, providing a more holistic and comprehensive evaluation.

The assessment of tourism sustainability in the destination, considering resource administrators, local residents, and foreign residents' perspectives, was conducted through the utilization of stakeholder perceptions. This approach aimed to mitigate subjective judgments by researchers and minimize biases among interviewees (Tsaur et al., 2006). The evaluation employed suitable indicators and a substantial number of samples to ensure a more objective and comprehensive analysis of the destination's sustainability

Objective indicators report only facts, excluding the stakeholders' viewpoints and recognition of sustainability (Ng et al., 2017). The touchstone for ecotourism sustainability may vary depending on the space and time characteristics of specific destinations; therefore, using subjective indicators to measure these variations could be more reasonable and practical (Tsaur et al., 2006). Furthermore, resident perception surveys are likely to smooth out the indicators to get aligned with unique space and time features of various ecotourism sites and validate local inputs according to standardized indicators (Graham, 2001). Thus, this study applied the subjective indicators which were the viewpoints of the three main stakeholder groups on the ecotourism sustainability practices of the other groups, which eventually were considered a representative of the overall sustainability level of the ecotourism in the study area. The indicators employed in this study were adapted from the Sustainable Ecotourism Indicator System (SEIS), developed by Tsaur et al. (2006), and were formed on the basis of the relationship sustainability framework proposed by Ross and Wall (1999a). The reasons these indicators were selected for the present study were firstly, SEIS provides an evaluation of the overall as well as separate sustainability aspects (economic, sociocultural, and environmental) of ecotourism (Ng et al., 2017). This benefits the decision makers of the island with a better understanding of the ecotourism status of the site; secondly, SEIS was based on the sustainable relationship theoretical framework developed by Ross and Wall (1999a), which was one of the issues which had not been sufficiently investigated in Langkawi Island; thirdly, SEIS was basically designed for an ecotourism site (Saviki Village, an ecotourism site in Taiwan) which was similar to Langkawi Island. The Sustainable Ecotourism Indicator System (SEIS) developed by Tsaur et al. (2006) consists of 47 indicators covering sustainability issues in environmental, economic, and sociocultural aspects.

Out of 47 indicators used by Tsaur et al. (2006), 20 were utilized and adapted in this study. First, the six indicators which assessed the interpretation services were excluded because in Langkawi Island, the local community and the business operators who deal with international tourists speak simple enough English; thus, interpretation services are not required in this context. In the study by Tsaur et al. (2006), there were three versions of questionnaires given to the three ecotourism stakeholder groups of resource administrators, the local community, and the tourists. Each set of questionnaires was in fact used to evaluate each stakeholder group's perspectives on the sustainable ecotourism performance of the other two stakeholder groups, and accordingly their relationships with the other two groups (Tsaur et al., 2006). In the present study, however, the set of questions which were originally designed for visitors were omitted as it was not the main focus of the groups for this study. Even so, four indicators from the excluded section, which assessed the economic sustainability of ecotourism, were adapted for this study (Tables 3.2, 3.3, and 3.4).

Table 3.2
Questionnaire Items Given to the Foreign Residents Group

Item	Sustainability Dimension	Relationship Aspect	Item Source
1			
2			
3			
4			

5	The resource administrators are conserving the natural resources of the island like water and forest.	
6	The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	Environmental
7	The resource administrators have helped improve foreign residents' living environment and quality.	
8	The resource administrators are creating acceptable incomes for the foreign residents.	
9	The resource administrators are creating employable opportunities for the foreign residents.	Economic
10	The resource administrators provide economic benefits (compensation) for the foreign residents.	

Table 3.3
Questionnaire Items Given to the Local Residents Group

Item	Sustainability Dimension	Relationship Aspect	Item Source
1			
2			
3			
4			
5			
1			
2			
3			
4			
5			

6	The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.		
7	The resource administrators have helped improve local residents' living environment and quality.		
8	The resource administrators are creating acceptable incomes for the local residents.		
9	The resource administrators are creating employable opportunities for the local residents.	Economic	
10	The resource administrators provide economic benefits (compensation) for the local residents.		

Table 3.4
Questionnaire Items Given to the Resource Administrators Group

	Item	Sustainability Dimension	Relationship Aspect	Item Source
1	The local residents support natural resource conservation.	Socio-cultural		
2	The local residents participate in the island resource management and planning.			
3	The local residents interfere with the natural resources of the island.			
4	The resource administrators receive pressures from the local residents regarding resource exploitation.		Effects of the local residents on resource administrators	Adapted from Tsaur et al. (2006)
5	The resource administrators receive pressure from the local residents regarding surrounding development.	Environmental		
6	The local residents are polluting the island's environment.			
7	The activities from the local residents' livelihoods pose a threat to the island's ecosystem.			
8	The local residents receive shares in the distribution of tourism revenues.	Economic		

9	The local residents make economic contribution for environmental conservation.		
10	Most of the tourism-related employment engages local residents.		
11	The foreign residents support natural resource conservation.		
		Socio-cultural	
12	The foreign residents participate in the island's resource management and planning.		
13	The foreign residents interfere with the natural resources of the island.		Effects of the foreign residents on resource administrators
14	The resource administrators receive pressures from the foreign residents regarding resource exploitation.	Environmental	
15	The resource administrators receive pressure from the foreign residents regarding surrounding development.		
16	The foreign residents are polluting the island's environment.	Environmental	
17	The activities from the foreign residents' livelihoods pose a threat to the island's ecosystem.		
18	The foreign residents receive shares in the distribution of tourism revenues.		Effects of the foreign residents on resource administrators
19	The foreign residents make economic contribution for environmental conservation.	Economic	
20	Most of the tourism-related employment engages foreign residents.		

For this study, three sets of questionnaires were chosen to be given to the respondents depending on which stakeholder group they belonged to. This way, each group evaluated the other groups' sustainability performance.

Overall, the questionnaire which was designed for this study has two main sections. Section one is intended to gather demographic data from the participants, for it has been mentioned in the literature earlier those perspectives on the conception of sustainability is not consistent across different sociodemographic groups (See for example, Qiu et al., 2019). In their study, Qiu et al. (2019) found that some specific groups of the community such as senior citizens, married residents, and those who were engaged in tourism businesses tended to embrace the rewards of tourism development more than other members of the community. The demographic information which is being asked in the first section of the questionnaire for this study included age, gender, educational level, the stakeholder group they belonged to, and the number of years they had been residing on the island.

Section two consists of 20 different questions, divided into two sets of questions directed towards two other stakeholder groups and adapted in three questionnaires. The questions assess the effects of the ecotourism sustainability performance of resource administrators on the local community (local and foreign residents), including three questions addressing economic, three environmental, and four sociocultural aspects of sustainable ecotourism of the island (Tsaor et al., 2006). The other ten questions evaluate the effects of ecotourism sustainability performance of the local community (local and foreign residents) on the resource administrators of the island, including two questions addressing sociocultural dimension, three questions on economic dimension, and five questions on environmental dimensions of sustainable ecotourism of Langkawi Island (Tsaor et al., 2006). (See Appendix A).

The respondents were asked to rate each indicator in the questionnaire using a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

It's important to take into account the idea of thresholds, which represent the minimum acceptable condition for indicators. These indicators serve as an early warning for communities to take action. Yet, instead of relying on thresholds, this study employs the Sustainability Barometer (Prescott-Allen, 1997) to assess the sustainable development of an ecotourism site. This research utilized Prescott-Allen's (1997) Sustainability Barometer. The assessment outcomes for a destination's sustainable development were categorized into sustainable and unsustainable within a neutral range. Four levels were established based on the level of sustainability. With the range of scores being between 0 and 100, this system utilized 50 as the median, based on the Barometer of Sustainability. Scores were divided into 4 intervals, where 0 to 25 was classified as “unsustainable,” 25 to 50 was classified “potentially unsustainable,” 50 to 75 was classified “potentially sustainable,” and 75 to 100 was classified “sustainable.”

3.4.1 Validity and Reliability

The research instrument used in this study was a close-ended questionnaire, and its validity and reliability were assessed to ensure the rigor of the study. Validity refers to the extent to which the questionnaire accurately measures the objectives of the study, while reliability refers to the consistency and accuracy of the instrument's results when repeated under similar conditions (Heale & Twycross, 2015; Taherdoost, 2016).

The validity of the questionnaire was established through two parts: content validity and construct validity. Content validity was ensured by translating the questionnaire

and conducting expert-driven pretesting to assess face validity. The questionnaire was translated into the local language for the convenience of the local residents. A panel of experts reviewed the questions to ensure their relevance, clarity, and appropriateness of the measurement scales. This process helped align the questionnaire with the study's objectives and adapt it to the Malaysian context (Ruel et al., 2016).

Construct validity was verified through a pilot test involving three respondent groups: local residents, international residents, and resource administrators. The pilot test aimed to assess the clarity and understandability of the survey questions, as well as the correlations between items measuring similar constructs. Confirmatory Factor Analysis (CFA) was performed in R to analyse the collected data and test the reliability and validity of the measurement models (Taherdoost, 2016).

3.4.2 Content Validity

In this study, the questionnaire adopted and adapted the indicator system proposed by Tsaor et al. (2006) based on the relationship sustainability framework proposed by Ross and Wall (1999a). Tsaor et al.'s indicator set was originally developed to investigate the sustainability of a Taiwanese indigenous ecotourism site. The selected survey items were adopted or modified from previous studies examining the same variables or concepts relevant to the study's framework. The translation into the local language and the expert-driven pretesting ensured the face validity of the questionnaire (Ruel et al., 2016).

3.4.2.1 Translation into Malay Language

To ensure that all respondents understood the questions accurately, the questionnaire was translated into the Malay Language, the national language of Malaysia. The

translation process involved bilingual individuals who shared the same mother tongue as the respondents. The translated questionnaire was reviewed by another bilingual person to ensure its accuracy and appropriateness for the target respondents (Taherdoost, 2016).

3.4.2.2 Expert-driven Pre-testing (for Face Validity)

The questionnaire underwent expert-driven pretesting to assess its face validity. A panel of experts, consisting of post-graduates from tourism department of UUM, evaluated the questionnaire's items for relevance, completeness, clarity, and consistency of language. The panelists reviewed the questionnaire based on the study's objectives, related theories, and the original source of the questionnaire. The panelists provided feedback on the theoretical relevance of the items and suggested modifications where necessary (Table 3.5). Decisions to include or exclude items were made based on the level of agreement among the panelists, using a "complete" decision rule. Items that received agreement from at least 50% of the panelists were retained. This process helped to ensure that the questionnaire appropriately represented the constructs of interest (Creswell, 2014b; Hardesty & Bearden, 2004).

Table 3.5
Face Validity Test Results

	Original Item	Feedback	Modification	Final Item
1	Residents' daily living was disturbing by the setting up of PA.	Grammar of the passive verb should be modified. It needs to be more clear. Specify what is meant by "PA" in the context of your study. Specify the local/foreign residents.	"Protected area" was substituted with "ecotourism activities on the island". The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires.	The local/foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island.

2	PA provides residents for environmental education opportunities.	There should be correct use of preposition. PA should be clarified according to the study context.	The grammar was corrected. "Protected area" was substituted with "the resource administrators".	The resource administrators provide the local/foreign residents with environmental education opportunities.
3	PA improves residents' environmental conscious.	PA should be clarified according to the study context. Grammar should be corrected.	"Protected area" was substituted with "the resource administrators". Grammar was corrected.	The resource administrators improve local/foreign residents' environmental consciousness. There is good interaction between the resource administrators and the local/foreign residents.
4	Good interaction between RA and residents.	The structure of the sentence should be more understandable. PA should be clarified according to the study context.	The phrase was changed into a sentence. "Protected area" was substituted with "the resource administrators".	The resource administrators provide economic benefits (compensation) for the local/foreign residents.
5	PA providing economical benefits (compensation) to community.	There should be correct use of verb tense. PA should be clarified according to the study context. "Community" should be specified according to the context of the study.	The grammar was corrected; "Protected area" was substituted with "the resource administrators". The word "community" was changed to "local residents" or "foreign residents" in respective questionnaires.	The resource administrators are conserving the natural resources of the island like water and forest. The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.
6	Conserving natural resources (water, forestry).	It needs to be more clear.	The whole phrase was restructured and the word "resource administrators" was added.	The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.
7	Providing sustainable harvest (farming, fishing, hunting).	It needs to be more clear.	The whole phrase was restructured and the word "resource administrators" was added.	

8	Improving residents' living environment and quality.	It needs to be more clear.	The whole phrase was restructured. The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The word "resource administrators" was added.	The resource administrators have helped improve local/foreign residents' living environment and quality.
9	Residents support resource conservation.	Specify the local/foreign residents.	The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The word "natural" was added.	The local/foreign residents support natural resource conservation.
10	Residents participate in resource management and planning.	Specify the local/foreign residents.	The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The word "island" was added.	The local/foreign residents participate in the island resource management and planning.
11	Residents participate in interpretation service in PA.	Interpretation services are not needed/used in your study context.	The item was deleted	
12	Residents are interfering with resources in PA.	Specify the local/foreign residents. There should be correct use of verb tense. PA should be clarified according to the study context.	The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The grammar was corrected. "Protected area" was substituted with "the resource administrators".	The local/foreign residents interfere with the natural resources of the island.
13	Pressure from resource exploitation by residents.	Specify the local/foreign residents. It needs to be more clear.	The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The whole phrase was restructured. The word "resource administrators" was added.	The resource administrators receive pressures from the local/foreign residents regarding resource exploitation.

14	Pressure from surrounding development by residents.	Specify the local/foreign residents. It needs to be more clear.	The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires. The whole phrase was restructured. The word "resource administrators" was added.	The resource administrators receive pressure from the local/foreign residents regarding surrounding development.
15	Polluting PA environment.	It needs to be more clear. PA should be clarified according to the study context.	The whole phrase was restructured. "PA" was substituted by "the island's environment".	The local/foreign residents are polluting the island's environment.
16	Activities of residents' livelihoods threat to PA ecosystem.	Specify the local/foreign residents. PA should be clarified according to the study context. The sentence needs to be more clear. The grammar needs to be corrected.	The whole phrase was restructured. "PA" was substituted by "the island's environment". The word "residents" was changed to "local residents" or "foreign residents" in respective questionnaires.	The activities from the local/foreign residents' livelihoods pose a threat to the island's ecosystem.
17	PA provides tourists educational opportunities.	It is redundant and it does not apply to your study.	The item was deleted.	
18	PA provides adequate interpretative facilities.	Interpretation services are not needed/used in your study context.	The item was deleted.	
19	PA provides understandable interpretative facilities.	Interpretation services are not needed/used in your study context.	The item was deleted.	
20	Tourists satisfaction of interpretative facilities.	Interpretation services are not needed/used in your study context. It does not apply to your study.	The item was deleted.	
21	Tourists satisfaction of interpreter service.	It is redundant and it does not apply to your study. Interpretation services are not needed/used in your study context.	The item was deleted.	

22	Increasing tourists' environmental awareness.	It is redundant and it does not apply to your study.	The item was deleted.
23	Providing excellent natural and humanistic experiences.	The item is vague and does not apply to your study.	The item was deleted.
24	PA provides excellent environmental education experiences.	It is redundant and it does not apply to your study.	The item was deleted.
25	Tourists satisfy the whole recreational quality.	The item is vague and does not apply to your study.	The item was deleted.
26	Attractions in PA provide exceptional sense of appreciation.	The item is vague and does not apply to your study.	The item was deleted.
27	Attractions in PA attract visitors' attention.	It does not apply to your study.	The item was deleted.
30	Making economic contribution for conservation.	Specify the subject of the sentence according to the context of your study. Correct verb tense needs to be used.	The words "Local/Foreign residents" were added as subjects in respective questionnaires. The word "environmental" was added. The whole phrase was restructured. The local/foreign residents make economic contribution for environmental conservation.
31	Tourists participate in conservative activities.	It is redundant and it does not apply to your study.	The item was deleted.
32	Overloading capacity in peak periods.	The item is vague and does not apply to your study.	The item was deleted.
33	Destroying environmental quality.	It is redundant and it does not apply to your study.	The item was deleted.

34	Local community provides experiential opportunities for tourist.	It is redundant and it does not apply to your study.	The item was deleted.	
35	Providing diverse cultural experiences.	The item is vague and does not apply to your study.	The item was deleted.	
36	Providing cultural exchange opportunities.	It does not apply to your study.	The item was deleted.	
37	Good interaction between residents and tourists.	It is redundant and it does not apply to your study.	The item was deleted.	
38	Community shares in the distribution of tourism revenue.	It needs to be more clear. The word "community" should be specified according to the context of your study.	The word "community" was changed to "local residents" or "foreign residents" in respective questionnaires. The whole phrase was restructured.	The local/foreign residents receive shares in the distribution of tourism revenues.
39	Improving regional construction.	The item is vague and does not apply to your study.	The item was deleted.	
40	Creating acceptable incomes.	It needs to be more clear.	The word "resource administrators" was added as the subject of the sentence. The whole phrase was restructured. The words "local residents" or "foreign residents" were added in respective questionnaires.	The resource administrators are creating acceptable incomes for the local/foreign residents.
41	Creating employable opportunities.	It needs to be more clear.	The word "resource administrators" was added. The whole sentence was restructured. The words "local residents" or "foreign residents" were added in respective questionnaires.	Th resource administrators are creating employment opportunities for the local/foreign residents.

42	Most of tourism-related employment are local people	"Local people" should be clarified according to the study context. The sentence needs to be more understandable.	The word "local people" was replaced by the words "local residents" or "foreign residents" in respective questionnaires. The verb "engage" was added.	Most of the tourism-related employment engages local/foreign residents.
43	Promoting social welfare (health and education level).	It is redundant and it does not apply to your study.	The item was deleted.	
44	Increasing congestion sense of residents' daily living in peak periods.	The item is vague and does not apply to your study.	The item was deleted.	
45	Causing traffic jam in peak periods.	It does not apply to your study.	The item was deleted.	
46	Destroying public security.	It does not apply to your study.	The item was deleted.	
47	Causing loss of traditional culture.	It does not apply to your study.	The item was deleted.	
48	Residents' satisfaction for tourism development.	It is redundant and it does not apply to your study.	The item was deleted.	
49	Polluting local environment.	It is redundant and it does not apply to your study.	The item was deleted.	

3.4.3 Construct Validity and Reliability with Pilot Test

Before commencing the actual data collection, three pilot tests were conducted, one for each respondent group. Each pilot test involved 15 respondents from their respective group, enabling the assessment of validity and reliability of each

questionnaire independently, taking into account the unique characteristics of each group.

The pilot test is aimed to improve the response rate, as well as the reliability and validity of the measure. The results of the pilot test were crucial in assessing the validity and reliability of the measurement models, which were analyzed using Confirmatory Factor Analysis (CFA) in R.

Factor loadings measure the strength of the relationship between an item and the latent construct (factor). According to Awang (2012), in measuring the construct validity of items in a questionnaire, for newly developed items, the factor loading for every item should exceed 0.5. For established items, the factor loading for every item should be 0.6 or higher.

Average Variance Extracted (AVE) measures the proportion of variance captured by the latent construct relative to measurement error. The rule of thumb is that an AVE value greater or equal to 0.50 is acceptable (Hair et al., 2013).

According to George and Mallery (2019), to measure the reliability of a questionnaire, values for Cronbach's Alpha of above 0.90 indicate excellent internal consistency, above 0.80 is good, above 0.70 is acceptable, above 0.60 is questionable, above 0.50 is poor, and below 0.50 is unacceptable.

3.4.3.1 Validity and Reliability of Questionnaires Given to Local Residents Group

Table 3.2 presents the results of the validity assessment for the items of the questionnaire related to local residents. The factor loadings, representing the strength of the relationship between each indicator and its corresponding factor, were found to

be high, indicating a robust association between the indicators and the underlying construct. The Average Variance Extracted (AVE) values, which indicate the proportion of variance explained by the indicators in relation to their respective factors, were all above the recommended threshold of 0.5. This indicates that the indicators effectively captured a significant proportion of the construct's variability, supporting the questionnaire's validity.

Table 3.6
Validity and Reliability of the Questionnaires Given to Local Residents Group

Indicator	Factor Loading	AVE	Cronbach's Alpha
The local residents' daily living is affected negatively by the setup of ecotourism activities on the island.	0.56	0.75	0.62
The resource administrators provide the local residents with environmental education opportunities.	0.82	0.7	0.73
The resource administrators improve local residents' environmental consciousness.	0.7	0.61	0.5
There is good interaction between the resource administrators and the local residents.	0.63	0.72	0.9
The resource administrators are conserving the natural resources of the island like water and forest.	0.3	0.62	0.65
The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	0.8	0.63	0.7
The resource administrators have helped improve local residents' quality of living environment.	0.36	0.52	0.35
The resource administrators provide economic benefits (compensation) for the local residents.	0.82	0.64	0.41
The resource administrators are creating acceptable incomes for the local residents.	0.52	0.54	0.72
The resource administrators are creating employable opportunities for the local residents.	0.62	0.74	0.2
Average	0.61	0.64	0.57

The table also displays the results of Cronbach's alpha coefficient, a measure of internal consistency reliability, for each factor in the local residents' questionnaire. The average coefficient is above 0.5, which indicates good internal consistency reliability.

This suggests that the items within each factor consistently measured the intended construct.

3.4.3.2 Validity and Reliability of Questionnaires Given to Foreign Residents Group

Similarly, table 3.3 presents the results of the validity and reliability assessment for the items of the questionnaire related to foreign residents. The average for factor loadings was above 0.5, indicating a fairly strong relationship between the indicators and their respective factors. The AVE values were all above 0.5, indicating that the indicators effectively explained a significant proportion of the construct's variability, supporting the questionnaire's validity.

The average range for Cronbach's alpha coefficients was above 0.5, indicating good internal consistency reliability. This suggests that the items within each factor consistently measured the intended construct.

Table 3.7
Validity and Reliability of the Questionnaires Given to Foreign Residents Group

Indicator	Factor Loading	AVE	Cronbach's Alpha
Foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island.	0.71	0.75	0.81
The resource administrators provide the foreign residents with environmental education opportunities.	0.72	0.7	0.62
The resource administrators improve foreign residents 'environmental consciousness.	0.87	0.61	0.8
There is good interaction between the resource administrators and the foreign residents.	0.5	0.4	0.52
The resource administrators provide economic benefits (compensation) for the foreign residents.	0.8	0.6	0.73
The resource administrators are creating acceptable incomes for the foreign residents.	0.69	0.3	0.56
Th resource administrators are creating employment opportunities for the foreign residents.	0.74	0.75	0.81
The resource administrators are conserving natural resources of the island like water and forest.	0.41	0.64	0.69

The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	0.48	0.54	0.76
The resource administrators have helped improve foreign residents' quality of living environment.	0.86	0.8	0.8
Average	0.67	0.60	0.71

3.4.3.3 Validity and Reliability of Questionnaires Given to Resource Administrators Group

Similarly, table 3.4 presents the results of the validity and reliability assessment for the questionnaire items related to foreign residents. The average for factor loadings was above 0.5, indicating a fairly strong relationship between the indicators and their respective factors. The AVE values were all above 0.5, indicating that the indicators effectively explained a significant proportion of the construct's variability, supporting the questionnaire's validity.

The average range for Cronbach's alpha coefficients was above 0.5, indicating good internal consistency reliability. This suggests that the items within each factor consistently measured the intended construct.

Table 3.8
Validity and Reliability of the Questionnaires Given to Resource Administrators Group

Indicator	Factor Loading	AVE	Cronbach's Alpha
Foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island.	0.71	0.75	0.81
The resource administrators provide the foreign residents with environmental education opportunities.	0.33	0.71	0.62
The resource administrators improve foreign residents 's environmental consciousness.	0.28	0.55	0.4
There is good interaction between the resource administrators and the foreign residents.	0.5	0.46	0.52
The resource administrators provide economic benefits (compensation) for the foreign residents.	0.82	0.23	0.33
The resource administrators are creating acceptable incomes for the foreign residents.	0.69	0.35	0.56

Th resource administrators are creating employment opportunities for the foreign residents.	0.71	0.75	0.81
The resource administrators are conserving natural resources of the island like water and forest.	0.41	0.84	0.69
The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	0.48	0.54	0.46
The resource administrators have helped improve foreign residents' quality of living environment.	0.81	0.2	0.71
The foreign residents participate in the island's resource management and planning.	0.66	0.75	0.73
The foreign residents interfere with the natural resources of the island.	0.74	0.64	0.8
The resource administrators receive pressures from the foreign residents regarding resource exploitation.	0.21	0.22	0.55
The resource administrators receive pressure from the foreign residents regarding surrounding development.	0.75	0.4	0.742
The foreign residents are polluting the island's environment.	0.55	0.76	0.7
The activities from the foreign residents' livelihoods pose a threat to the island's ecosystem.	0.58	0.34	0.66
The foreign residents receive shares in the distribution of tourism revenues.	0.81	0.75	0.694
The foreign residents make economic contribution for environmental conservation.	0.48	0.64	0.727
Most of the tourism-related employment engages foreign residents.	0.74	0.54	0.23
Average	0.59	0.54	0.61

Overall, the pilot test results demonstrate strong validity and reliability for the questionnaire items, supporting the use of the instrument in the main data collection phase.

3.5 Data Analysis

The data collected from each stakeholder group underwent a systematic analysis to evaluate perspectives. All questionnaire responses were coded in Microsoft Excel for Windows 16 and transferred to R software for Windows 16 for comprehensive analysis (Tsaur et al., 2006).

The initial step involved calculating a raw mean score for each indicator based on its relationship aspect. This score summarized each stakeholder's perception of how other groups contributed to their well-being in terms of economic, environmental, and socio-cultural aspects (Tsaur et al., 2006). Subsequently, each raw score was adjusted to represent the overall population (referred to as the adjusted weight). A weighted score was then calculated using the adjusted weight and the raw score formula: $\text{weighted score} = (\text{raw score mean} - 1) / (4 \times \text{adjusted weight})$. assessment of sustainability by prioritizing indicators based on their impact.

The percentage of Langkawi Island's sustainability performance was determined in the next step, utilizing the weighted score and the weight assigned to each relationship aspect (Tsaur et al., 2006).

To address the first research question, indicator weights for all 40 indicators were identified using Theingtha's (2017) formula. For the second research question, weights within each group of stakeholders' relationships were calculated, adopting the formula suggested by Tsaur et al. (2006). The raw score of each indicator was then converted to the weighted score using the formula from Tsaur et al. (2006).

The study employed indicator weights calculated through the formula, considering the mean scores of importance. This quantitative prioritization aids decision-making, resource allocation, and result interpretation in alignment with sustainable tourism principles (Tsaur, 2006). The approach reflects stakeholder perceptions, ensuring a systematic evaluation of tourism sustainability in the studied area.

For the evaluation of ecotourism sustainability (research question one), the study employed weighted scores derived from normalized sustainability scores across four relationship aspects, combining indicator weights and scores using the formulas by Tsauro et al. (2006).

In addressing research question two and evaluating the contribution of each relationship aspect to sustainability, achievement scores were determined using the formula by Tsauro et al. (2006). This analysis not only provides an overall sustainability assessment but also highlights specific areas for improvement, suggesting the need for environmental education and carrying capacity strategies to address negative impacts on resource preservation and ecotourism sustainability.



CHAPTER FOUR

FINDINGS

4.1 Introduction

This chapter will elaborate on the results of the data analysis, and how they can address the questions and objectives of this study. Firstly, in section 4.2., the demographic information of the respondents will be described. Section 4.3. will address the first research question as well as the four derived objectives. Section 4.4 will address the second research question as well as the four derived objectives.

4.2 Demographic Information of Respondents

Thirty resource administrators, 224 local Malaysian residents, and thirty foreign residents in Langkawi completed the questionnaires. Table 4.1 presents the demographic information of three groups of stakeholders, namely resource administrators, local Malaysians, and international residents. The table shows the frequency of responses for each demographic category. Both genders were nearly equally represented, with male respondents slightly more than females among local Malaysians and international residents. This suggests that the topic being studied was relevant to both genders. The age distribution varied significantly across stakeholder groups, with the majority of respondents being between 20 and 25 years old among local Malaysians and resource administrators, but mostly in the age range of 51 to 65 years old among international residents. This suggests that different age groups may

have different experiences or perspectives on the topic being studied. With regards to education, the international residents group skewed towards higher education levels, while the local residents were on the lower level; the resource administrators showed a more normal distribution level of education with the majority being high school- or college- qualified. This suggests that different groups of stakeholder may have different levels of knowledge or expertise on the topic being studied. The years of residency in Langkawi Island were generally high across all stakeholder groups, with the majority of respondents having lived in Langkawi Island for more than 10 years. This suggests that the respondents may have a good understanding of the local context and were able to provide valuable insights into the topic being studied.

Table 4.1
Demographic Information of Respondents

Demographic information	Resource Administrators	Local Malaysians	International Residents
Age			
Below 20	0	8	0
20 – 25	21	125	6
36 – 50	4	70	8
51 – 65	5	18	10
65 or above	0	3	6
Education	0	2	
Elementary	8	126	1
High school	10	32	10
College	6	49	5
Graduate	6	15	12
Others			2
Years of Residency			
Below 1	7	44	3
1-2	2	15	7
3-5	5	35	7
6-10	0	34	3
Above 10	16	96	10
TOTAL	30	224	30

4.3 The Sustainability Level of Ecotourism in Langkawi Island

In addressing the first research question, the study utilized Theingthae's (2017) formula to determine indicator weights for 40 indicators, aiming to quantitatively assign importance within relationship aspects related to sustainable tourism.

For the second research question, weights within each stakeholder group relationship were calculated using Tsaur et al.'s (2006) formula. Raw scores for each indicator were then transformed into weighted scores employing the same formula. These weighted scores played a crucial role in assessing Langkawi Island's sustainability, with the calculation process involving the determination of the mean of raw scores. This mean provided a comprehensive summary of each stakeholder group's perception of contributions in socio-cultural, economic, and environmental aspects.

The use of mean scores served as a central tendency measure, summarizing the overall perception within each stakeholder group. Indicator weights and weighted scores facilitated a nuanced understanding of interactions and contributions among stakeholders in Langkawi's sustainable tourism development, ensuring a robust analysis (Theingthae, 2017; Tsaur et al., 2006). These weighted scores were pivotal in evaluating Langkawi Island's sustainability achievement, offering a comprehensive summary of each stakeholder group's perception of how other groups contributed to their well-being in socio-cultural, economic, and environmental terms.

4.3.1 Overall Sustainability Level of Ecotourism in Langkawi Island

To address research question one, the formula of achievement percentage used by Tsaur et al. (2006) was adopted to calculate the overall sustainability of the ecotourism in Langkawi Island, incorporating indicator importance (or weights) and number of indicators in each relationship. As shown in Table 4.2, the total weighted score

achieved by Langkawi Island was 60.43, or ‘potentially sustainable’ (OK). Based on the Barometer of Sustainability, with the range of scores being between 0 and 100, this system utilized 50 as the median. Scores were divided into 4 categories, where 0 to less than 25 was classified as ‘unsustainable’, 25 to less than 50 was classified ‘potentially unsustainable’, 50 to less than 75 was classified ‘potentially sustainable’, and 75 to 100 was classified ‘sustainable’. This shows that there is a significant opportunity (75% vs 60.43%) for Langkawi Island to achieve a sustainability level of 75% or more.

Table 4.2
Sustainability Achievement of Langkawi Island in Socio-cultural, Economic, and Environmental Aspects

Dimension	Weight	Weighted Score	Achievement Percentage
Socio-cultural	29.75	17.86	60.02
Economic	32.54	22.22	68.31
Environmental	37.71	20.35	53.95
Total	100.0	60.43	60.43

Moreover, to address the three research objectives derived from the first research question, which deal with evaluating the environmental, economic, and socio-cultural sustainability level of ecotourism in Langkawi Island, the mean scores, weighted scores, and rankings of indicators were calculated using the formula by Tsaor et al. (2006) as depicted in tables 4.3, 4.4, and 4.5.

4.3.2 Socio-cultural Sustainability of Ecotourism in Langkawi Island

Overall, by comparison of basic descriptive analysis, and evaluating the socio-cultural sustainability in Langkawi as shown in table 4.3, the highest mean score was under the relationship aspect which is, “influence of local residents on resource administrators”.

This showed that many resource administrators believed that local residents supported natural resource conservation (4.73). The second rank in terms of socio-cultural sustainability of Langkawi Island pertained to what resource administrators thought about the extent to which foreign residents supported natural resource conservation that achieved the mean score of 3.93. In other words, resource administrators believed that the support of both local and foreign residents for natural resource conservation was the highest factor contributing to the socio-cultural sustainability of Langkawi. Furthermore, the second highest mean score of sustainability in this dimension was what the resource administrators thought about the participation of local and foreign residents in island resource management and planning.

For the lowest level of mean scores in this analysis, foreign and local residents did not think that their daily livings were affected negatively by the setup of ecotourism of the island to a large extent. Moreover, local residents believed that resource administrators provided them with environmental education opportunities to an average extent (3.36) but was still higher in rank than what foreign residents believed of this factor (2.37).

Overall, the achievement percentage of socio-cultural sustainability of ecotourism in Langkawi turned out to be 60.02% (table 4.2), which was based on the Barometer of Sustainability as mentioned in section 4.2.1, placing it in the category of “potentially sustainable”.

Table 4.3
Socio-cultural Sustainability of Ecotourism in Langkawi Island

Indicator	Mean Score	Weight	Weighted Score	Rank
The local residents support natural resource conservation.	4.73	3.62	3.38	12
The foreign residents support natural resource conservation.	3.93	3.01	2.2	11
The local residents participate in the island resource management and planning.	3.77	2.88	1.99	10
The foreign residents participate in the island's resource management and planning.	3.63	2.78	1.83	9
The resource administrators improve local residents' environmental consciousness.	3.54	2.7	1.71	8
There is good interaction between the resource administrators and the local residents.	3.39	2.59	1.55	7
The resource administrators provide the local residents with environmental education opportunities.	3.36	2.57	1.51	6
The resource administrators improve foreign residents' environmental consciousness.	2.83	2.17	0.99	5
There is good interaction between the resource administrators and the foreign residents.	2.6	1.99	0.8	4
The local residents' daily living is affected negatively by the setup of ecotourism activities on the island.	2.57	1.97	0.77	3
The resource administrators provide the foreign residents with environmental education opportunities.	2.37	1.81	0.62	2
Foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island.	2.2	1.68	0.5	1

4.3.3 Economic Sustainability of Ecotourism in Langkawi Island

With regards to the economic sustainability of ecotourism in Langkawi, the relationship aspect which is “influence of local residents on resource administrators” were in the ranks of highest mean scores.

The local residents perceived the highest mean scores of receiving shares in the distribution of tourism revenues (4.87), and in the engagement in tourism-related

employment (4.73). Also, the resource administrators believed that local residents made economic contribution for environmental conservation to a pretty large extent (4.07).

On the other hand, what local residents thought of resource administrators in terms of economic sustainability in tourism received rather average mean scores, which pertained to the extent to which resource administrators created acceptable income (3.55), employment opportunities (3.54), and compensation for local residents (3.50). Although average, it was higher than what foreign residents thought of resource administrators in this regard. Not many foreign residents believed that the resource administrators created acceptable income (2.63), employment opportunities (2.8), and compensation (2) for them.

Overall, the achievement percentage of economic sustainability of ecotourism in Langkawi turned out to be 53.95% (table 4.2), which was based on the Barometer of Sustainability mentioned in section 4.2.1 falls in the category of “potentially sustainable”, and also seems to be the least sustainable aspect of ecotourism in Langkawi as well, skewing more towards the potentially unsustainable end of the range.

Table 4.4
Economic Sustainability of Ecotourism in Langkawi Island

Indicator	Mean Score	Weight	Weighted Score	Rank
The local residents receive shares in the distribution of tourism revenues.	4.87	3.72	3.6	11
Most of the tourism-related employment engages local residents.	4.73	3.62	3.38	10
The local residents make economic contribution for environmental conservation.	4.07	3.11	2.38	9

The foreign residents receive shares in the distribution of tourism revenues.	4.07	3.11	2.38	9
The foreign residents make economic contribution for environmental conservation.	3.83	2.93	2.08	8
The resource administrators are creating acceptable incomes for the local residents.	3.55	2.72	1.73	7
The resource administrators are creating employable opportunities for the local residents.	3.54	2.71	1.72	6
The resource administrators provide economic benefits (compensation) for the local residents.	3.5	2.68	1.67	5
Most of the tourism-related employment engages foreign residents.	2.97	2.27	1.12	4
Th resource administrators are creating employment opportunities for the foreign residents.	2.8	2.14	0.96	3
The resource administrators are creating acceptable incomes for the foreign residents.	2.63	2.01	0.82	2
The resource administrators provide economic benefits (compensation) for the foreign residents.	2	1.53	0.38	1

4.3.4 Environmental Sustainability of Ecotourism in Langkawi Island

For the environmental aspect of ecotourism sustainability in Langkawi, the highest mean score was under the relationship aspect which is “influence of resource administrators on local residents”. The local residents agreed that resource administrators were providing sustainable opportunities in terms of harvests in farming, fishing, and hunting (3.64), while the foreign residents did not agree on this matter that much (2.43).

On the other hand, resource administrators believed that local residents were polluting the island’s environment to quite a large extent (3.63), and they believed that the local residents did not interfere with the natural resources of the island very much (2.3). Nonetheless, an indicator under the relationship aspect, “influence of resource administrators on the foreign residents” had the lowest mean score in this aspect. It

showed that resource administrators might not have helped to improve the quality of the living environment foreign residents (2.27).

Overall, the achievement percentage of environmental sustainability of ecotourism in Langkawi turned out to be 60.02% (table 4.2), which was based on the Barometer of Sustainability mentioned in section 4.2.1, falling in the category of “potentially sustainable”.

Table 4.5
Environmental Sustainability of Ecotourism in Langkawi Island

Indicator	Mean Score	Weight	Weighted Score	Rank
The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	3.64	2.78	1.83	14
The local residents are polluting the island's environment.	3.63	2.78	1.83	13
The resource administrators receive pressure from the foreign residents regarding surrounding development.	3.57	2.73	1.75	12
The resource administrators have helped improve local residents' quality of living environment.	3.55	2.71	1.73	11
The resource administrators are conserving the natural resources of the island like water and forest.	3.45	2.64	1.62	10
The foreign residents are polluting the island's environment.	3.4	2.6	1.56	9
The activities from the foreign residents' livelihoods pose a threat to the island's ecosystem.	3.33	2.55	1.49	8
The resource administrators receive pressure from the local residents regarding surrounding development.	3.33	2.55	1.49	8
The resource administrators receive pressures from the local residents regarding resource exploitation.	3.23	2.47	1.38	7
The resource administrators receive pressures from the foreign residents regarding resource exploitation.	3.03	2.32	1.18	6
The foreign residents interfere with the natural resources of the island.	2.97	2.27	1.12	5
The activities from the local residents' livelihoods pose a threat to the island's ecosystem.	2.77	2.12	0.93	4
The resource administrators are conserving natural resources of the island like water and forest.	2.43	1.86	0.67	3
The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	2.43	1.86	0.67	3

The local residents interfere with the natural resources of the island.	2.3	1.76	0.57	2
The resource administrators have helped improve foreign residents' quality of living environment.	2.27	1.73	0.55	1

4.4 Inter-relationship Sustainability of Ecotourism in Langkawi Island

Research question two dealt with influence of each stakeholder group on other stakeholder groups. As depicted in the conceptual framework of this study (figure 2.1), four aspects of relationships which are resource administrators on local residents, resource administrators on foreign residents, local residents on resource administrators, and foreign residents on resource administrators were the focus of this study. To achieve the results, mean scores, as well as weight and weighted scores of indicators for sustainability of Langkawi ecotourism were calculated using the formula by Tsaur et al. (2006). As shown in table 4.6, the most sustainable relationship was the effect of local residents on resource administrators which received the achievement percentage of 73.13%. Based on the Barometer of Sustainability, this relationship falls in the category of potentially sustainable, skewing more towards the sustainable range. On the contrary, the least sustainable relationship was the effect of resource administrators on foreign residents, with the achievement percentage of 37.06. Based on the Barometer of Sustainability, this relationship falls into the category of potentially unsustainable. The other two relationships in the study received quite similar percentages of achievement, with the effect of resource administrators on local residents 60.82%, and the effect of foreign residents on resource administrators 62.88% respectively. Based on the Barometer of Sustainability, they were both in the range of potentially sustainable. In the following sections, each relationship aspect will be analysed in more details.

Table 4.6
Sustainability Achievement of Inter-relationship Aspects in Ecotourism of Langkawi Island

Relationship Aspect	Weight	Weighted Score	Achievement Percentage
Resource administrators on local residents	26.05	15.84	60.82
Resource administrators on foreign residents	18.78	6.96	37.06
Local residents on resource administrators	28.62	20.93	73.13
Foreign residents on resource administrators	26.55	16.70	62.88
Total	100.0	60.43	60.43

4.4.1 Effect of Resource Administrators on Local Residents

The relationship aspect of the effect of resource administrators on local residents received achievement percentage of 60.82% (table 4.6), which fell into the category of potentially sustainable according to the Barometer of Sustainability. This aspect was found to be the third rank among all the four relationship aspects examined in this study. As shown in table 4.7, the mean scores for all the three dimensions of socio-cultural, economic, and environmental sustainability fell into quite similar ranges of mean scores of 3.21, 3.53, and 3.55 respectively. The highest mean score was in the environmental sustainability aspect and pertained to the extent to which the local residents believed that the resource administrators were providing sustainable opportunities in terms of harvest in farming, fishing, and hunting (3.64).

Table 4.7
Effect of Resource Administrators on Local Residents

Weight	Dimension	Mean Score	Weight	Indicator	Mean Score	Weight	Weighted Score
26.05	Socio-cultural	3.21	9.82	The local residents' daily living is affected negatively by the setup of ecotourism activities on the island.	2.57	1.97	0.77
				The resource administrators provide the local residents with environmental education opportunities.	3.36	2.57	1.51
				The resource administrators improve local residents' environmental consciousness.	3.54	2.7	1.71
				There is good interaction between the resource administrators and the local residents.	3.39	2.59	1.55
				The resource administrators provide economic benefits (compensation) for the local residents.	3.5	2.68	1.67
	Economic	3.53	8.1	The resource administrators are creating acceptable incomes for the local residents.	3.55	2.72	1.73
				The resource administrators are creating employable opportunities for the local residents.	3.54	2.71	1.72
				The resource administrators are conserving the natural resources of the island like water and forest.	3.45	2.64	1.62
				The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	3.64	2.78	1.83
				The resource administrators have helped improve local residents' quality of living environment.	3.55	2.71	1.73
Environmental	3.55	8.13					

4.4.2 Effect of Resource Administrators on Foreign Residents

The effect of resource administrators on foreign residents turned out to be the least sustainable relationship with the achievement percentage of 37.06% (table 4.6). This relationship fell into the category of unsustainable based on the Barometer of Sustainability. As shown in table 4.8, the lowest mean score was in the economic sustainability aspect and showed the extent to which the foreign residents believed that the resource administrators provided economic benefits in the form of compensation for them (2). On the other hand, the highest mean score in this relationship aspect was in the socio-cultural sustainability and represented the extent to which foreign residents agreed that the resource administrators improved their environmental consciousness (2.83).

Table 4.8
Effect of Resource Administrators on Foreign Residents

Weight	Dimension	Mean Score	Weight	Indicator	Mean Score	Weight	Weighted Score
18.78	Socio-cultural	2.5	7.64	Foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island.	2.2	1.68	0.5
				The resource administrators provide the foreign residents with environmental education opportunities.	2.37	1.81	0.62
				The resource administrators improve foreign residents' environmental consciousness.	2.83	2.17	0.99
				There is good interaction between the resource administrators and the foreign residents.	2.6	1.99	0.8
	Economic	2.48	5.68	The resource administrators provide economic benefits (compensation) for the foreign residents.	2	1.53	0.38

				The resource administrators are creating acceptable incomes for the foreign residents.	2.63	2.01	0.82
				The resource administrators are creating employment opportunities for the foreign residents.	2.8	2.14	0.96
				The resource administrators are conserving natural resources of the island like water and forest.	2.43	1.86	0.67
Environmental	2.38	5.45		The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting.	2.43	1.86	0.67
				The resource administrators have helped improve foreign residents' quality of living environment.	2.27	1.73	0.55

4.4.3 Effect of Local Residents on Resource Administrators

The effect of local residents on resource administrators received the highest percentage level of 73.13% among the four relationship aspects in the study (table 4.6). It fell into the category of potentially sustainable. As shown in table 4.9, the highest mean score was in the economic sustainability and showed the level to which the resource administrators believed that the local residents received shares in the distribution of tourism revenues (4.87). However, the lowest mean score was in the environmental sustainability and pertained to the extent to which the resource administrators thought that the local residents interfered with the natural resources of the island (2.30).

Table 4.9
Effect of Local Residents on Resource Administrators

Weight	Dimension	Mean Score	Weight	Indicator	Mean Score	Weight	Weighted Score
28.62	Socio-cultural	4.25	6.5	The local residents support natural resource conservation.	4.73	3.62	3.38
				The local residents participate in the island resource management and planning.	3.77	2.88	1.99
				The local residents interfere with the natural resources of the island.	2.3	1.76	0.57
				The resource administrators receive pressures from the local residents regarding resource exploitation.	3.23	2.47	1.38
	Environmental	3.05	11.67	The resource administrators receive pressure from the local residents regarding surrounding development.	3.33	2.55	1.49
				The local residents are polluting the island's environment.	3.63	2.78	1.83
				The activities from the local residents' livelihoods pose a threat to the island's ecosystem.	2.77	2.12	0.93
				The local residents receive shares in the distribution of tourism revenues.	4.87	3.72	3.6
				The local residents make economic contribution for environmental conservation.	4.07	3.11	2.38
				Most of the tourism-related employment engages local residents.	4.73	3.62	3.38
Economic	4.56	10.45					

4.4.4 Effect of Foreign Residents on Resource Administrators

As shown in table 4.6, the effect of foreign residents on resource administrators received the second highest achievement percentage among all the four relationship aspects under study (62.88%). This relationship turned out to be potentially sustainable according to the barometer of Sustainability. As depicted in table 4.10, the highest mean score was in the economic sustainability and showed the extent to which the resource administrators believed that the foreign residents received shares in the distribution of tourism revenues (4.07). However, the lowest mean score was in the economic and environmental sustainability respectively, and represented the extent to which the resource administrators believed that the foreign residents were engaged in tourism-related employments and the level to which they interfered with the natural resources of the island (2.97).

Table 4.10
Effect of Foreign Residents on Resource Administrators

Weight	Dimension	Mean Score	Weight	Indicator	Mean Score	Weight	Weighted Score
26.55	Socio-cultural	3.78	5.78	The foreign residents support natural resource conservation.	3.93	3.01	2.2
				The foreign residents participate in the island's resource management and planning.	3.63	2.78	1.83
	Environmental	3.26	12.46	The foreign residents interfere with the natural resources of the island.	2.97	2.27	1.12
				The resource administrators receive pressures from the foreign residents regarding resource exploitation.	3.03	2.32	1.18
				The resource administrators receive pressure from the foreign residents regarding surrounding development.	3.57	2.73	1.75

			The foreign residents are polluting the island's environment.	3.4	2.6	1.56
			The activities from the foreign residents' livelihoods pose a threat to the island's ecosystem.	3.33	2.55	1.49
			The foreign residents receive shares in the distribution of tourism revenues.	4.07	3.11	2.38
Economic	3.62	8.31	The foreign residents make economic contribution for environmental conservation.	3.83	2.93	2.08
			Most of the tourism-related employment engages foreign residents.	2.97	2.27	1.12

This study adopted the Barometer of Sustainability proposed by Prescott-Allen (1997). Evaluation results of a destination's sustainable development were divided into sustainable and unsustainable along the neutral interval. According to the degree of sustainability, four levels were derived. Interval scales were used to denote indicator scores between 1 and 5, where 1.0 to 2.0 denoted unsustainability, 2.1 to 3.0 denoted potential unsustainability, 3.1 to 4.0 denoted potential sustainability, and 4.1 to 5.0 denoted sustainability. The evaluation results are presented in Fig. 4.2. Values denote the degree of sustainability of all indicators within the relationship aspect. 'Influence of local residents on resource administrators' aspect was the best performer. The mean of 3.74 fell within the 'potential sustainability' interval. Performance was the poorest for the aspect of 'Influence of resource administrators on foreign residents. The mean of 2.46 fell within the "potential unsustainability" interval.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter provides a comprehensive overview of the research findings and their implications. Section 5.2. begins with a discussion of the research findings, highlighting the key findings and their significance in addressing the research questions. Sections 5.3. and 5.4. examine the theoretical and practical implications of the research findings respectively. Section 5.5 and 5.6 present the limitations of the study and suggestions for further research respectively. Lastly, Section 5.7. concludes the chapter with a summary.

5.2 Research Findings

The objective of the study was to assess the sustainability level of ecotourism in Langkawi Island, which includes the evaluation of socio-cultural, economic, and environmental sustainability aspects. Additionally, the study aimed to analyse the influence of each stakeholder group on the sustainability of ecotourism in Langkawi. The first research question focused on determining the sustainability level of ecotourism in Langkawi Island. This included sustainable ecotourism in terms of socio-cultural, economic and environmental factors that were further analysed to see the degree to which they complied with the sustainable criteria. To answer this

question, the researcher identified indicator weights for all 40 indicators using the indicator weight formula proposed by Theingthae (2017). The second research question investigated the influence of each stakeholder group on other groups of stakeholders (resource administrators, local residents, and foreign residents) in terms of the sustainability level of ecotourism in Langkawi Island. The objective was to examine how much the resource administrators influenced the sustainability of local residents as well as foreign residents, and the level of influence of local residents and foreign residents on resource administrators. To address this question, the researcher calculated the weights within the relationship of each stakeholder group, using the formula suggested by Tsaur et al. (2006). Additionally, the raw scores of each indicator were converted to weighted scores using the weighted score formula also adopted from Tsaur et al. (2006). Results of the study are discussed below.

5.2.1 The Sustainability Level of Ecotourism in Langkawi Island

Ecotourism has been defined as a sustainable form of tourism that shows responsibility towards nature and entails ethical management of natural resources so that human practices will have low impact on nature. Moreover, ecotourism is local-oriented within control and is not consumptive in essence. The overall sustainability of ecotourism in Langkawi Island was calculated using the formula of achievement percentage, incorporating indicator weights and the number of indicators in each relationship. The total weighted score achieved by Langkawi Island was 60.43, which falls within the category of potentially sustainable. However, the island is expected to work towards higher levels of sustainability to comply with certain criteria that are set for the practice of sustainable ecotourism.

Our results are in line with the existing literature on sustainable tourism in Malaysia. Similar to our analysis, Bhuiyan et al. (2015) measured sustainability in Lake Kenyir from three aspects which are social, economic, and environmental ecotourism. The results of the study demonstrated that Kenyir was a potentially sustainable ecotourist destination in Malaysia. Similarly, as found in our analysis, the study showed there was a good relationship between tourism and the community in Kenyir. Moreover, the findings of our study are in agreement with the findings of Gonzalez et al. (2017) in terms of the implementation of ecotourism and the interpretation of sustainability in practice. Both studies highlight different perspectives and motivations of the actors involved in ecotourism development and also recognize the tensions and contestations that arise in the co-production of ecotourism, whereby different actors have varying interpretations and levels of commitment to environmental and social sustainability. Moreover, results of Thompson's analysis show that environmental sustainability of the place, social sustainability of the people on the Island, and their economic sustainability are closely linked to each other and have close relationships with the participation of all the stakeholders in the place, which is similar to the case in our study.

Our findings also highlight the importance of sustainable practices on the Island and demonstrate that ecotourism in the region contributes to developing sustainability concerns. This is in line with the findings of the study by Jaini et al. (2019) who developed eight indicators for the practice of ecotourism in Malaysia. In fact, ecotourism in Langkawi Island is ecologically sustainable as it complies with many of the indicators designed in Jaini's study. That is to say, out of the eight key factors mentioned in Jaini's study, the key items such as "Socio-economic Development", "Sustainable Practices", "Maintain Local Culture and Traditions", and "Conservation

Programs” were found to be effectively practiced in our study, indicating that the Island is relatively successful in implementing sustainable tourism.

In its noteworthy that our results offer only a snapshot of the existing situation on the Island. There are many other factors, and there will be many more factors that might emerge in the future, which will impact the results and change the agenda for development of sustainable ecotourism in the future.

5.2.1.1 Socio-cultural Sustainability of Ecotourism in Langkawi Island

Culture and social networking are an integral aspect of Langkawi Island and almost all the stakeholders involved in the process of ecotourism work together based on a series of shared cultural values and social norms that provide the foundation for the strong social networks that dominate the community practices of the island (Ong & Halim, 2011). Our findings on the socio-cultural sustainability of ecotourism in Langkawi Island showed that it falls within the category of “potentially sustainable.” This implies that ecotourism on the island contributes to preserving the social and cultural identity of the region, while being highly successful in attracting tourists. In other words, our results indicate that the stakeholders involved in developing ecotourism on the island work well to help conserve the social, as well as cultural heritage of Langkawi. This is in line with the findings of the study by Chan et al. (2020) who realized that the robust social networking as a form of cultural practice on the island was the major cause of mobilization and organization of stakeholders, in an attempt to work collectively towards establishing and preserving the cultural heritage of the island while reaping the economic benefits.

These findings also agree with the results of the study by Arinta et al. (2023) who stated that Sipelot Beach in Indonesia is potentially sustainable as a community-based ecotourist destination. Social bonds investigated in Sipelot Beach are integrated into sustainable ecotourism development plans to be realized through human resource management and improvement. Nevertheless, our findings are in stark contrast to those found in the study by Chong (2020), who reported negative impacts of ecotourism on tradition and culture of Bali. Chong (2020) acknowledged that despite economic prosperity, the community experienced some cultural complexities as a result of growth in ecotourism. This difference might be due to strong social connection that was observed among people in Langkawi Island and some demographic variabilities that affect the community bonds of the two regions.

Our findings indicate that while Langkawi Island showed promising progress in socio-cultural sustainability, there are still areas that could benefit from further attention and improvement. However, as noted by some critics, the sustainability model proposed in 1980s, which is also used in the present study, focuses mainly on three dimensions of economic, social and environmental (Labadi et al., 2018; Burford et al., 2013). Consequently, this model fails to consider other factors such as governance and politics, regional religion and the complex relations that dominate the interaction among the stakeholders (Purvis et al., 2019; Nunes et al., 2017). This might explain the fact that sustainability concern of the island is bound to a series of factors that go beyond the three dimensions under analysis in our study. Thus, it is fair to conclude that potential sustainability for the socio-cultural aspect of our study can be further promoted by taking into account some key factors such as regulations and political issues. This is what Rosetti et al. (2022) who emphasised in their study reported that effective integration of cultural heritage preservation policies and sustainable

development plans are imperative in achieving higher levels of sustainability in regions that are rich in cultural and natural heritage.

5.2.1.2 Economic Sustainability of Ecotourism in Langkawi Island

Economic sustainability appears to be the least sustainable aspect of ecotourism in Langkawi Island, leaning more towards the potentially unsustainable end of the range. These findings suggest that there is room for improvement in terms of economic sustainability and highlight the need for measures to enhance the economic benefits for both local and foreign residents in the context of ecotourism in Langkawi Island. The results of this study on the aspect of less economic sustainability of ecotourism are supported by Sun et al. (2021) who revealed that, because of vastness of tourism industry, a large set of economic factors are in place that offer a range of different services and products, and the quality of which has a great impact on sustainability of tourist activities and economic development of the local community. This implies that Langkawi Island needs to focus more on offering products and services that are more environmentally friendly and work more on developing eco-friendly processes that boost the economic growth of the island while maintaining social and environmental sustainability.

However, results of the present study are in disagreement with the findings of the study by Mohd Salleh et al. (2014) which revealed that expansion of tourism on Langkawi Island has been beneficial to the local community as it has brought about financial prosperity and development opportunities for the individuals who perceived that development of tourism in the region has served them economically, socially and environmentally. The difference in our findings might be due to time lapse when the two studies were conducted. As the study was conducted during Corona Pandemic, the

local community's perception was negatively influenced by their low financial income they earned during the period, while the respondents in the other study enjoyed a higher level of financial gains from the development of tourism. In the same vein, Zafirah et al. (2014) reported that development of tourism in Langkawi had a considerable economic and social impact on the island, and the perceptions of the respondents were positively correlated with the socioeconomic development of the region. This is also in disagreement with the findings of this study, which might be explained by the demographic portfolio of the study by Zafirah et al. (2014), who interviewed tourists visiting the oriental village of Langkawi while this study excluded tourists from analysis.

5.2.1.3 Environmental Sustainability of Ecotourism in Langkawi Island

The percentage of environmental sustainability for ecotourism in Langkawi Island was calculated to be 60.02% which falls within the category of "potentially sustainable." These findings indicate that Langkawi Island has made progress towards environmental sustainability in the context of ecotourism. However, there are areas that require attention, such as addressing pollution issues and improving the living environment for foreign residents. Enhancing these aspects can contribute to improving the overall environmental sustainability of ecotourism in Langkawi Island.

The findings of this study are in agreement with the findings of Samat and Harun, (2013) in terms of the importance of balancing tourism development with environmental conservation. Both studies acknowledge the significant contribution of the tourism sector to the economy and socioeconomic development of Langkawi Island. They also highlight the potential negative consequences of tourism on the environment. The results also comply with the results of the study by Abdul Shakur et

al. (2023) who found that successful implementation of ecotourism sustainability promoted in Kenyir Lake in Malaysia is a function of increased interaction between conservation practices and redirecting socio-economic aspects towards raising community knowledge on the crucial role of cooperation of all the involved stakeholders in natural preservation practices in tourist areas. The findings are also in agreement with findings of Shasha et al. (2020) who showed that sustainable ecotourism leads to increased levels of cultural and environmental awareness among local people and tourists as they grow concerned with the consequences of their activities on the environment. They try to mitigate the negative impact of their behaviours, whereby higher levels of environmental health and protection are observed, which is confirmed in this study.

5.2.2 Inter-relationship Sustainability of Ecotourism in Langkawi Island

The study examined the influence of different groups of stakeholders on one another, focusing on four aspects of relationships: resource administrators on local residents, resource administrators on foreign residents, local residents on resource administrators, and foreign residents on resource administrators. To the knowledge of the researcher, these groups of stakeholders have been studied in isolation and have never been studied in relation to each other. Thus, the present study is the first of its kind that examines the interaction between these subgroups and how they contribute to the development of sustainable tourism in Langkawi Island.

The findings revealed varying levels of sustainability in these relationships. The effect of local residents on resource administrators achieved the highest sustainability level (73.13%), followed by the effect of foreign residents on resource administrators (62.88%), the effect of resource administrators on local residents (60.82%), and the

effect of resource administrators on foreign residents (37.06%) respectively. These results indicate that the relationship between local residents and resource administrators is the most sustainable, while the relationship between resource administrators and foreign residents is the least sustainable.

The results of the present study are in agreement with the findings in the literature. The findings agree with the findings of the study by Elfithri et al. (2021) as they both recognise the importance of engagement and collaboration of stakeholders in achieving sustainable development. The present study emphasises the influence of stakeholder groups, such as resource administrators, local residents, and foreign residents, on the overall sustainability of ecotourism. Similarly, Elfithri et al. (2021) highlight the significance of consultation and involvement of stakeholders in identifying and addressing water and environmental sustainability issues in Langkawi UNESCO Global Geopark.

The findings of the present study are also in agreement with the outcomes of Eslami et al. (2018) regarding the influence of non-economic factors on residents' perception towards sustainable tourism and sustainable tourism destination (SSTD) in Langkawi Island. Both studies acknowledge the significance of non-economic factors, such as sociocultural and environmental impacts of tourism, in shaping residents' satisfaction with recreational amenities and overall quality of life. These non-economic factors are found to have an influence on residents' support for sustainable tourism development. Additionally, both studies emphasize the importance of considering the local community's perspectives and involving them in the development of sustainable tourism. However, this study provides insights into the perceptions of local residents,

resource administrators, and foreign residents, while Eslami et al. (2018) focus specifically on the perceptions of local residents.

The results of this study on the relationship among stakeholders and their relationships in building sustainable tourism development are also supported by the study conducted by Fennell et al. (2023) who developed an assessment framework to study sustainable communication among the participant stakeholders in sustainability plans and they distinguished four different groups for effective communication in sharing ecotourism principles. The levels of stakeholders in this study, are categorized among engaged communicators in Fennell's study as they have a strong bond in working towards sustainability objectives. (Fennell et al., 2023)

5.2.2.1 Effect of Resource Administrators on Local Residents

According to Foroni et al. (2019), it is important to critically analyse the perceptions of local residents about pros and cons of tourism to find out how willing they are to contribute to the development of tourism in their living place. The findings of this study indicated that the relationship aspect of the effect of resource administrators on local residents is in the category of "potentially sustainable". This relationship was stronger for the environmental sustainability aspect, specifically related to the local residents' perceptions of the resource administrators, providing sustainable opportunities in terms of farming, fishing, and hunting. These findings are in line with the findings of Harun et al. (2018) that indicated local residents in Kurdistan, Iraq, perceived the efforts of their local government as sustainable in terms of growth development opportunities brought about in the region, despite all the possible negative impacts such as pollution. The findings are also supported by Scutariu and Scutariu (2023) who mentioned that positive perceptions of the local people towards

the authority's sustainable practices encouraged them to be more aware of the consequences of their behaviour and be more involved in tourist development programmes, leading to more sustainable ecotourism in Romania. In the same vein, Gannon et al. (2021) reported that perceptions of residents of effective measures that authorities take to develop tourism significantly affects their involvement in sustainable practices. Finally, the results of this study are supported by Gonzalez et al. (2019) who showed that government's tourist growth activities have an impact on how satisfied locals are with their town in Spain. The study concludes that the contentment of local residents is connected to the presence of new business opportunities, fostering positive relationships among local residents, foreign residents, and visitors.

5.2.2.2 Effect of Resource Administrators on Foreign Residents

The attitudes of foreign residents towards sustainable tourism development in different regions and the factors that contribute to changing their perceptions have not been fully studied in the literature (Selcuk et al., 2021). However, the perceptions of foreign residents on sustainable activities performed by authorities were studied, and it was found that the relationship between them was the least sustainable, with a percentage of 37.06%, and fell into the category of unsustainable. These findings indicated that there is a need to address and improve the sustainability of the relationship between resource administrators and foreign residents. Focusing on economic aspects, such as providing fair compensation, could contribute to enhancing the overall sustainability and positive perceptions of foreign residents. Additionally, efforts should continue to be made in fostering socio-cultural sustainability by increasing environmental awareness among foreign residents through the initiatives of resource administrators. These findings are different from what we have found for the relationship between local residents and the resource administrators in the previous section.

These findings are supported by some studies. Selcuk et al. (2021) indicated that foreign residents in Turkey did not have a positive perception about sustainable practices as compared to local residents who were concerned with environmental issues, and the foreigners were mostly concerned with social benefits they expected to achieve from the sustainable practices. Moreover, the results of this study are also supported by Song et al. (2021) who investigated the perceptions of residents on sustainable development in Hongcun, one of the most well-known traditional villages in China, and reported that the perceptions of new immigrants or former residents in the village are negative about economic, environmental, and socio-cultural aspects of sustainable tourism development. This supports the findings of the present study that the perceptions of foreign residents towards sustainable ecotourism in Langkawi Island were not favourable, as they asserted that more could be done to improve the conditions for their benefit.

5.2.2.3 Effect of Local Residents on Resource Administrators

The study found that the relationship between local residents and resource administrators achieved the highest sustainability level among the four relationship aspects studied, being potentially sustainable. Although resource administrators believed that local residents had some interference with the natural resources of the island, they mentioned local residents received a fair share in the distribution of tourism revenues. These findings suggest that the relationship between local residents and resource administrators was generally positive and sustainable in terms of economic aspects, with local residents benefiting from tourism revenues. However, there is room for improvement in terms of environmental sustainability, where efforts can be made to minimize any negative impacts or interferences by local residents on the natural resources of the island. Overall, addressing the environmental concerns

while maintaining the positive economic aspects can contribute to enhancing the sustainability of this relationship.

Ab Rashid et al. (2021) supported the results of this study by reporting that involvement of local residents was influenced by some factors including income, job opportunities, and elimination of poverty in their region and reported a positive attitude between the authorities and the local residents. The authors also highlighted that residents were inclined to contribute to social sustainability, which is also confirmed in this study. Moreover, the results of the study agree with the findings of Dong et al. (2021) who investigated local residents' attitudes toward the development of a National Park (NNP) in China and found a positive relationship between the administrators' measures and the local residents' perceptions. Their findings indicated that early-stage residents' attitudes were influenced by their perceptions of social impacts, driven by concerns about future livelihoods and uncertainties. As a result, they found that despite the initial negative perceptions of the residents, their attitudes grew more positive over time as individuals and families came to an understanding that these measures provided sustainable livelihoods for them.

5.2.2.4 Effect of Foreign Residents on Resource Administrators

The relationship between foreign residents and resource administrators was also “potentially sustainable” as found in this study. Resource administrators believed that foreign residents had limited engagement in tourism-related employment and that they also had some interferences with the natural resources of the island. These findings suggest that the relationship between foreign residents and resource administrators was generally positive and sustainable in terms of economic aspects, with foreign residents benefiting from tourism revenues. However, there is room for improvement in terms

of involvement of foreign residents in tourism-related employment opportunities and minimizing their interference with the natural resources of the island. Addressing these aspects can contribute to enhancing the overall sustainability of the relationship and ensuring a more balanced and mutually beneficial dynamic relationship between foreign residents and resource administrators.

Ibrahim et al. (2022) supported the present study's results on the importance of perceptions of stakeholders on each other. They examined the impact of ecotourism on various aspects such as transportation, development, and sustainability in the state of Perlis, located in Northern Malaysia. Additionally, they explored the relationship between the collaboration of stakeholders and governance practices within the ecotourism sector of Perlis. Collaborative efforts among stakeholders were recognized in the study as crucial for the advancement of ecotourism in Malaysia.

5.3 Theoretical Implications

The theoretical implications of this study contribute to the existing body of knowledge on sustainability assessment, stakeholder theory, and the multidimensional nature of sustainability in the context of ecotourism destinations. The findings enhance our understanding of the factors influencing sustainability outcomes and provide a foundation for further research and theoretical development in these areas. Theoretical implications of the study include the following:

Application of sustainability frameworks: The study applied the Barometer of Sustainability and utilized indicator weights and scores to assess the sustainability levels of ecotourism in Langkawi Island. By using these frameworks, the study

contributes to the theoretical understanding and practical application of sustainability assessment methodologies in the context of ecotourism.

Stakeholder theory: The study explored the influence of different groups of stakeholders on the sustainability of ecotourism. By examining the relationships between resource administrators, local residents, and foreign residents, the study contributes to the stakeholder theory by demonstrating the significance of interactions among stakeholders in shaping sustainability outcomes.

Dimensions of sustainability: The study evaluated sustainability in terms of socio-cultural, economic, and environmental dimensions. By assessing the performance of each dimension separately, the study adds to the theoretical understanding of how different aspects of sustainability contribute to the overall sustainability of ecotourism destinations.

Importance of local and foreign residents: The study highlights the role of both local and foreign residents in influencing the sustainability of ecotourism. By examining the perceptions and contributions of these two groups of stakeholders, the study emphasises the significance of including diverse perspectives and engaging all relevant stakeholders in sustainability initiatives. Figure 5.1 depicts the theoretical implications of the study in the context of Langkawi.

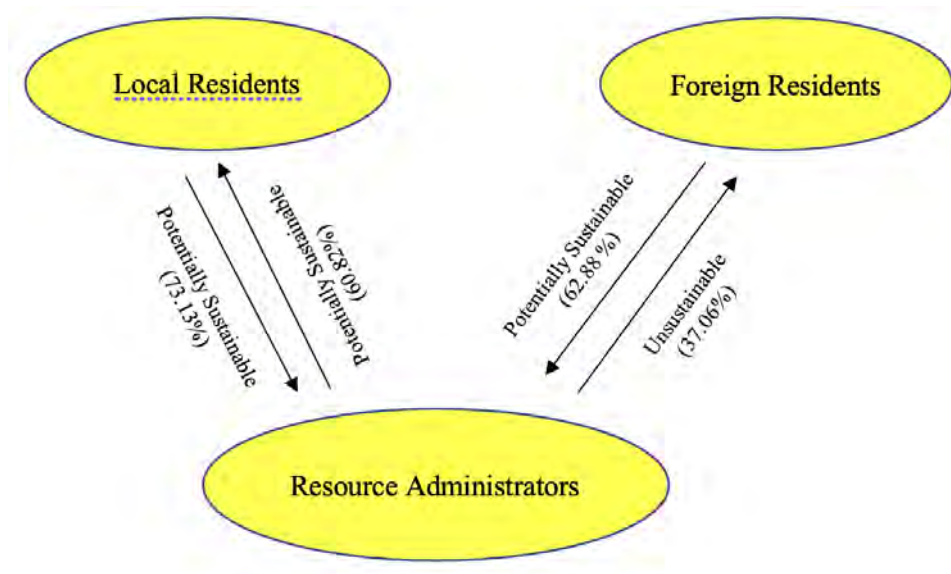


Figure 2.1 Theoretical Implications of the Study

5.4 Practical Implications

By considering these managerial and practical implications, tourism managers and policymakers in Langkawi Island can make informed decisions and take proactive steps towards enhancing the sustainability of ecotourism, fostering the engagement of stakeholders, and promoting responsible tourism practices.

Sustainable tourism planning: The findings of the study can inform sustainable tourism planning and management strategies in Langkawi Island. The identification of strengths and weaknesses in different aspects of sustainability (socio-cultural, economic, and environmental) can guide decision-making processes and resource allocation towards areas that require improvement.

Stakeholder engagement: The study emphasizes the importance of engaging and involving different groups of stakeholders, including resource administrators, local residents, and foreign residents, in sustainable tourism initiatives. Recognising their

roles and contributions can help in fostering collaboration, building partnerships, and generating support for sustainable practices. The study also emphasises the need for fostering sustainable relationships among groups of stakeholders. Managers can facilitate communication, collaboration, and mutual understanding among resource administrators, local residents, and foreign residents to address potential conflicts, enhance cooperation, and collectively work towards achieving sustainable outcomes.

Enhancing socio-cultural sustainability: The study highlights the positive influence of local residents on resource administrators in terms of socio-cultural sustainability. Managers can focus on strengthening this relationship by encouraging the involvement of local residents in decision-making processes, promoting cultural preservation, and facilitating community engagement in tourism-related activities.

Economic benefits distribution: The study reveals the significance of economic sustainability in ecotourism, particularly the distribution of tourism revenues among stakeholders. Managers can work towards ensuring equitable economic benefits for local and foreign residents, such as through revenue-sharing mechanisms, local employment opportunities, and fair compensation practices.

Environmental conservation and education: The study identifies areas for improvement in terms of environmental sustainability, particularly related to perceptions of resource administrators of local residents' interference with natural resources. Managers can implement measures to enhance environmental conservation efforts, such as promoting sustainable practices, providing environmental education programmes for residents and visitors, and enforcing regulations for protection of resources.

Continuous monitoring and evaluation: The study demonstrates the importance of regularly assessing and monitoring sustainability indicators to track progress and identify areas that require attention. Managers can establish monitoring systems to measure sustainability performances, collect feedback from stakeholders, and adapt strategies accordingly to ensure continuous improvement.

In summary, the study yields significant practical implications for tourism managers and policymakers in Langkawi Island. These implications revolve around sustainable tourism planning, stakeholder engagement, enhancement of socio-cultural sustainability, equitable distribution of economic benefits, environmental conservation and education, and the need for continuous monitoring and evaluation.

Research Objective 1 was to evaluate the overall sustainability level of ecotourism in Langkawi. Although the overall ecotourism in Langkawi is potentially sustainable, the study suggests an ecotourism agenda that is flexible and adaptive, acknowledging the dynamic nature of development while emphasizing responsibility towards nature and ethical resource management.

Research Objective 2 was to evaluate the socio-cultural sustainability level of ecotourism in Langkawi. The research indicates the socio-cultural sustainability is potentially sustainable, emphasizing shared cultural values and social norms among stakeholders. However, it underscores the need to address governance, politics, regional religion, and complex stakeholder relations in long-term ecotourism planning. Research Objective 3 was to evaluate the economic sustainability level of ecotourism in Langkawi. The economic sustainability level is identified as potentially

unsustainable, prompting a call for strategies that balance economic growth with social and environmental sustainability to enhance benefits for both local and foreign residents.

Research Objective 4 was to evaluate the environmental sustainability level of ecotourism in Langkawi. The research highlights potentially sustainable environmental practices with ongoing conservation efforts but identifies specific areas, such as pollution issues, requiring attention. Increased cultural and environmental awareness is seen as crucial for responsible behaviour and mitigating negative impacts.

Research Objective 5 was to evaluate the influence of resource administrators on local residents' sustainability in ecotourism: Efforts by resource administrators are recognized as potentially sustainable, particularly in the environmental domain, leading to local residents' willingness to engage in and support sustainable tourism development.

Research Objective 6 was to evaluate the influence of resource administrators on foreign residents' sustainability in ecotourism. This relationship sustainability aspect is considered unsustainable, requiring focused efforts on economic aspects, fair compensation, and fostering socio-cultural sustainability through environmental awareness initiatives led by resource administrators.

Research Objective 7 was to evaluate the influence of local residents on resource administrators' sustainability in ecotourism. The influence of local residents is deemed potentially sustainable, especially in economic aspects. However, addressing

environmental concerns and minimizing negative impacts arising from perceived interference with natural resources is necessary.

Research Objective 8 was to evaluate the influence of foreign residents on resource administrators' sustainability in ecotourism. While this relationship aspect is seen as potentially sustainable, improvement opportunities exist, particularly in foreign residents' involvement in tourism-related employment and minimizing their interference with the island's natural resources.

5.5 Limitations

Like any other research project, this study faced some limitations. Representation of stakeholders was our first limitation. While the study included resource administrators, local residents, and foreign residents as groups of stakeholders, it may not have captured the perspectives and contributions of other relevant stakeholders, such as local businesses, NGOs, or tourists themselves because the study was conducted during the Corona pandemic. The exclusion of these stakeholders may limit the comprehensiveness of the findings.

In addition, the study may have a limited sample size, which could impact the generalizability of the findings to a larger population. Furthermore, the study was exposed to bias due to the convenience sampling method employed and lacked diversity in terms of the respondents' age group and education level.

The research focused specifically on Langkawi Island, and the results may not be applicable to other destinations with different contexts and characteristics.

Another limitation was certain indicators and measurement tools. The study utilized specific indicators and measurement tools to assess sustainability dimensions. The selection of indicators may have limitations, and there could be other relevant factors or dimensions of sustainability that were not considered in the study. The measurement tools used may also have inherent limitations and potential for measurement of errors. Another limitation of the current study was the absence of an evaluation of the relationship between local residents and foreign residents, as there is a lack of established instruments to assess this aspect.

Finally, the study did not extensively consider external factors and broader contextual influences that could impact sustainability in Langkawi Island. Factors such as government policies, economic fluctuations, and global trends may have significant implications for ecotourism sustainability but were not fully explored in the study.

5.6 Suggestion for Future Studies

To address the limitations encountered in this study, further research could expand the scope of stakeholder representation. Given the exclusion of perspectives from local businesses, non-governmental organizations (NGOs), and tourists, future studies should strive to incorporate these additional stakeholders. Considering the dynamic nature of tourism and potential changes in stakeholder dynamics post-pandemic, an updated investigation during a period of normalcy could provide a more comprehensive understanding. This would enable researchers to explore the diverse viewpoints and contributions of all relevant stakeholders, contributing to a more holistic assessment of sustainable ecotourism.

To address the limitations associated with sample size and potential bias in the current study, future research should consider employing a more robust and diverse sampling strategy. A larger and more representative sample drawn from various age groups and educational backgrounds would enhance the external validity of the findings. Utilizing randomized sampling techniques or stratified sampling methods could help ensure a more comprehensive and unbiased representation of the population. Additionally, conducting the research over an extended period and across different seasons or tourism scenarios may provide a more nuanced understanding of ecotourism sustainability in Langkawi Island. This would contribute to increased confidence in the generalizability and applicability of the study's outcomes to a broader context.

To extend the applicability of the findings beyond Langkawi Island, future research could adopt a comparative approach by exploring multiple ecotourism destinations with diverse contexts and characteristics. This would enable a more nuanced understanding of the factors influencing sustainable tourism practices across different regions. By examining a range of destinations, researchers can identify commonalities and variations in the determinants of ecotourism sustainability, providing insights that are transferable to a broader spectrum of tourist destinations.

To address the limitations associated with the indicators and measurement tools used in this study, future research could explore alternative or complementary sustainability metrics and assessment tools. Adopting a multi-dimensional approach to sustainability assessment, which incorporates a broader range of factors and perspectives, may provide a more comprehensive understanding of ecotourism sustainability. Additionally, conducting validation studies or comparative analyses of different

measurement tools could help identify and mitigate potential sources of measurement error, thereby enhancing the reliability and robustness of the findings.

Future research endeavours could address the absence of an evaluation of the relationship between local residents and foreign residents by developing and implementing appropriate instruments to investigate the dynamics and interactions between local residents and foreign residents.

Future studies are suggested to examine how external factors such as government policies, foreign relations policies, and unpredicted events, such as the pandemic, could contribute to better understanding of the issue under analysis here. Key political considerations can help form an appropriate framework of study in this regard. They are also encouraged to focus more on the relationship between the stakeholders and how their interactions can be further aligned to increase the level of sustainability of ecotourism in the region. Some cultural and religious factors that contribute to this interaction between local and foreign residents are also suggested to be considered in future studies.

5.7 Summary

The present study was an in-depth analysis of sustainable ecotourism in Langkawi Island in Malaysia. The objective of the study was twofold. On one hand, it investigated the level of sustainability of ecotourism in the region. On the other hand, the role of some key stakeholders including resource administrators, local residents, and foreign residents with each other was fully investigated. The mutual influence of each stakeholder was considered in four levels. First of all, the effects of resource

administrators on local residents were examined. Similarly, effects of resource administrators on foreign residents were examined. Then, the degree to which local residents influenced resource administrators, and finally, the influence of foreign residents on resource administrators were closely studied to see how the interactions between these agents influenced the overall sustainability of the island. The significance of the study lies in the fact that it focuses and examines sustainability at three levels of socio-cultural, environmental and economic aspects while incorporating the role of each stakeholder in promoting sustainable ecotourist activities.

Results of this study are mostly in line with the literature that reflect the significance of developing sustainable ecotourism in the region and the positive roles of different stakeholders. We found that the level of ecotourism on the Island was potentially sustainable, calling for exerting more efforts in promoting the overall sustainability level. From among the factors of economic, environmental and socio-cultural, the environmental and socio-cultural factors scored higher, implying that development of ecotourism in the region was in compliance with social and environmental norms that were sustainable, though there was still room for further developments in this regard. However, economic sustainability was significantly affected by ecotourism, as it was found to be less in the service of the community than in attracting foreign visitors. This shows that local authorities need to focus more on implementing economic activities which will be more profitable for the local and foreign residents while keeping them sustainable such that they have the lowest possible impact on the environment.

On the other hand, the results of the study on the interrelations between the stakeholders proved to be more complex than the findings in the literature. The study

indicated that the relationship between resource administrators and local residents was more sustainable than the one between resource administrators and foreign residents. This is because the former shared a greater level of commitment and mutual returns from their involvement in sustainable ecotourism while foreign residents felt less engaged in developing ecotourism in the region and perceived lower levels of economic prosperity for themselves.

The study contributed significantly to the literature whereby, the biggest contribution of the study was filling the gap in the relationships between different stakeholders in overall sustainability of ecotourism. Previous studies focused mostly, as a norm, on the three dimensions of economic, environmental and socio-cultural sustainability and were more or less not concerned with the mediating roles of stakeholders in determining the success of these stakeholders. As compared to the interaction being studied, previous research mostly focused on each stakeholder and its impacts separately and neglected their mutual interaction in developing sustainable agenda. The present study was the first of its kind that developed a comprehensive framework that collectively examined the roles of three key stakeholders in this interactive process. Moreover, previous studies mostly ignored the role of foreign residents and mostly analysed the contributions of foreign investors at the economic and environmental levels. This study, on the contrary, lays greater importance on the role the foreign residents have in further developing and implementing sustainable activities, particularly in the economic sector.

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APPENDICES

Appendix A Questionnaire For Local Residents

Evaluating the Ecotourism Sustainability of Langkawi Island

Dear participant,

This questionnaire is designed to study the viewpoints of ecotourism stakeholders in Langkawi Island on the sustainability of its ecotourism. This study is done as part of a Master research with the Universiti Utara Malaysia. For this questionnaire we define local residents and foreign residents as part of the community and resource administrators as the government officials of the following organisations: Langkawi Development Authority (the LADA); Langkawi Geopark Discovery Centre; Langkawi Forestry Department, and Tourism Malaysia. The information you provide us will help us better understand your perspectives on the status of the ecotourism sustainability of the island in social, economic, and environmental aspects.

Since the results of this study will eventually contribute to the better and more sustainable development of ecotourism in the island, we request you to answer each question frankly, honestly, and carefully. Your response will be kept strictly confidential. Only members of the research team will have access to the information you give.

Section One: About Yourself

Please circle the numbers representing the most appropriate responses for you in respect of the following items.

1. Your age

1. Under 20
2. 20–35
3. 36–50
4. 51–65
5. Over 65

2. Your highest completed level of education

1. Elementary school
2. High school
3. College degree

4. Graduate degree

5. Other (specify)

3. Your gender

1. Female

2. Male

4. To which group do you belong to:

1. Local Malaysians living in Langkawi

2. International residents living in Langkawi

3. Government officials working in ecotourism industry of Langkawi directly or indirectly

5. Number of years residing in Langkawi

1. Less than 1

2. 1–2

3. 3–5

4. 6–10

5. Over 10



Section Two

The questions below ask about your perspectives on the ecotourism sustainability in economic, sociocultural, and environmental dimensions. Please put the most appropriate response for you beside each question, using the scale below on how much you agree or disagree with the following statements concerning Langkawi Island.

Effects of the resource administrators on the local residents

1. The local residents' daily living is affected negatively by the setup of ecotourism activities on the island. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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2. The resource administrators provide the local residents with environmental education opportunities. (SOC)

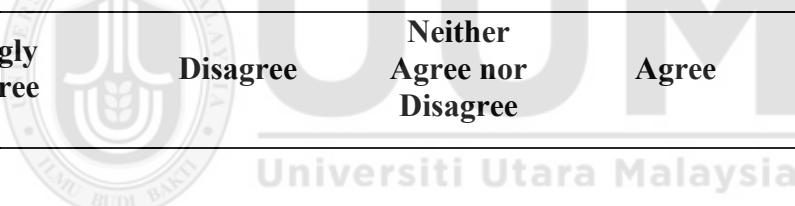
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

3. The resource administrators improve local residents' environmental consciousness. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

4. There is good interaction between the resource administrators and the local residents. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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5. The resource administrators provide economic benefits (compensation) for the local residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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6. The resource administrators are conserving the natural resources of the island like water and forest. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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7. The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

8. The resource administrators have helped improve local residents' living environment and quality. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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9. The resource administrators are creating acceptable incomes for the local residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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10. The resource administrators are creating employable opportunities for the local residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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I sincerely appreciate your time and cooperation. Please check to make sure that you have not skipped any questions inadvertently.

Thank you!

Razieh Abedi

Master candidate, Universiti Utara Malaysia

Appendix B

Questionnaire For Foreign Residents

Evaluating the Ecotourism Sustainability of Langkawi Island

Dear participant,

This questionnaire is designed to study the viewpoints of ecotourism stakeholders in Langkawi Island on the sustainability of its ecotourism. This study is done as part of a Master research with the Universiti Utara Malaysia. For this questionnaire we define local residents and foreign residents as part of the community and resource administrators as the government officials of the following organisations: Langkawi Development Authority (the LADA); Langkawi Geopark Discovery Centre; Langkawi Forestry Department, and Tourism Malaysia. The information you provide us will help us better understand your perspectives on the status of the ecotourism sustainability of the island in sociocultural, economic, and environmental aspects.

Since the results of this study will eventually contribute to the better and more sustainable development of the ecotourism in the island, we request you to answer each question frankly, honestly, and carefully. Your response will be kept strictly confidential. Only members of the research team will have access to the information you give.

Section One: About Yourself

Please circle the numbers representing the most appropriate responses for you in respect of the following items.

1. Your age

1. Under 20
2. 20–35
3. 36–50
4. 51–65
5. Over 65

2. Your highest completed level of education

1. Elementary school
2. High school
3. College degree
4. Graduate degree
5. Other (specify)

3. Your gender

1. Female
2. Male

4. To which group do you belong to:

1. Local Malaysians living in Langkawi
2. International residents living in Langkawi
3. Government officials working in ecotourism industry of Langkawi directly or indirectly

5. Number of years residing in Langkawi

1. Less than 1
2. 1–2
3. 3–5
4. 6–10
5. Over 10



Section Two

The questions below ask about your perspectives on the ecotourism sustainability in economic, social, and environmental dimensions. Please put the most appropriate response for you beside each question, using the scale below on how much you agree or disagree with the following statements concerning Langkawi Island.

Effects of resource administrators on the foreign residents

1. Foreign residents' daily living is affected negatively by the setup of ecotourism activities on the island. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

2. The resource administrators provide the foreign residents with environmental education opportunities. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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3. The resource administrators improve foreign residents 's environmental consciousness. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

4. There is good interaction between the resource administrators and the foreign residents. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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5. The resource administrators provide economic benefits (compensation) for the foreign residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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6. The resource administrators are conserving natural resources of the island like water and forest. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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7. The resource administrators are providing sustainable opportunities in terms of harvest in farming, fishing, and hunting. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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8. The resource administrators have helped improve foreign residents' living environment and quality. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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9. The resource administrators are creating acceptable incomes for the foreign residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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10. Th resource administrators are creating employment opportunities for the foreign residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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I sincerely appreciate your time and cooperation. Please check to make sure that you have not skipped any questions inadvertently.

Thank you!

Razieh Abedi

Master candidate, Universiti Utara Malaysia

Appendix C
Questionnaire For Resource Administrators

Evaluating the Ecotourism Sustainability of Langkawi Island

Dear participant,

This questionnaire is designed to study the viewpoints of ecotourism stakeholders in Langkawi Island on the sustainability of its ecotourism. This study is done as part of a Master research with the Universiti Utara Malaysia. For this questionnaire we define local residents and foreign residents as part of the community and resource administrators as the government officials of the following organisations: Langkawi Development Authority (the LADA); Langkawi Geopark Discovery Centre; Langkawi Forestry Department, and Tourism Malaysia. The information you provide us will help us better understand your perspectives on the status of the ecotourism sustainability of the island in sociocultural, economic, and environmental aspects.

Since the results of this study will eventually contribute to the better and more sustainable development of the ecotourism in the island, we request you to answer each question frankly, honestly, and carefully. Your response will be kept strictly confidential. Only members of the research team will have access to the information you give.

Section One: About Yourself

Please circle the numbers representing the most appropriate responses for you in respect of the following items.

1. Your age

1. Under 20
2. 20–35
3. 36–50
4. 51–65
5. Over 65

2. Your highest completed level of education

1. Elementary school
2. High school
3. College degree
4. Graduate degree
5. Other (specify)

3. Your gender

1. Female
2. Male

4. To which group do you belong to:

1. Local Malaysians living in Langkawi
2. International residents living in Langkawi
3. Government officials working in ecotourism industry of Langkawi directly or indirectly

5. Number of years residing in Langkawi

1. Less than 1
2. 1–2
3. 3–5
4. 6–10
5. Over 10

Section Two

The questions below ask about your perspectives on the ecotourism sustainability in economic, social, and environmental dimensions. Please put the most appropriate response for you beside each question, using the scale below on how much you agree or disagree with the following statements concerning Langkawi Island.

Effects of the local residents on resource administrators

1. The local residents support natural resource conservation. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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2. The local residents participate in the island resource management and planning. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

3. The local residents interfere with the natural resources of the island. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

4. The resource administrators receive pressures from the local residents regarding resource exploitation. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
--------------------------	-----------------	-----------------------------------	--------------	-----------------------

5. The resource administrators receive pressure from the local residents regarding surrounding development. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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6. The local residents are polluting the island's environment. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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7. The activities from the local residents' livelihoods pose a threat to the island's ecosystem. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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8. The local residents receive shares in the distribution of tourism revenues. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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9. The local residents make economic contribution for environmental conservation. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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10. Most of the tourism-related employment engages local residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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Effects of the foreign residents on resource administrators

1. The foreign residents support natural resource conservation. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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2. The foreign residents participate in the island's resource management and planning. (SOC)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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3. The foreign residents interfere with the natural resources of the island. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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4. The resource administrators receive pressures from the foreign residents regarding resource exploitation. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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5. The resource administrators receive pressure from the foreign residents regarding surrounding development. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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6. The foreign residents are polluting the island's environment. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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7. The activities from the foreign residents' livelihoods pose a threat to the island's ecosystem. (ENV)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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8. The foreign residents receive shares in the distribution of tourism revenues. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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9. The foreign residents make economic contribution for environmental conservation. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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10. Most of the tourism-related employment engages foreign residents. (ECO)

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
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I sincerely appreciate your time and cooperation. Please check to make sure that you have not skipped any questions inadvertently. Thank you!

Razieh Abedi

Master candidate, Universiti Utara Malaysia