ECOTOURISM IN MALAYSIA: CURRENT SCENARIO



















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FOREWORD

The Faculty of Forestry, Universiti Putra Malaysia (UPM) has successfully organized the 3rd. International Conference on Adventure and Ecotourism 2019 (ICAE) hosted at the Sultan Idris Shah Forestry Education Center (SISFEC) in Ayer Hitam Forest Reserve. The Faculty of Forestry through its Department of Recreation and Ecotourism organized the conference to create awareness that adventure and ecotourism activities can further the agenda of responsible tourism through recreation activities, conservation, education, enforcement, and development of ecotourism enterprises. Academicians, government agencies, non-governmental organizations, and practitioners gathered in this pristine forest to share their knowledge and experiences that are beneficial towards the development of adventure and ecotourism, both locally and globally.

The 3rd ICAE conference that was organized with the theme "Rainforest Ecotourism: Current And Future Trends" has indeed upheld this aim; perhaps more so as it has been able to garner support and participant attendance from various backgrounds and industry, with at least 50 percent attendance from the industry, particularly tour guides. The myriad of participation has indeed made this conference more vibrant with positive discussions and sharing of knowledge, experiences, and opinions throughout the 2-days conference.

Hence, the publication of this book provides useful data and information to tourism scholars and practitioners all over the world. This book covers various topics, ranging from the hard science to social science topics that are related to tourism. The successful publication of the e-book by the Department of Recreation and Ecotourism, Faculty of Forestry will facilitate the department's efforts to become the leading and main referred center in the field of recreation and ecotourism in Malaysia and the world. As the Dean, I would like to extend my gratitude to all authors in this book. Also, congratulations to the editorial team for the publication of the 3rd ICAE e-book.

Thank you and good luck to everyone.

"WITH KNOWLEDGE WE SERVE"

ASSOCIATE PROFESSOR DR. AZLIZAM AZIZ

Dean, Faculty of Forestry Universiti Putra Malaysia

PREFACE

Over the past two decades or so, ecotourism as a niche in tourism has indeed flourished and made its mark in academia and in the industry. The very principle of ecotourism that strives to keep a balance of sustainability between protecting and conserving the natural resources while supporting community's well-being have indefinitely received enormous positive support globally. This has prompted numerous conferences, grants, projects, and discussions within the global ecotourism community, with many exemplary successful stories albeit many different challenges.

Adventure and ecotourism combined indeed has its own beauty and challenges. Likewise, with any other tourism niche, it is ever evolving. This makes it even more so important to keep the discussions going, not only within the academic world but also more importantly within the industry and community, as a whole. It is with this aspiration that the Faculty of Forestry, Universiti Putra Malaysia had once again organized the International Conference on Adventure and Ecotourism in 2019.

The 2019 ICAE conference marks the 3rd time this conference is organized by the faculty since its first humble conference in 2014 held in Mount Jerai, Kedah. Since its first inception, this conference has always aimed to congregate academicians, researchers, practitioners, and businesses in the field to exchange knowledge and experiences. Our hope is to reduce the gaps between the various sectors and encourage active collaboration towards establishing a tourism industry that is whole, creative, and sustainable.

And so, this book represents a multitude of discussion topics within the boundaries of ecotourism and adventure that is compiled in a total of 15 papers ranging from 3 themes. From the theory-based papers that presents the findings on Syariah compliance among hoteliers to technical-based papers that discuss the effectiveness of mountain rescue techniques, to conceptual models that depicts the potentials of redevelopment of forest parks; this book hopes to make a significant contribution to ignite the discussions within the adventure and ecotourism industry.

Therefore, we would like to extend our heartfelt gratitude to UPM, Ministry of Tourism Arts and Culture, Forestry Department of Peninsular Malaysia, Department of Wildlife and National Parks, Keynote Speakers and International Speakers, Industries and Tour Guides, Participants and Presenters as well as all those who has supported us in organizing this conference.

Ecotourism has indeed created a wealth of economic spillovers and social development to communities; providing jobs to local people, educating tourist and local people alike on the values of conservation, advocating for women empowerment in ecotourism, all whilst protecting the integrity of natural and cultural treasures. This is the true meaning of sustainability at its best, and therefore it will remain the everlasting trend for centuries to come. May this ICAE Conference be a regular platform for all of us to meet and seek new knowledge and foster fruitful collaborations for the success of this industry.

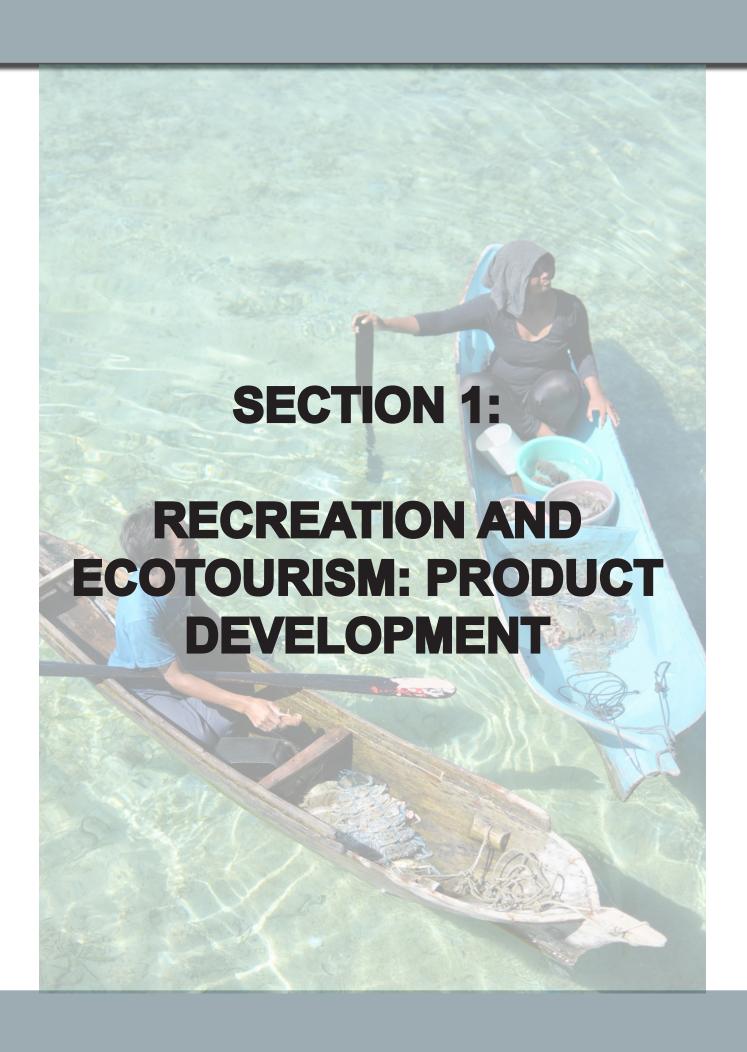
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RECREATION AND TOURISM RESOURCE ASSESSMENTS ALONG THE PERAK RIVER TOURISM CORRIDOR

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ABSTRACT

Many ecotourism destinations were developed with the dual purpose of resource conservation and strengthening the economic wellbeing of local community. In order to achieve these noble goals, there is a need to understand and incorporate local community participation in all ecotourism activities. The vital justification for such participation can be found in the form of linking the economic benefits through small businesses and conservation. The Perak River Tourism Corridor (PRTC) is an area located along the river and proposed to be the future focal point of tourism development in the state. It was selected by considering the unique attributes each possess in representing new and authentic tourism characteristics of Perak. The proposed PRTC will portray the heritage-education-adventure image of the state's tourism; similarly, the area should also be able to represent the wonderful archaeological resources and the Old Perak realm as new tourism experience; the PRTC also represents the hinterland-adventure aspects which are yet to be tapped for future tourism offerings in the state. In order to carry out this study, a Recreation and Tourism Resource Assessment was conducted in order to determine the existing and potential new products along the river corridor. Based on the findings of the assessment, potential products (e.g., environmental education programs, interpretive programs, learning media such as self-quided brochures, interpretation panels and signage) were proposed as part of the Recreation Product Development Strategy. These products will entail mostly in the form of outdoor recreation activities and bundled into recreation programs/packages. As anticipated, the project managed to demonstrate new ways of planning, developing and promoting tourism products in the state. Through systematic and concerted efforts, future tourism development in Perak will be able to realize its great potential and achieve greater benefits for the state.

Keywords: Regional tourism planning, Perak River, tourism product development, adventure tourism, ecotourism

1. OVERVIEW OF PERAK RIVER AS TOURISM CORRIDOR

The Perak River stretches along 400 km from its origin at the Malaysia-Thailand border all the way to the Straits of Malacca. It cuts across several historical towns like Lenggong, Kuala Kangsar, Pasir Salak and Bagan Datuk; this river represents the rich history of early community settlements in Perak and the establishment of the Perak Malay Kingdom around 490 years ago. Similar to any major rivers from around the world, the Perak River is an important natural resource that has shaped civilizations in the state. Today, few activities are still observed in the area – from aquaculture in Tasik Temenggor, *labu* clay making (clay water container) in Kuala Kangsar and Pulau Tiga to paddy field in Bagan Datuk. In between (e.g., Kampung Gajah, Lambor and Bota), there are also traditional fishing activities along the river; Pulau Sembilan State Park is increasingly known as a scuba-diving haven. Craft activities are still popular among the local communities in the villages found along the river.

Based on the various unique economic activities along the Perak River as described above, these activities together with the natural resources the state is known for, can be further developed into meaningful tourism experience in the area. Therefore, a study was designed and carried out to identify new or existing attractions and converting them into viable and unique products; strong enough to be



positioned as another flagship attraction with strong pulling power to stir other attractions along the corridor to prosper.

This paper provides an analysis, evaluation and propose strategy and action plan for the tourism product development along the Perak River. The potentials for the Perak River in this paper is seen through the lens of tourism planning that undeniable is an avenue that has significant tangible and intangible benefits to communities living adjacent to the river. This paper serves as a guideline to strategize future tourism product development of the Perak River for the benefit of the people while preserving the natural and cultural resources of the area.

The proposed Perak River Tourism Corridor (PRTC) will cover the whole stretch of the river from Kuala Kangsar (upstream) to Bagan Dato (downstream). This stretch has been identified as having the diversity of attractions but to remain within the proposed theme of future tourism development: **heritage-educational-adventure**. As such, the proposed corridor will carry a different 'signature' from another existing flagship destination in the state – the Royal Belum Park. While the latter is quite established as a 'nature haven', the proposed PRTC will position itself along the line of the selected theme as described before. The importance of having PRTC is two-folds:

- a. Taking advantage of future development and the ripple effects of the West-Coast Highway. The new highway will definitely alter the movement of people, providing easy access to the so-called 'hinterland attractions' that going to be identified by this study. All-in-all, the study will enable the state to capture the traveling public to enjoy its tourism offering; something that amiss along the PLUS Highway for so long. Hence, the economic and social impacts will be evident in the long run once we garnered the tourism potential along this corridor.
- b. **Diversification** of the state's tourism profile. Other than the Royal Belum, several destinations are gaining popularity in the state, including the Lenggong Valley, Matang Mangrove, Sungkai Hot Spring, Gua Tempurung, and Taiping Zoo. By having the proposed study, the state will be able to properly identify and develop other new attractions and diversified its offering. Some existing attractions also can be revived and given new lease of life with careful planning and executions.

The real challenge for the study is of course, to identify either new or existing attractions and convert them into viable and unique products; strong enough to be positioned as another flagship attraction with great pulling power to help other attractions along the corridor to prosper.

2. RATIONALE, OBJECTIVES AND METHOD

Many ecotourism destinations were developed with the dual purposes of resource conservation and economic wellbeing of local community. In order to achieve these noble goals, there is a need to understand and incorporate local community participation in all ecotourism activity. The vital justification for such participation can be found in the form of linking the economic benefits through small businesses and conservation. In Malaysia, realization on the uniqueness of its nature tourism attributes was evident as early as 1996 when the government endorsed the National Ecotourism Plan (Sheena et al. 2015). The plan covers topics ranging from the management aspect, marketing, development and conservation need of the resources with the end goal for both offering viable ecotourism products and ensuring resource protection.

A recent study by Tourism Malaysia in 2016 has suggested that ecotourism sector is growing by an estimated of 10% to 35% per annum in Malaysia or about two to five times faster than the growth rate for the tourism industry in general. The sustainability of ecotourism, in the long run, will depend on



the support of the local communities, especially among those who live in the forest-fringe areas. To gain and retain support, it is of utmost important for nature-based tourism to generate tangible socioeconomic benefits or incentives for the local **communities**. Equally important, participation by the local **communities** in the industry is needed for the industry to be successful (Loon & Polakow 2001). Local participation, along with the conservation of cultural and natural resources and educational programs are the three principle dimensions of ecotourism model (Boo 1990; Kiss 2004; Azlizam et al. 2017) with the end goal of ensuring the sustainability of tourism industry in protected areas. Such notion has been recognized as the driving force behind the surge of many tourism initiative at many destinations in the world.

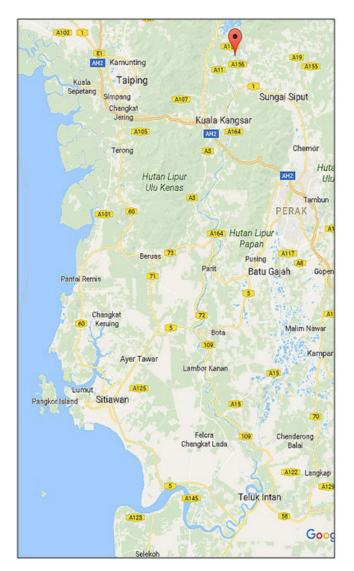


Figure 1. Location of Study Source: Google maps

From the resource conservation point of view, such socio-economic incentives for local **communities** are imperative, particularly in remote and ill-monitored regions where a weak presence of the enforcement hinders the use of alternative tools of environmental regulation (Buzard1993). Therefore, the dual roles of tourism, in protecting the resources and set off **community** development have been recognized as the contributing factor for its growth in recent years (Azlizam et al. 2015). A **community**

SECTION 1: RECREATION AND ECOTOURISM: PRODUCT DEVELOPMENT



participation approach is able to enhance a sustainable ecotourism by incorporating forest land and the local community along the proposed tourism corridor. This study is a new endeavor and the overall approach of this research is to assess the natural resources and designing and development of its latent products, determining the roles of forest-fringed **community** in delivering the products, and conserving the natural resources through ecotourism activities.

3. OBJECTIVES

The general objective of this study was to carry out a preliminary assessment on the existing tourism resources along the river and identify initial tourism product development by identifying product themes along the proposed PRTC, specifically:

- a. To assess the attractiveness (readiness) of the destination for tourism and visitors in the future, and
- b. To explain the current and potential recreation and tourism resources in the selected destinations along the river,

4. METHOD

The study focused on identifying and assessing the existing natural and cultural resources along the PRTC. The assessments were conducted between Mac until May 2018 to determine the feasibility of converting the natural and cultural resources as viable new tourism products. These assessments involved and adopted the Outdoor Recreation Resource Inventory (ORRI) Rapid Assessment to suit the study objectives and the assessment forms were completed by 4 independent tourism experts. In addition to this method, face-to-face interview sessions were also conducted with selected respondents (normally village or community heads) to provide in-depth understanding of the subject being studied on the ground.

In this study, destination attractiveness was measured in relation to a given tourist destination or defined as an aggregation of individual evaluations attached by the experts to relevant value dimensions of each destination. This measurement, named as 'Destination Readiness Index' is actually indicating how a destination is being close in serving tourists at present. The dimensions used and its measurements are shown in Table 1 below:



Table 1: Dimensions of Destination Attractiveness

Criteria	Destination Attractiveness	
	Measurement	Weight
Willingness of Host Community	Community readiness to deliver tourism experience with the following knowledge and skills: Host/hospitality, communication, entrepreneurship	0.15
Feasibility	Ability of product to be profitable and sustain over time (potential)	0.25
Accessibility	Direct distance between attractions of the destination and main access road	0.05
Quality	Uniqueness of product to meet/go beyond expectation of visitors' safety	0.05
Availability	Abundance of resources/times of the year to be offered to visitors	0.05
Facilities & Services	Availability of existing facilities & Services (lodging, Guide, restaurant etc)	0.05
Wow factors	The prominent feature of the product that is incomparable to other products	0.4

The four main districts covered under this study- Zone 1: Hilir Perak and Bagan Datuk, Zone 2: Perak Tengah, Zone 3: Kuala Kangsar and Zone 4: Hulu Perak district (Map 2). The four main districts share predominantly similar socio-economic characteristics, with communities working mainly in agriculture and fishing industries. Majority of the villages in these districts are Malay villages, with minorities', the Chinese and Indian community. The median income for the population in these four districts is recorded below state level of about RM 4000. Although these districts have principally retained their Malay cultural values, some district, particularly Kuala Kangsar have more distinct cultural values that can be seen in villages, mainly due to historical elements associated with the area like Labu Sayong. A similar finding among these four districts is that local involvements in tourism industries are quite low, with high migration rate amongst the young due to lack of employment opportunities in these areas. The findings signify that these four districts will benefits largely from the economic spillovers through tourism rejuvenation and development along the Perak River.



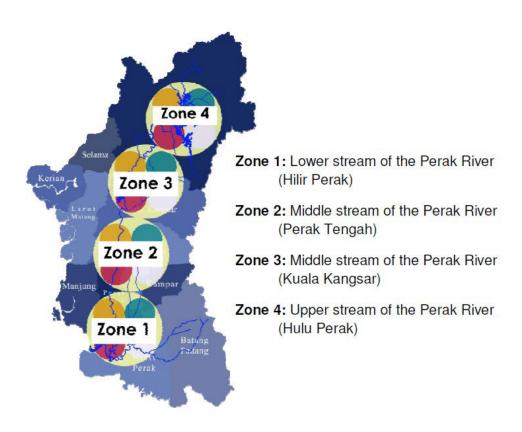


Figure 2. Zones along the PRTC

5. RESULTS

The study has found that at present, the destination considered to be the most attractive is the area between Belum and Lenggong, or Zone 4 (Average Readiness value of 0.81) as presented in Table 2. The Royal Belum State Park which is located in this zone was considered as the 'most ready' in term of its potential to be presented as a tourism destination.



Table 2: Destination Readiness Index

Zone/ Destination	Attraction	Readiness index
ZONE 1: Bagan Datuk	Kampung Bagan Sungai Burong	0.91
	Kampung Sungai Nipah	0.57
	Beting Beras Basah	0.77
	Pulau Sembilan AVERAGE	0.74
		0.75
ZONE 2: Teluk Intan to	Kampung Terengganu	0.79
Parit	Pulau Burung (Mangrove)	0.82
	Mining Area	0.70
	TT5	0.72
	Pulau Indera Sakti	0.60
	Pasir Salak Historical District	0.74
	Tuntung Conservation Centre AVERAGE	0.68
		0.72
7017 2 17 1 17	Kampung Sayong	0.70
ZONE 3: Kuala Kangsar	Kampung Labu Kubong	0.80
	Kuala Kangsar Historical Town	0.78
	Beruas/Gangga Negara	0.62
	Kampung Beng	0.84
	Lenggong Valley	0.63
	Tasik Raban	0.81
	Kampung Luat AVERAGE	0.77
		0.74
ZONE 4: Belum-Lenggong	Belum State Park & Sungai Tiang	0.97
	Kampung Bungor	0.78
	Kampung Kuala Rui	0.80
	Lower Belum (Reman)	0.88
	Kenderong Kenering	0.74
	Kampung Bersia Lama AVERAGE	0.73 0.81

Note: Index is indexed from 0 to 1, with 1 being the high readability to be a tourism destination

The data and observation from the ground pointed that the residents in the three main villages of the zone, namely Kampung Bongor, Kampung Bersia Lama and Kampung Rui have low participation and involvement in tourism activities, including the indigenous people from Sungai Tiang. Although these villages are located near the Perak River which deemed to have high potential for tourism development, it is quite a surprise to find the locals to express that they do not see the potential in tourism and have less or no start-up capital put aside for tourism ventures. However, in Kampung Sungai Tiang, the locals

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expressed interest in tourism activities. They have previously worked with local authorities to develop the "Teratak Seri Durian", where visitors can camp overnight and do jungle trekking activities.

Brief description of the existing tourism products obtained from the interviews conducted in the villages are as follows:

- Festival Loma (Kampong Rui)
 The Loma festival takes place once a year, where locals will catch fish using traditional fishing nets along the riverbanks in Dataran Loma, Kampung Rui. It is held between August and November, as this is the time when the Loma fish lay their eggs upstream in Sungai Rui. This festival was previously promoted in local media and garnered attention by the Ministry of Tourism. However, this event is only a one-off event.
- Local workshops for *Ikan Pekasam* and *Golok* (Kampung Bersia Lama)
 The local workshop for *ikan pekasam* is operated by Puan Chu Noriah, with 20 years involvement.

 Fish are caught fresh daily by local workers, which is then sold to buyers. The rest of the fish are made into *pekasam*. However, the place where the workshop is held is quite dilapidated and proper maintenance and upgrading work is required before it can be visited by tourists.
- Jungle trekking in Belum with indigenous people (Sungai Tiang)

 The indigenous people will take visitors to a waterfall site in the forest as well as teach visitors about traditional herbs for medicinal purposes. There are plans to introduce "becarakit" to visitors as part of the indigenous people experience.

The next highest-rated destination in the Index is Zone 1 which covers area around the district of Bagan Datuk. In terms of local involvement in the tourism industry, there is currently little government support and commitment from the local community. Operations for tourism in Teluk Intan for example are mainly conducted by individuals at the main attractions in Hilir Perak such as, the bird island located in the middle of the river.

Homestays are quite prominent in the Bagan Datuk area with the establishment of a local community homestay organization. However, based on an interview with the President of the homestay association, there has been a decline in participation over the years. Conversely, in Kampung Bagan Sungai Burung, a Chinese fishing village, communities are heavily involved with tourism activities. Locals can be seen operating accommodation, homestays and seafood restaurants, all situated around the fishing village. The tourism package is operated by 9 Island agencies which includes, Pulau Sembilan tours to view Blue Tears, visit to Beting Beras Basah (Sky Mirror), fishing activities as well as homestays with the local people.

There are a number of activities and products that have been identified from the community surveys in Zone 1. Brief description in relation to the existing and potential tourism products obtained from the interviews conducted, are as follows;

- Blue Tears in Pulau Sembilan
- Beting Beras Basah (Bagan Datuk): Sky mirror
- Bagan Datuk homestays programs: The largest homestay in the country with more than 100 families participating in the homestay program. Homestay programs are coordinated by the homestay organization in Bagan Datuk.
- Coconut craft-making and virgin coconut oil in Bagan Datuk
- Gastronomic tourism (Udang Galah) in Hutan Melintang

The third attractive destination in the assessment is Zone 3 (Kuala Kangsar). Apart from the historical monuments and buildings that are the main tourist attractions in this district, craft industries and homestay programs in local villages are part of the tourism programs that locals are actively involved in. However, interviews conducted with the locals involved in Labu Sayong crafts, revealed that, most young adults



migrate to Kuala Lumpur and Penang as there is no stable employment in this district. Despite a decline in the craft making industry, in terms of local tourism involvement, the Zone 3 district has more varied tourism activities that can contribute to the local people's economic development.

6. DISCUSSION

6.1 Implications for Tourism Research

A tourism destination is a geographical region which contains multiple attractions – places of interest and famous for their natural and cultural values, geological formations and man-made features or historical significance. These attractions are key to tourism growth; they provide motivation for visits and represent the core product of the 'tourism experience' at destinations. Recent studies on destination attractiveness such as Mohd Aswad et al. (2013), Nur Hafizah et al. (2013) and Azlizam et al. (2017) defined attractiveness as the perceived ability of the destination to deliver individual benefits to tourists. One of the key findings of the present research was that it helps in refining the previous used tools in those studies which can be tested and replicated somewhere else especially in the Malaysian tourism context.

6.2 Implications for Tourism Development

Based on the findings, several recommendations were put forward for the tourism authority in the state to take necessary actions. These actions will be guided by two main thrusts that will enable the establishment of a strong and unique brand and create competitive advantage over other tourist destinations in the country.

Thrust 1: Develop new tourism products and rejuvenate existing ones in order to create meaningful tourism experience in the area.

In order to create unique experiences for tourists visiting the area in the future, new approaches were required. For the first time, it was proposed to have a scenic driving route in Perak, focusing on the PRTC, and capitalizing on the strength of the resources available in the area.

Perak Tourism Scenic Route- The Warriors Way Scenic Drive

In regional recreation planning, scenic routes refer to a designated road or highway which connects landscapes of particular recreational, cultural, ecological and aesthetic value. At the same time, designating a route must also take into consideration factors of "accessibility" to peripheral attractions of high-quality value. Such attractions may include popular food establishments, stop area with vista points, lodging, or campgrounds. Overall, well-planned scenic routes will become the travel destination itself; an experience that is becoming the ultimate reward for taking a trip on the road less travelled.

Along the PRTC, it has been divided into four zones with each zone comprising of one or more scenic routes. In the end of this initiative, it is envisioned to have an inter-connected Scenic Drive from Bagan Datuk all the way to Royal Belum Forest. The proposed scenic drive routes for all zones capture the prominent characteristics of the area while emphasizing the importance of further development of community-based tourism. Community tourism in Malaysia has high potential as a unique attraction, apart from eco-tourism, which caters particularly for tourists from Australia, New Zealand and Europe, who prefer to learn about unique and remote communities. In these villages, visitors will be able to personally witness the traditional dances, lifestyle, and hunting techniques. Example of these proposed scenic routes are presented in the following maps.



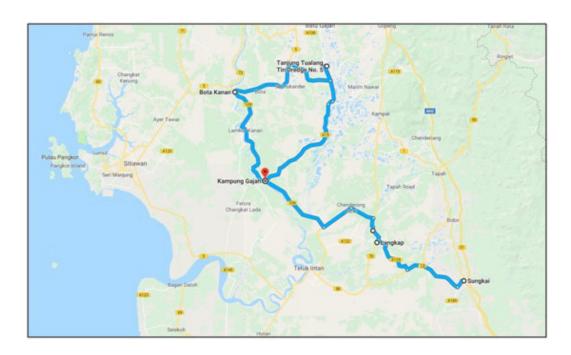


Figure 3. 'The Warrior Ways' Scenic Drive

Length : 60 km

Time : About 1 hour of slow drive

Main storyline : Re-living the old Perak Kingdom – the glory and tribulation

Route description : This route will 'tell' the stories of the early Perak Kingdom right after the fall

of Melaka Sultanate in 1511 until the moment the 'Pangkor Agreement' came to effect in 1875 – by marking stops along the route coupled with good historical

interpretation.

Product Bundling

As for this 'Warrior Way' Scenic drive, several potential products have been identified to be offered for future visitors in the area and shown in Table 3.



Table 3: Summary of Product Bundling for Zone 2

Product	Description	Target Segment
The Kings Landing	The Perak River was once used in similar way we traverse the landed highway – to commute for daily affairs, business and also leisure pursuits. Along the river there were small ports or landings once used by kings and commoners. Thus, this activity will let present day adventurers to step off their boats and kayaks at several pre-determined stops to immerse themselves in the experience. This product must be supported by good interpreters and guides and even perhaps in the future mobile apps like Augmented Reality will ensure tourists to have a better re-imagining of the landscape long gone.	AdventurersHistory Buffs
Battle Royale	Battle re-enactment combines both educational and entertainment elements into one meaningful and unforgettable experience for all involved. All over the world, famous battles like Napoleonic War, Waterloo Battle and American Civil war are being re-lived by enthusiasts annually. Thousands of participants and spectators have made this an event not to be missed and is becoming a unique tourist attraction, with huge rabid followers. Similar products, therefore, are being proposed to be developed in Pasir Salak by taking cues from several key historical battles in the area. Historians, relevant bodies, and volunteer groups must be engaged to ensure great attention is given to detail to create an authentic experience.	 History Buffs Edu-tourists School children
Rustic Rural	Rural tourism or country life refers to activities which involve visitors or tourists to stay and interact with rural hosts. Rustic means simpler or unsophisticated ways of life that is typical of the villages. Tourists who came from ultramodern surroundings for example will find such a set up to be profound and interesting particularly for young children.	Cultural touristsCity-dwellers

Thrust 2: Re-position the area as new destination with unique and interesting storylines by employing convergent marketing technique

In tourism marketing, these two strategic thrusts are also commonly known as the STP concept – Segmentation, Targeting and Positioning of a destination. Targeting means to use the most effective means of communication (promotion) to convey messages, to persuade the segment to visit intended tourism destination, in this case, the PRTC. Positioning starts by finding a distinction to differentiate the corridor from its competitors. The most effective method is by delivering the message and also creating a certain image and creating a strong brand for this area as a tourism destination.



Social Media Marketing

Convergent marketing technique is used when combining the digital with the traditional 'brick-and-mortar' media in conveying our marketing communication. This requires tourism destinations to ensure that they present an integrated, consistent, clear, and interactive message across all media they use – both digital and traditional. In other words, in today increasingly media savvy tourism market, the tourism planner must capitalize the recent trend of managing and integrating the user-generated content (UGC) with printed mass media for promoting their tourism destination.

For social media, the tourism authority can work together with bloggers, webmasters and local tour operators who carry out extensive writing and tourism promotion activities. Methods should also be sought to boost likes and re-twit among active visitors using Facebook and Twitters. These include accommodation incentives and facilities for those who are active in doing a twit that promote this tourism destination.

7. CONCLUSION

In line with the visions of state authority to facilitate Perak in broadening it tourism profile, new community-based tourism initiative is being proposed for the PRTC. Our analyses revealed this area possesses the strengths and uniqueness to be further developed as tourism destination that can offer new, exciting and unique experience. Practically, the development of PRTC will diversify the state's tourism profile, produce tangible and intangible actual tourism products, able to capture the travelling public from the West-Coast Highway, and consequently improving the livelihood of the local communities through tourism product delivery.

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ECOTOURISM IN MALAYSIA: CURRENT SCENARIO



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RE-DEVELOPMENT OF MOSSY FOREST PARK IN CAMERON HIGHLANDS, PAHANG: A CASE STUDY FOR PREPARING A MASTER PLAN

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ABSTRACT

Every parks (public/urban and nature) in Malaysia should be required to prepare a comprehensive outdoor recreation plan to assess the public demand for, and supply of, outdoor recreation resources. The plan should present the desires of residents of the community regarding parks and other recreation facilities in their locality. The Parks Master Plan is a guideline and framework created to help improve our vision for a better parks system. Within the plan, there are strategies on how to improve our parks. The plan itself is normally set to take place for a 5 to 10 years duration, and mostly will contain DGM – drawings, graphics, and maps. This paper illustrates the process of preparing a master plan as an important and systematic effort to obtain a long-term guide to the development of the Mossy Forest Park in Pahang. The ultimate goal of the project was to provide a strong and positive 'brand' for the forest while highlighting the image of the Pahang State as the ultimate nature tourism destination in Malaysia. To achieve this goal, the approach adopted the 'recreation site planning' method which includes resource evaluation and recreational. A number of actions have been outlined, including Area Conceptual Development, Recreation Product Development, Marketing and Resource Conservation. The development of future products has been decided to adhere to the concept of 'adventure & education' which are suitable for young people and students. These include major activities (mountain hiking & education) and secondary activities (special interest, hiking / leisure, and leisure activities).

Keyword: Recreation site planning, Conceptual Plan, Product Development

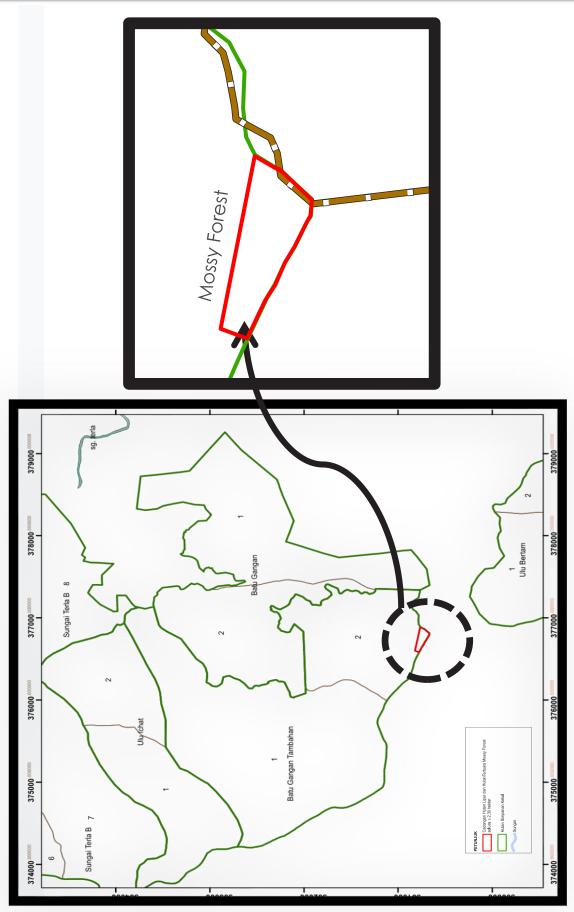
1. INTRODUCTION: MOSSY FOREST PARK

Mossy Forest Park is located in the area between Brinchang - Mount Irau in Cameron Highland, Pahang. The park is approximately 2.3ha in area within the boundary of the Batu Gangan Tambahan Forest Reserve (see Map 1). It is located about 11km from Brinchang town, 87km from Ipoh, 73km from Tapah via the old access road and 343km from Kuantan.

The forest is located on the ridge between Mount Brinchang and Mount Irau. It is considered as the highest peak in Peninsular Malaysia which is accessible by private vehicle. In the context of forest management, the area of Mossy Forests Park is also known as cloud forests and are generally tropical or subtropical forests, evergreen, montane (mountainous), moist forests characterized by frequent or seasonal cloud protection.

Low-level clouds cover the forest with continuous fog and moisture, creating a habitat suitable for Mossy Forest's unique flora and fauna which otherwise may not survive elsewhere. The forests often feature ancient trees covered with layers of thick moss, lichen, and ferns and sometimes surrounded by orchids and apes. This humid green forest is also a rich habitat for a variety of mountain species, including insects, snakes, frogs, birds, and mammals unique to this cool climate. The forest was proposed to be





Map 1. Location of Mossy Forest Park (Source: Jabatan Hutan Pahang, 2019)



gazetted as an open forest, allowing the public to visit and enjoy the beautiful scenery and to understand the forest more closely.

2. JUSTIFICATION FOR THE DEVELOPMENT OF A MASTER PLAN

2.1 Emphasis on the Balance of the Ecosystem of Recreational and Ecological Resources

The planning for this master plan and the restoration of recreational resources along the Mossy Forest cover several aspects such as the development of tourism activities facilities, impact and visitor management system and management practices that the Pahang State Forestry Department should consider in improving the quality of service in the park. It should be noted that in a recreational resource management, a balance between other components of the recreational ecosystem should be considered. In the context of Mossy Forest, the balance is needed for an equal emphasis on the agency roles (management practices), user management (what is the basic requirements of climbers, requirements, perceptions and levels of satisfaction) and ecotourism resource conservation along the trail heading to the mountain top.

The goals for the re-development of facilities in the surrounding environment of the park will be influenced by the study in which it was to reduce resource impact rates, as well as develop user management systems and efficient forest resource protection activities (Azlizam et al. 2014). Through systematic site planning and recommendations, the Mossy Forest Trail and Mount Irau will be able to achieve some of the goals to meet the demands of the visitors while balancing the need of the recreational ecosystem.

2.2 Meet the Needs of Ecotourists and Increase their Level of Satisfaction

All this time visitors to the Mossy Forest Park are dominated by hikers who want to meet their ultimate goal of capturing the summit of Mount Irau. Almost 80% of the hiking trail is located in the Mossy Forest area. According to a survey of Mount Irau climbers, there were complaints about discomforts while carrying out trail activities due to the deteriorating condition of the trails - muddy stretches, exposed surfaces filled with exposed roots, felled trees, landslides and human waste residues in several locations. In the future, this re-development initiative will create and offer various support facilities for recreational and ecotourism activities; interpretive displays and comfortable seating, the opportunity for visitors to enjoy other recreational activities in a safer condition on the trails.

Considered as one of the niche products in tourism, the concept of ecotourism is quite a juxtaposition. Ecotourism can basically be defined as a visit to nature areas for the purpose of enjoying and understanding the various sources of flora and fauna as well as any unique resources that will benefit the sustainability of those resources and contribute to social and economic benefits (Sheena et al.2015) to the local community. The same 'good nurtured' activity somehow being criticized for bringing unwanted impacts to the resources; physical degradation like we are witnessing at Mossy Forest, cultural appropriation, economic leakage hampering real local development and so on (Azlizam et al. 2018). However, with proper planning like this master plan, negative impacts can be minimized, or managed, and greater benefits can be created for resource protection as well as local community development.

2.3 Protect Recreational and Ecotourism Resources from Further Damage

The concept of ecotourism resource protection especially along the trail in Mossy Forest can be implemented either directly or indirectly. For a direct approach as an example, the use of a bridge structure in muddy areas will protect the damaged trail surface from further exposure to other threats of erosion.



2.4 Minimize Costs and Maintenance Activities on Resources and Facilities

Investments made to develop recreational facilities along the trail are seen to provide long-term returns for the State Forestry Department. It is well known that previously there were difficulties in conducting regular maintenance activities along the boardwalk, given the nature of the surrounding environment and its distance from the administrative center. From a logical standpoint, the costs of early maintenance on the Mossy Forest trail are high. But the ecotourism facilities (boardwalk, decks, viewing towers etc.) in the long run, it is expected that the cost of maintenance on natural resources will decrease and moreover the intangible return in controlling the rate of damage to trails due to user behavior will compensate the monetary costs.

3. PURPOSE OF THE MASTER PLAN

The Parks Master Plan is a guideline and framework created to help improve our vision for a better parks system. Within the plan, there are strategies on how to improve our parks. The plan itself is normally set to take place for a 5 to 10 years duration, and mostly will contain DGM – drawings, graphics, and maps. This paper illustrates the process of preparing a master plan as an important and systematic effort to obtain a long-term guide to the development of the Mossy Forest Park in Pahang.

The ultimate goal of the project was to provide a strong and positive 'brand' for the forest while highlighting the image of the Pahang State as the ultimate nature tourism destination in Malaysia. While the specific objectives of this master planning are:

- a. To determine unique and viable ecotourism products (core activities), and
- b. To provide strategies for the redevelopment of this area for the purpose of creating recreational and resource conservation experiences.

4. MATERIALS AND METHODS

Studies on the importance and performance of existing activities were conducted to identify the importance of activities and performance during these activities in Mossy Forest Park. This study can provide useful information on identifying the weaknesses of an activity and the improvements that need to be made so that these activities will continue to be relevant in the future. For such purpose, the analysis of existing activity offerings is conducted using the Importance Performance Analysis method. Visitor perception on the proposed development was also measured by using qualitative face to face interview. Respondents were intercepted on site – at the area surrounding the entrance of the park.

5. RESULTS AND DISCUSSION

5.1. Determination of Primary (Core) Activity and Secondary Activity

Primary Activity

The primary activity of this area is mountain climbing. This activity can be carried out along the 1.5km natural trail of Mount Irau from the parking area (Mossy Forest).



Secondary Activity

Evaluation of potential secondary activities is offered based on the resource suitability of the area. For this area, activity assessments were made from the entrance to Mossy Forest to the summit of Mount Irau. Activity is evaluated based on the quality of the new activity to be offered and the suitability of the activity based on the source (Table 1). Based on this assessment, an Important-Performance Analysis (IPA) was carried out and shown in Figure 1.

Table 1: Suitability of Activity at Mossy Forest

Type of activity	Activity	Mean suitability of activity
Adventure recreation	Trail running	4.8
	Rope course	3
	Mountain biking	4.7
Nature study	Environmental education	4.7
	Interpretation of nature	4.5
Nature appreciation	Insect observation	4.7
	Bird watching	4.5
	Flora study	4.6
	Aquatic life study	4.6
	Stargazing	4.7

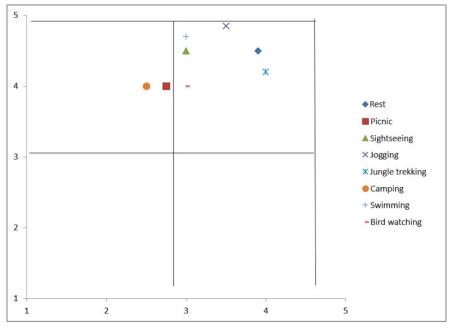


Figure 1. IPA Analysis on Proposed New Activity

Determination of core activity is aimed at identifying the Unique selling preposition (USP) of Mossy Forest which can differentiate the forests with other forests. Based on source inventory assessment of new recreational activities, the concept of activities appropriate to the park is Adventure- Education (aktiviti Lasak & Penghayatan) activity as summarized in Figure 2.



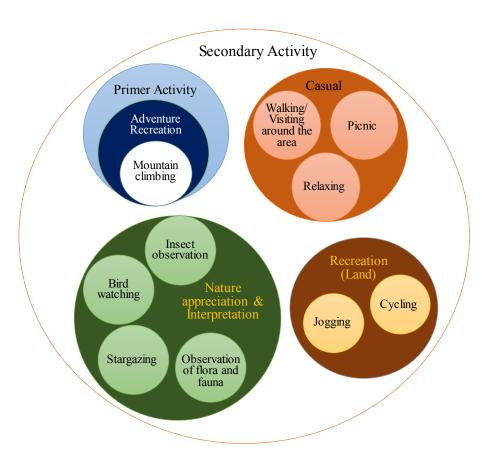


Figure 2. Core Activity for Mossy Forest (Adventure – Education)

Based on the identified core activity, the concept of facility to be developed can be proposed; the main role of such development at Mossy Forest was to support the implementation of such primary (more) and also secondary activities. Among the key steps for the redevelopment of the forest are to create a unique brand for the area. For the purpose of regional development, the concept of development itself is important as a point of reference for the development and design of facilities, recreational activity / product planning and marketing.

5.2. Re-Development Concept for Mossy Forest Park

The development of the proposed products and facilities will be in line with the concept of offering 'adventure & education' suitable for young visitors and students. Some of the unique products to be created here are:

- The Bay @ Mossy mountain hanging out place.
- Dataran Irau
- Mountain Trail- emphasizes the 'basic development' or bare development aspects where only
 the most basic facilities will be provided to ensure the climbing activity to the summit of Irau
 is comfortable and safe.

Among the key factors that determine this concept of development are the main target groups of young people with trends in social media usage. Today, the success of new tourist destinations is greatly



influenced by the viral factors that young people follow; it should serve as the main ground for the purpose of reintroducing the forest area here. In the context of consumer psychology, this can be explained through the concept of 'fear of missing out; FOMO 'where this' fear of being left behind 'is caused by a user who is too worried that others may have a joyful experience that he or she does not have (Zamru Ajuhari et al. 2015).' In other words, consumers today are as much concerned with the aspect of self-image as they are constantly faced with discovering unique new experiences. Therefore, it is important that future recreational facilities and experiences in this area be able to meet the psychological needs of the users described.

6. CONCEPTUAL DEVELOPMENT PLAN FOR MOSSY FOREST

6.1. Master Layout Map



Figure 3. Bird-eye View of Dataran Irau

6.2. The Bay @ Mossy - mountain hanging out place.



Figure 4. The 3D Perspective of the Facility at The Bay

The proposed facilities at The Bay @ Mossy include a lounge (small café), a visitor locker, a staff station, a new entrance, and a fireplace.





Figure 5. Another Perspective of the Facility at The Bay

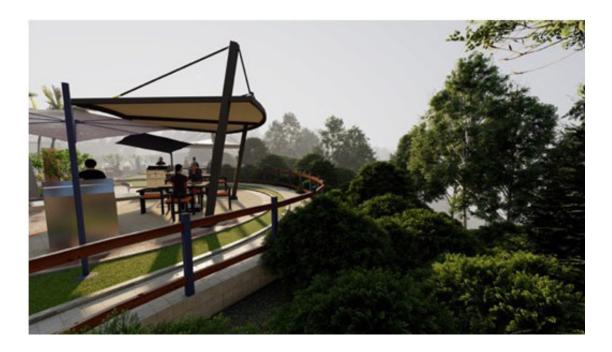


Figure 6. Visual Quality of the Facility at the Bay



6.3. Dataran Irau

Dataran Irau is recommended as a stopping point for visitors who want to relax in the natural environment. Visitors who want to relax and recharge can experience Rau's Mini R&R Relax and enjoy the natural surroundings. This is also suitable for those want to sightsee or just wait for group to start off their hike to the mountain top.



Figure 7. Perspective of Dataran Irau



Figure 8. Another Perspective of Dataran Irau



6.4. Mountain Trail with Boardwalk

The purpose of this facility is mainly to protect the resources from further damage and also to ensure the safety of hikers.



Figure 9. Perspective of Boardwalk for the Mountain Trail



Figure 10. Another Perspective of Boardwalk for the Mountain Trail



7. CONCLUSION

This paper illustrates the process of preparing a master plan as an important and systematic effort to obtain a long-term guide to the development of the Mossy Forest Park in Pahang. The ultimate goal of the project was to provide a strong and positive 'brand' for the forest while highlighting the image of the Pahang State as the ultimate nature tourism destination in Malaysia. To achieve this goal, the approach adopted the 'recreation site planning' method which includes resource evaluation and recreational. While it is important for the local and state economy to persuade tourists visiting protected area such as Mossy Forest to enjoy its nature beauty, steps are needed to safeguard the very precious resources from deterioration due to visitations. Facilities proposed in this study are needed for such purpose – balancing the tourism need and conservation need in the area.

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SHARIA COMPLIANCE IMPLEMENTATION AMONG HOTELIERS IN KLANG VALLEY, MALAYSIA

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ABSTRACT

Tourism is a sector that has been recognized by the Government of Malaysia as an economic catalyst for the country. Islamic hospitality has become one of the attractive segments of the world's tourism industry and, for many Islamic countries, it is an important income earner, especially for those providing services to Muslim travellers. Sharia Compliance Hotel (SCH) has been created to cater to Muslim guests as demand and awareness for Islamic products and services increased. This innovative development can be found in countries where Muslim residents are the majority like Malaysia and Indonesia. However, there is a lack of research on the acceptance level among the hoteliers on this new concept. There are two objectives in this research, (i) identify their level of awareness about SCH implementation in Malaysia, and (ii) to evaluate the influence of attitude, subjective norm and perceived behavioural control on the acceptance of SCH implementation. This research utilizes the Theory of Planned Behaviour (TPB) to investigate this issue. The data was collected using questionnaires distributed to 400 respondents who worked at 40 hotels that are rated between three (3) to five (5) stars hotels in the Klang Valley. The results are expected to facilitate improvements in the hotel industry, especially those operators that are interested in substituting their hotel management toward SCH practices.

Keywords: Sharia, Theory of Planned Behaviour, acceptance, halal

1. INTRODUCTION

1.1 Tourism in Malaysia

According to Puah et al. (2018), the Malaysian government gave serious attention to the tourism industry in the 1980s because Malaysia has been too dependent on the theprimary and secondary economic sectors since its independence. Malaysia has been depending on commodities such as rubber, cocoa, and palm oil for trade until the mid 1990s. To diverge the economic risk, the Ministry of Culture and Tourism was founded in 1987 to drive the comparative benefit of the tourism sector. In 2013, the ministry was rebranded to the Ministry of Tourism and Culture or MOTAC which aims to promote Malaysia aggressively as a prominent visitor destination.

The Malaysia tourism industry has been ranked as the third-largest in the national gross domestic product contributor in 2017. In the government's effort to strengthen and diversify economic risk, the tourism industry was emphasized in the 2017 Economic Transformation Programme (ETP). According to the World Travel and Tourism Council (WTTC) (2017), the overall gross domestic product (GDP) contribution to the travel and tourism industry was MYR181.4 billion (USD41.9 billion) or 13.4% of GDP in 2017. As a foreign income earner, the Malaysia tourism is the third largest earner in the country after the palm oil and manufacturing industry, with the total income contribution of MYR182.4 billion or 14.8% of the national income (Department of Statistic Malaysia 2017).



In 2017, the revenue from tourism activities was MYR82.1 billion with the arrival of 25.9 million tourist (Tourism Malaysia 2020). Compared to 2016, the Malaysian tourism received a total tourist receipt of MYR82.1 billion but with 26.76 million tourist arrival, which shows a reduction of 3% in tourist arrival. The latest data indicated that in 2018, the tourist arrival decreased by 3.02% at 25.83 million tourists as compared to tourist arrival in 2017. However, it receives an increased in tourist receipt by 2.4% or at MYR84.14 billion compared to 2017.

1.2 Halal Tourism in Malaysia

Recently, the Halal tourism is becoming a new sensation in the tourism industry that provides hospitality service following the Islamic beliefs and practices. These include serving halal food, separating men and female swimming pools, spa and leisure facilities, free-alcoholic dining areas, prayer centres, and even Islamic swimming areas for women-only, following the Islamic etiquette (Henderson 2016).

Halal tourism has traditionally been associated with Hajj and Umrah pilgrimages. The increasingly affluent Muslim middle class consumers are gradually changing tourist preferences of muslim tourism, and the degree of interconnection, which has made travel part of everyday life. The halal tourism accounts to 12.3% or 126.1 billion USD of the overall global tourism market, and is 4.8% higher than the global average of 3.8%. In the year 2011, Muslim travelers spent around USD 126 billion, according to Dinar Standard (2012) and this figure is expected to reach USD419 billion by 2020.

Malaysia is a moderate Muslim nation with multi-faith and multi-ethnic society in which Islam is the official religion in the Constitution. For this reason, Malaysia can potentially build one of the world's most enviable infrastructure for the growth of Islamic Tourism. Based on the annual survey, Malaysia was named the number 1 destination by Crescent Rating Singapore for Muslim travelers for four consecutive years from 2011-2014. Besides that, Malaysia has been named as the secondbest global shopping destination for Muslim Travellers after Dubai and UAE in 2015. According to the Malaysia Islamic Tourism 2014/2015 report, Malaysia has received 3.2 million inbound Muslim tourists to this country. In 2016, a total of MYR 2.56 billion contributed by tourist from Middle Eastern to the country's revenue. With the influx of Middle Eastern travellers and increase awareness of Halal and Sharia Compliance matters, the Malaysia government has taken the step to empower Halal Tourism to attract more tourists to come and spend in Malaysia. For instance, Malaysia has been leading the way in the Halal Tourism and Halal Hotel industry. In Malaysia, MS 2610:2015 – Muslim friendly hospitality services are among the standard developed in Malaysia for the Islamic tourism sector as a guiding document in setting an assurance system to preserve the integrity of products and services catered for Muslim travellers. It includes three tourism sub-segments: accommodations, tour package and tourist guide. Besides that, with the existing of the standard, it hopes to enhance the ability of the organization that manages Muslim friendly products to meet Sharia compliance, preserve the integrity and protect Muslim friendly products by applying the standards effectively and improving customer satisfaction and customer expectations.

Hotels adopt and implement innovation to beremain competitive in order tomaintain the market shares in today's globally competitive tourism sector (Sintes & Mattson 2009). For this reason, the Sharia Compliance Hotel (SCH) has been introduced as an innovation in service. Choosing to adopt SCH is a factor that can identify Muslim tourists staying at the hotel (Hjalager 2010). In response to the SCH in Malaysia, few hotels have been recognized to practise according to the Sharia principles to fulfil the needs of Muslim tourists. Among it is the pioneer De-Palma Hotel, PNB Darby Park, Grand Bluewave Shah Alam and Putra Hotel in Kuala Lumpur.



2. LITERATURE REVIEW

2.1 Sharia Compliant Hotel (SCH)

The Sharia-compliant hotel is a hotel that delivers not only halal food and beverage services in accordance with Sharia principles, but also covers the entire hotel business (Razalli et al. 2015). This definition was supported by Nurul jannah (2014) that stated Muslim or Islamic hotel is a hotel that provides sharia-compliant services as a moral code to lay the guideline for Islam's whole life.

In addition to providing a tranquil, cozy and healthy environment with guest-friendly services, Baharudin et al. (2015) it also aims to identify halal hotel management in Malaysia and identify key issues in implementing management systems halal hotel. A total of 55 respondents were customers at De Palma Hotel Ampang, Selangor were selected at random. The instrument used was a questionnaire containing 55 items in the questionnaire. The reliability value of the instruments used are α = 0.834. Data were analyzed using Statistical Package For Social Sciences (SPSS defined a Sharia hotel as one with its management and services delivered based on the Muslim Sharia principle. Saad (2014) stated that a hotel compliant with Sharia is defined as a hotel providing Sharia-compliant services. Besides, Zakiah and Fadilah (2013) argued that a hotel which is Sharia-compliant does not merely supply halal food and drink but involves the entire operations of the hotel.

Sharia is an Arabic word meaning the oath that Muslim should follow (Doi 1984). The Sharia Compliance Hotel (SCH) can therefore be defined as a hotel providing Sharia principle-based services (Yusuf 2009). Reviews of work of literature differed between three categories of hotels covered by the Islamic Hospitality Concept; dry hotels which serve non-alcoholic in their centres; partly SCHs that provide a few additional Islamic services, such as Halal food and prayer rooms; Qur'an and prayer rug in each room as well as split facilities between men and women, and fully controlled by the Sharia from its design, interior to hotel accounts (Henderson 2003; Ozdemir & Met 2012; Zulkharnain & Jamal 2012).

According to Zakiah and Fadilah (2013), SCH can be defined as a hotel entity that provides all services according to the Sharia principles (including food, drink, operation, management and all the commands of Allah Subhanahu Wataalla that regulate the life of every Muslims in all aspects. Additional to that, Norainand Rozian (2015) stated that SCH is defined as the hotel that is governed by Sharia standard which goes beyond the concept of dry and Islamic hotels.

There are some attributes of the SCH as explained by some scholars. Zakiah and Fadhilah (2013) as cited by Henderson (2016) explained that the SCH as not serving non-halal food and no alcohol at the premises or hotels. The holy book Qur'an must be put in the room and the room must be provided with a prayer mat and a *qibla* sign. Furthermore, the beds and toilets must not be positioned facing the *qibla*. The prayer room has to be available in the premises and hotels and that there must be no inappropriate entertainment.

2.2. Theory of Planned Behaviour (TPB)

TPB is basically an extension model of Theory of Reasoned Action (TRA) (Ajzen & Madden 1986) and is one of the most researched models for a social psychologist to predict behavioral intentions (Armitage & Conner 2001). TPB allows the examination of the influence of personal determinants and social surroundings as well as non-volitional determinants on intention (Han et al. 2010). TPB was developed due to the limitation of the original models in dealing with behaviours that people have incomplete volitional control.



The theory postulates three conceptually independent determinants as the main model where attitude is the psychological tendency to evaluate a certain entity in some degree offavor or disfavour (Eagly & Chaiken 1993). The subjective norm evaluate the social pressure on persons to perform or not to perform certain behaviour. The perceptions of behavior are described as the degree to which behaviour, or to which people perceive control, is regarded as controllable (Liou & Contento 2001).

Past research has shown that TPB offers an excellent framework to identify predictors of the intention to buy automotive technology e.g. autonomous (Kelkel 2015), environmentally-friendly vehicles (Afroz et al. 2015). Apart from that, applications for the use of TPB were also used to study safety behaviour ssuch as motorcycle helmet use (Ali et al. 2011) and occupational health-related behaviour (Colemont & Van den Broucke 2008). TPB is appropriate to describe any behavior that requires planning such as entrepreneurship (Ajzen 1991).

In hospitality, TPB is used to explain consumer's decision-making process of visiting green hotels (Han & Kim 2010). Apart from that, it is also being used to study on the intention to purchase halal food product (Norazah et al. 2016).

2.3 Attitude and Acceptance

TPB assumes a behavior attitude, subjective norms and perceived behavioral control are three cognitively independent determinants. The first important factor for behavioral intent is the attitude which can be described as the extent to which the individual has a favorable or unfavorable assessment or evaluation of the behavior concerned (Ajzen 1991). Ajzen (1991) also mentioned that the more favourable the attitude concerning behaviour, the stronger is the individual's intention to perform the behaviour under consideration. Attitude toward a behavior is assumed to be the result of one's own prominent beliefs that represent perceived effects of behavior and his assessment of the important impacts it delivered. According to Blackwell et al. (2006), attitude is the evaluation of performing a particular behaviour involving the attitude object, such as buying the product. In addition, it also includes an assessment as to whether the behavior is good or bad and whether the actor wants to do it (Leonard et al. 2004). Ramayah et al. (2010) stated that attitudes involve perceived behavioral consequences. According to Kotchen and Reiling (2000), the main predictor of behavioral intentions is attitude and also as a psychological emotion routed through consumers' evaluations and, if positive, behavioural intention tend to be more positive (Chen & Tung 2014).

Aperson will most likely evaluate the benefits and costs resulting from a behavior when determining whether to perform a particular behaviour (Cheng et al. 2006). A person tends to be favorable when the outcomes are assessed positively and is therefore having a high tendency to engage in that particular behaviour (Ajzen, 1991; Cheng et al. 2006). In this context, hoteliers will accept the implementation of SCH on their premises if only they have sufficient assessment to identify the outcomes. They have to put into consideration the attributes of SCH and at the same time, they are not losing anything. Other than that, if they accept SCH, will it change their workflow, their SOP or maybe their attitude in serving their guest because an individual's attitude toward a certain behaviour will strengthen his/her intention to perform the behaviour.

2.4 Subjective Norm and Acceptance

In the TPB model, the second determination of behavioural intention is the subjective norm. The term "subjective norm" is defined as the social pressures perceived for performing or not performing the behaviour (Ajzen 1991). Hee (2000) highlighted the influence from others close to the person like close friend, family members, relative, colleagues or business partners. Subjective norm captures a sense



of social pressure of an individual for a certain behaviour. Subjective norm is usually defined as the normative beliefs of a person concerning what prominent references he or she thinks should or should not make and its motivation to meet these referents (Ajzen & Fishbein 1980). Prior research by Bonne et al. (2007), Sukato (2008), Webster (2000) and Yoh et al. (2003) stated that friends and family members actually influence the decision-making of consumers. This argument is further supported by Mukhtar and Butt (2012) and Norazah (2014), who have found the most important predictor of the consumer's behavioral intentions to be subjective norms.

Many studies have documented subjective norms in the marketing and consumer behavior context as being an important determinant of intentions, including participation intention (Lee 2005), technology use intention), green hotel revisit intention (Han et al. 2010). In a study by Al-Nahdi (2008), the intention of consumers to patronize Halal food was shown to be significantly linked to the subjective norm. Shah Alam and Nazura (2011) confirmed the same conception further, who found social pressure remained a strong influence on the intention of the consumer to purchase Halal food.

Based on the statement being made by the previous scholars on the subjective norm, it can be concluded as concerning the probability of whether significant referents would approve or disapprove the behaviour. Thus, for the study context, might the significant referents think by working at SCH is a proper behaviour, one's perceived social pressure to accept the implementation of SCH would increase his or her motivation to comply.

2.5 Perceived Behavioural Control and Acceptance

Among these three antecedents in TPB, perceived behavioural control (PBC) is most significant when behavioral control is partially controlled by will. The term PBC refers to perceived behavioral ease or difficulty (Ajzen 1991) and actually reflects previous experiences and expected barriers. According to Zhou et al. (2013) behavioural control and motive determines behaviour. In particular, PBC evaluates how well factors can be controlled that can make the actions required to deal with a specific situation more simple or restrictive. PBC is defined to be a function of control beliefs (CB) that refers to one's perception of the existence or lack of the resources or opportunities required to conduct a particular behaviour, and its determination of the extent of importance of such resources or opportunities to the outcome. (Ajzen & Madden 1986).

Many studies showed that in several research contexts, such as recycling, PBC is positively linked with the intention (Taylor & Todd 1995),conservation (Albayrak et al. 2013), green hotels (Han et al. 2010; Chen & Tung 2014). Research has shown that PBC has an impact on consumer intention to purchase and re-patronize Halal foods like food service facilities (Al-Nahdi 2008; Shah Alam & Nazura 2011). Thus, for this study, perhaps PBC has a direct influence for hoteliers to accept the implementation of SCH as mentioned by the previous scholar that peoples' intentions are positively influenced by their self-confidence in their ability to perform the behaviour (Conner & Abraham 2001; Cheng et al. 2006).



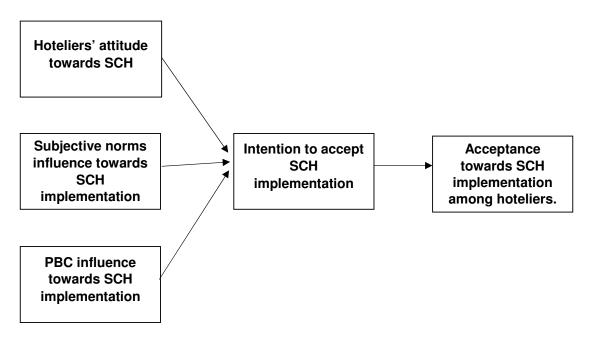


Figure 1. Proposed Theoretical Framework adapted from Theory of Planned Behaviour

3. METHODOLOGY

The study ultilizes the quantitative research method, using a survey questionnaire as a tool for data collection. The questionnaire was developed based on TPB, adapt from the studies of Chen and Tung (2014) and Paul et al. (2016) who had conducted a study in predicting consumers' intention to visit green hotel.

For this study, the questionnaire consists of six (6) sections. Section one (1) is a set of demographic questions used for respondent segmentation. Section two (2) test on Sharia compliance attributes by testing hoteliers understanding and knowledge about SCH (8 questions). Section three (3) discusson the hoteliers' acceptability towards the SCH concept (7 question). Section four (4) test on attitude as the first variable in the Theory of Planned Behaviour (2 questions), followed by section five (5) that test on subjective norms (6 questions) and section six (6) on perceived behavioural control (8 questions). Respondents indicated their level of agreement using the sematic Likert scale for questions in Section 2 till 6. The reliability of the questionnaire were tested using the Cronbach Alpha to ensure that all questions are reliable to measure the variables.

In this research, hotels in the Klang Valley (Kuala Lumpur, Selangor, Putrajaya and Cyberjaya) were categorized according to their star rating. Using a cluster sampling technique, staffs from the supervisor level to senior managers were selected to participate in this study. Cluster samples are samples gathered in groups or chunks of elements, where in this case, hotels that have not applied Halal Certification from JAKIM and rating from 3 to 5 stars are considered within the group. The sampling size was determined using the Cochran's formula. Although the sample size for the study is 400 respondents for the sampling location, only 391 respondents returned the survey with valid data.



4. RESULTS

4.1 Pilot Study

The pilot study was conducted to ensure that it is reliable and valid before the full-scale test is conducted. The result is presented below:

Table 1: Reliability Analysis

Factor	α	N of Items
Acceptance	.921	7
Attitude	.968	14
Subjective Norm	.948	6
Perceived Behavioural Control	.824	8

Based on the reliability analysis above, the acceptance score α = .921, attitude α = .968, subjective norm α = .948 and perceived behavioural control α = .824. This indicates that all question are significant and reliable for this study.

4.2 Full-scale Study

4.2.1 Respondent's Demographic Information

The questionnaires were distributed to gather questions like age, gender, religion, years of service and their position can be used to grouping the respondent for future use. The findings are as in Table 2.



Table 2: Frequency Distribution of Respondent's Demographic Information

Demographic information	<i>n</i> =391					
<u>-</u>	Frequency	Percentage				
Age						
20 to 30 years	202	51.7				
31 to 40 years	127	32.5				
41 to 50 years	26	6.6				
51 to 60 years	24	6.1				
Missing value	12	3.1				
Gender						
Male	168	43.0				
Female	202	51.7				
Missing value	21	5.4				
Religion						
Islam	318	81.3				
Buddha	34	8.7				
Hindu	26	6.6				
Christian	13	3.3				
Others	0	0				
Missing value	0	0				
Years of service						
1 to 5 years	127	32.5				
6 to 10 years	55	14.1				
11 to 15 years	29	7.4				
16 to 20 years	17	4.3				
21 and over	28	7.2				
Missing value	135	34.5				
Position						
Head of Department	40	10.2				
Senior Manager	18	4.6				
Junior Manager	89	22.8				
Supervisor	82	21.0				
Missing value	162	41.4				

Based on the above table, 391 respondent are male (43.0 %) and female (51.7%). Most of the respondents are between 20 to 30 years old (51.7%) and the majority of the respondent are Muslim (81.3%). A total of 127 respondents have worked between 1 to 5 years and 7.2% of the respondents have been working at the same hotel for more than 21 years. On top of that, 40 respondents are Head of Department while the majority of the respondent 22.8% are junior manager.

4.2.2 Level of Awareness of SCH in Malaysia

To assess the level of awareness of SCH in Malaysia, the result has shown that most of our hoteliers are aware ofthe SCH implementation in Malaysia. As we can see, 95.4% of respondent are aware that Malaysia is one of the leading Muslim tourist destinations and 92.6% or 362 respondents understand about Sharia compliance hotel. Similarly, 92.6% of the respondents are aware of the needs of Muslim



tourists. Furthermore, 312 respondents or 80% of the respondents are equipped with information on the attributes of Sharia compliance hotel. Based on the question given, 78% or 304 respondents were not aware whether their premises are certified Halal by JAKIM or JAIN and only 22% of respondent were aware that their premises are certified Halal by JAKIM or JAIN.

About 89% of respondents think it is important for their premises to run according to the SCH attributes. Only 11% of the respondents think it is not important for their premises to implement based on the SCH attributes. Out of 391 respondents, 304 respondents mentioned that their premises sell Non-Halal food and beverages at their premises. Based on the observation of most hotel in the Klang Valley, most hotels sell Non-Halal food and beverages at their premises to capture the Non-Muslim market.

Table 3: Level of Awareness among Hoteliers in Malaysia.

	Frequency/(F	Percentage)
SCH attributes	Yes	No
Malaysia is a top Muslim tourist destination	373 (95.4%)	18 (4.6%)
Understand about Sharia compliance Hotel.	362 (92.6%)	29 (7.4%)
Aware of the need for Muslim tourist	362 (92.6%)	29 (7.4%)
Premises certified Halal	87 (22.3%)	304 (77.7%)
Attributes of Sharia compliance Hotel	312 (79.8%)	79 (26.2%)
Important runs according to Sharia compliance attributes	348 (89.0%)	42 (11.0%)
Selling Non-Halal food and beverage	304 (77.7%)	28 (22.3%)

Based on the frequency test, majority of hoteliers have high level of awareness about SCH implementation in Malaysia. Besides that, most of the hotel operators are starting to target the Muslim market due to the major influx from the Middle Eastern continent.

4.2.3 Relationship between Attitude, Subjective Norm and Perceived Behavioural Control on the Acceptance of SCH Implementation

Four correlation coefficients were tested using Person's product-moment correlation and the significance level was set at 0.01 level (2-tailed). The strength of the relationship can be determined via the Pearson correlation (*r*). If the *r*-value is 0, then it indicates no relationship between the two variables and if the



r value is 1, then it can be interpreted as perfect positive correlation, while if the *r* value is -1, it can be interpreted as a negative correlation. The summary for the matrix for correlation of these four variables is presented in the table below:-

Table 4: Correlation between Attitude, Subjective Norm, Perceived Behavioral Control and Acceptance

Factors	(1)	(2)	(3)	(4)
(1) Attitude	1			
(2) Subjective Norm	.494**	1		
(3) Perceived Behavioral Control	.476**	.719**	1	
(4) Acceptance	.736**	.661**	.492**	1
Mean	6.01	5.85	5.86	5.68
SD	.761	.916	.614	.917

^{**}Correlation is significant at the 0.01 level (2-tailed).

Relationship between Attitude and Acceptance

Based on the result, there is a strong relationship between hoteliers' attitude and their acceptance towards the implementation of Sharia compliance with a positive correlation (r=.736, p<0.01). These findings suggest that hoteliers have a positive attitude towards the acceptance of Sharia compliance hotel implementation. Attitude is an important factor in influencing people's intention to accept because those with high positive attitudes appeared to have greater intention to accept the implementation of SCH. Several past studies have found that attitude has a significant direct relationship with intention to accept (Baker et al. 2007)

Relationship between Subjective Norm and Acceptance

The result indicates a strong relationship between subjective norms and the acceptance towards SCH implementation with a positive correlation (r=.661, p<0.01). This shows that the subjective normssuch as peer pressure and family background have a significant positive relationship to the acceptance of SCH implementation. SN is important in influencing people's intention in this context, hotelier's intention to accept SCH. Consistent to the research by Karijin et al. (2007), as cited in Afendi et al. (2014),SN was positively and significantly related to the intention which is can be interpreted into acceptance.

Relationship between Perceived Behavioural Control and Acceptance

There is a medium-strength relationship between perceived behavioural control and acceptance towards SCH implementation among hoteliers in Malaysia with a positive correlation (r=.491, p<0.01). The analysis indicates that perceived behavioural control has a significant value in hoteliers' acceptance towards SCH implementation. This is because control could directly affect behaviour by increasing effort to goal achievement. In collectivistic cultures such as the Muslim culture, people tend to perceive themselves as interdependent with their group and tend to strive for in-group rather than personal goals (Karijin et al. 2007).

In referring to the table below, the largest standardized coefficient beta is 0.558, which is contributed by attitude, followed by subjective norm (SN), which has a beta coefficient of 0.462 and perceived behavioural control (PBC) at -0.106. This indicates that attitude has a stronger unique contribution in explaining the dependent variable compared with other variables.



Table 5: Standardized coefficient

Factors	Standardized coefficient (β)	p-value
Attitude	.558	.000
Subjective Norm	106	.015
Perceived Behavioral Control	.462	.000

5. CONCLUSION

The findings of this study found that majority of hoteliers are aware and understood about the Sharia compliance hotel concept and its attributes. Besides that, their intention to accept the SCH concept to be implemented is also influence by their attitude, subjective norms and PBC.

In Malaysia, the people are associated with Islam way of life as it has been declared as the official religion of the country. The people surrounding are quite familiar with the dos and the don'ts for Muslim people. That can lead to the positive result for this study on the awareness and also level of awareness of hoteliers in SCH concept. Besides that, looking at the majority of the participant are Muslim are one of the reason we can achieve the objective that has been set for this study.

In order to encourage more Hotels in Malaysia to accept the SCH concept, the existence of the universal SCH standard is important. The benefits of SCH are many and one of them, because of the demand for Islamic goods and services it could be a competitive advantage for the hotel industries. Many tourists, whether local or foreign are starting to search for hotels that are Muslim friendly. Besides, SCH hotels are immensely able to attract tourists from the Middle East in Malaysia, allowing them to make more profit. As mentioned earlier, tourists in the Middle East are more profitable as tourists due to their willingness to spend. Nevertheless, the attractiveness of SCH is tempting, as a hotel operator required to put careful consideration and need to balance with the current market of Malaysia hotel scenery to avoid the hotels from losing other tourists. The function of government bodies like the Islamic Tourism Centre is meant to assist to create more awareness on SCH concept to hotel operators and also tourist from other countries. One thing for sure, Halal can be generalized as clean, from food to guest's pillow. Besides that, ITC can assist to penetrate more market for SCH for them to remain relevant in the industry instead of just being another trend in the market.

For future research, there is a need to address how by applying SCH concept can boost up the hotels marketing to gain more guest and profit at the same time to strengthen the SCH concept to be applied in the most hotel in Malaysia. As a conclusion, this paper has identified the level of awareness and understanding of hoteliers on SCH concept itself. This paper manages to identify that attitude, subjective norm and perceived behavioural control has a strong relationship with hotelier's acceptance of SCH concept implementation in Malaysia.

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APPENDIX

SHARIA COMPLIANCE HOTEL ACCEPTANCE

- 1. Please indicate the likelihood that you would be receptive to the concept of Sharia Compliance Hotel
- 2. This Sharia Compliance concept applies to the premises where I am working now
- 3. I trust the benefits of the Sharia Compliance Concept
- 4. This Sharia Compliance Concept keeps the customers' best interest.
- 5. Overall, I find this Sharia Compliance Concept is interesting.
- 6. The content of this Sharia Compliance Concept is valuable to me.
- 7. I will choose to work in other conventional hotels even if Sharia Compliance Hotel is available.

ATTITUDE TOWARDS THE ACCEPTANCE

1. Overall, by accepting Sharia Compliance implementation on hotels operation would be:

Extremely Bad	1	2	3	4	5	6	7	Extremely Good
Extremely undesirable	1	2	3	4	5	6	7	Extremely Desirable
Extremely unpleasant	1	2	3	4	5	6	7	Extremely Pleasant
Extremely Detrimental	1	2	3	4	5	6	7	Extremely Beneficial
Extremely Unsafe	1	2	3	4	5	6	7	Extremely Safe
Extremely Useless	1	2	3	4	5	6	7	Extremely Useful
Extremely Foolish	1	2	3	4	5	6	7	Extremely Wise

2. Overall, working at the Sharia Compliance Hotel would be:

Extremely Bad	1	2	3	4	5	6	7	Extremely Good
Extremely undesirable	1	2	3	4	5	6	7	Extremely Desirable
Extremely unpleasant	1	2	3	4	5	6	7	Extremely Pleasant
Extremely Detrimental	1	2	3	4	5	6	7	Extremely Beneficial
Extremely Unsafe	1	2	3	4	5	6	7	Extremely Safe
Extremely Useless	1	2	3	4	5	6	7	Extremely Useful
Extremely Foolish	1	2	3	4	5	6	7	Extremely Wise



SUBJECTIVE NORM TOWARDS THE ACCEPTANCE

- 1. Most people who are important to me, think that it should be okay for me to work with hotels that implement Sharia Compliance concept.
- 2. Most people who are important to me will allow me to work with Sharia Compliance Hotel that complies with the rules and regulations
- 3. Most people who are important to me, think that I should work with the hotel that implements Sharia Compliance
- 4. Most people who are important to me, think that working with Sharia Compliance Hotel will bring no harm to myself
- 5. Most people who are important to me will be very glad that I am working with Sharia Compliance Hotel
- 6. People who I value their opinion would prefer that I work with Sharia Compliance Hotel

PERCEIVED BEHAVIOURAL CONTROL TOWARDS THE ACCEPTANCE

- 1. I have total control of my own decision to accept Sharia Compliance requirements.
- 2. I have total control of my own decision to work with Sharia Compliance Hotel
- 3. It is completely up to me to decide whether to work with Sharia Compliance Hotel
- 4. I am confident, if I wanted to, I will be able to accept working at any Sharia Compliance Hotel
- 5. There are likely to be plenty of opportunities for me to work with any Sharia Compliance Hotel.
- 6. I see myself as capable of working at any Sharia Compliance Hotel and abiding the rules and regulations
- 7. I believe I can perform similarly in any Sharia Compliance Hotel
- 8. If it were entirely up to me, I am confident that I can accept Sharia Compliance Implementation



GASTRONOMY TOURISM GROWTH IN MALAYSIA: A CASE STUDY ON MALAY RESTAURANTS IN KLANG VALLEY

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ABSTRACT

Today one of the most popular niche tourism markets is the gastronomy tourism. The popularity of gastronomy tourism is also called as soft power approach by some tourism scholars. This niche market is part of the cultural and ecotourism market. Malaysia is recognized as a multi-ethnic and multicultural country that includes countless ethnics such as Malay, Chinese, Indian and others. Although Malay leads the major ethnics in Malaysia, Malay restaurant are less likely to stay longer in the industry. There are several factors from previous cases involving Malay restaurants that result to this ethnic's restaurant failure to survive, long-term. Since Malaysia is a multi-ethnic country, the food in Malaysia has a combination from all ethnics and is unique in its own way. Each state in Malaysia has their own dishes and some dishes may differ from another state. Since Malay ethnic comprises the biggest ethnic in Malaysia, the objective of this study was to analyze the internal factors affecting business growth performance in the Malay ethnic restaurant. Survey questionnaires were distributed to selected Malay restaurants to find out about their growth rate performance. Findings in this study found that the internal factors consist of management orientation, organizational culture, technology orientation, alliance and cooperation and market orientation.

Keywords: Gastronomy, cultural tourism, ecotourism and Klang Valley.

1. INTRODUCTION

Tourism Malaysia states that multiculturalism has made Malaysia a gastronomical paradise and home to hundreds of colourful festivals (Tourism Malaysia 2019). Malaysia has fourteen states and in each state, it has its very own unique traditional food (Omar et. al. 2011). According to the World Travel and Tourism Council (WTTC) (2015), the travel and tourism industry is developing more rapidly compared to all broader economy and other important sectors like automotive, financial services and health care in recent years. Statisca (2016) reported that the food and beverage industry in Malaysia contributes US\$17 million in September 2016 and it is forecasted to be US\$71 million in 2021 by the annual advance rate of 33.6% from the market volume. In addition, many types of food service establishments have emerged in Malaysia in the earlier decades such as fine dining, specialty, fast food, casual, theme, ethnic restaurants and even mixture of more than one category (Othman et al. 2013). These main ethnics in Malaysia have developed their own ethnic restaurants to serve meals of their own races and portray their culture and heritage to other citizens and foreign tourists. These restaurants play a crucial role to attract tourists to know more about Malaysia and at the same time enhancing the country's economy.



According to Says Malaysia (2016), seven restaurants that are still going strong in the food business for over five decades are mostly the Chinese ethnic restaurants. This can be an indicator to show that Malay restaurant is still lacking in many aspects in order to grow and develop within this business sector. Several factors have been identified from previous cases which involved the failure of Malay restaurants to survive. According to Parsa et al. (2005), from the managerial perspective, factors such as managerial restrictions and lack of skills can lead to the restaurant failure. In addition, the organization's culture is also an issue to restaurant failure. O'Donnell and Boyle (2008, p 14) stated that, organizations' culture compresses the things that the company has practiced before. According to Othman et al. (2013), Malay restaurants were unable to operate for a long period due to lack of customers' interactions with the staffs, low in service quality and service offers which has always been criticized with the overall poor service delivery in restaurant. Besides that, although Malay restaurants remain to grow quickly, these restaurants persist with troubles in terms of service delivery especially in terms of customers' waiting times before the meal is served (Othman et al. 2009; Othman et al. 2013). Since the problems that caused Malay restaurants' failure to sustain in the industry have been identified, a conceptual framework is developed to overcome this issue. This research attempts to investigate the internal factors that hinder the Malay ethnic restaurants to grow, stay competitive and remain their business in the foodservice industry, long-term. The specific research objectives would be: (i) to determine the relationship between the management orientation and business growth performance; (ii) to identify the relationship between organizational culture and business growth performance and (iii) to identify the relationship between market orientation and business growth performance. The conceptual framework for this study has been developed based on Storey (1994) model to investigate the internal factors in Malay ethic restaurant (Figure 1).

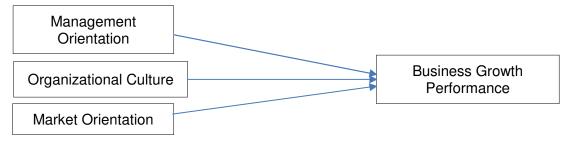


Figure 1. The Conceptual Framework Source: Storey 1994

1.1 Management Orientation

An organization's decision to react within the environment depends on its beliefs about the environment and whether its activities can have an effect on the environment. A number of researchers have examined the relationships between specific, tangible organizational variables and firm level performance. McGahan and Porter (2002) found that industry association, business specific impacts, and corporate-parent impacts positively anticipate financial performance yet were subject to change after some time.

1.2 Organizational Culture

Titiev (1959) found the culture in the organization should be learned. Schein (1990) defined organizational culture as what a group learns over a period of time as that group solves its problems for survival in an external environment and problem of internal integration. Restaurant operators are concerned with the organizational commitment that affects between the employees. Jorritsma and Wilderom (2012) stated that improving service through organizational culture change is important to the survival and growth in the companies. According to Koutroumanis et al. (2012) the main elements of organizational culture is relating to service quality and customer intentions. Pantouvakis and Bouranta, (2013) added that the

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role of employee job satisfaction is related to organizational learning culture and customer satisfaction. Furthermore, successful leadership can raise employee commitment and brand supporting behaviours (Wallace et al. 2013).

1.3 Market Orientation

Altinay (2010) define market orientation as value concept of people and state that it portrayed the visualization, the strategic way, and orientation of a firm. Market Orientation has been rationally created as applicable to the whole commerce performance (Perry 2014). Furthermore, Mujahid and Mohamed Mubarak (2014) in their research identified that the market orientation is one of the critical elements to corporate management as well as production or cost orientation and employee orientation as it can lead to corporate success. Protcko and Dornberger (2014) proved that previous research by Narver and Slater (1990), where they found that market orientation is correlated to return on assets (ROA). Mokhtar et al. (2014) also stated that, the multi-functional of market orientation also include that the communication, interpretation, and spreading of marketing information occurring towards some important functional areas of the organization.

2. METHODS

The sample of this study are the management staffs of Malay restaurants located around Shah Alam in Selangor. This research has focused on one type of ethnic restaurant which is the Malay restaurants. Malay restaurants are selected because although it continues to grow quickly, they fail to sustain in the industry for a long time (Othman et al. 2009; Othman et al. 2013). This study used purposive sampling and the sample size was calculated based on the total number of Malay restaurants. The researchers identified the sample based on several characteristics before the questionnaires are distributed. For instance, the restaurant must (i) provide at least 80 percent Malay food, (ii) has been established at least 2 years and above, (iii) the respondent must be among those at least in the supervisory or managerial positions and above, and (iv) have more than 10 employees. From the total number of Malay restaurants in Shah Alam, only 35 were selected as the sample for this study and with 102 respondents. Sekaran and Bougie (2013) defined sampling as a process of selecting enough essential features from the population, so that it possible for the researcher to generalize the findings to the population.

3. RESULTS AND DISCUSSION

In the demographic section, there were 55 female respondents which forms 53.92% of the total respondents and 47 (46.08%) were male respondents. There are seven groups of respondents involved: (i) restaurant owner, (ii) senior management, (iii) manager, (iv) executive, (v) supervisor, (vi) officer and (vii) other role. The highest frequency of respondents are those in the supervisoryposition forming 28.43% (n=29) and followed by the owner of the restaurants with 24.51% (n=25). Besides that, 19.61% (n=20) were those with the otherrole in the restaurant despite them in the management team. A total of 16.67% (n=17) are managers of the restaurant, 4.90% (n=5) are senior management, followed by those in the executive and officer positions in the restaurant with each forming 2.89% (n=3) of the sample.

The establishment of Malay restaurants has been identified to originate from three kinds of concepts, which are the (i) original concept (never existed in or out of Malaysia), (ii) originated from an existing concept in Malaysia and (ii) other concepts. The highest frequency obtained is the concept of Malay ethnic restaurant originated from an existing concept in Malaysia [92.16%; (n=92)] followed by the others concept [4.90%; (n=5)] and the lowest is the original concept [2.94% (n=3)]. Since Malay ethnic restaurant is a well-known ethnic food service establishment in Malaysia, the concept of used by most of the respondent's in the current restaurant originated from an existing concept.



Five types of restaurant legal status has been identified and grouped in this study. The groups are (i) sole proprietorship, (ii) joint liability, (iii) limited liability, (iv) partnership, (v) joint venture and (vi) professional. Within this study, the sole proprietorship shows the highest frequency with 88.24% (n=90) and partnership 9.80% (n=10). Joint liability and joint venture recorded 0.98% (n=1), each. Meanwhile, the other restaurant business entities such limited liability and professional are none within in this study.

Multiple regression analysis was used to answer the research questions appropriately where it involves several predictors and dependent variables. The results from the outputs show that the *R* Square values was 0.302, which means 30.2% of the variation in business growth performance value can be explained by the dimensions of independent variable which is the management orientation. This analysis was used to explore the relationship between the management orientations towards business growth performance in the Malay Restaurant. Based on the analysis, the *p*-value for the management orientation was significant at 0.00, which is less than 0.05. Hence, it can be concluded that there were a significant effect and relationship between the management orientation and business growth performance. Meanwhile, Beta coefficient score measures the total variation in the dependent that was explained by the independent variable (Pallant, 2013). Figure 2 showed the score of beta coefficient for management orientation was 0.550. It reflects that 55.0 percent of the total variation of business growth performance value was influenced by the dimension of management orientation. Thus, it also indicates that the management orientation has become one of the contributor to business growth performance in the Malay restaurant.

Next, the analysis was used to explore the relationship between the organizational cultures towards the business growth performance in Malay Restaurant. From the results, it showed that the *R* Square value was at 0.241, which means 24.1% of the variation in business growth performance value can be explained by the dimensions of the independent variable which is organizational culture. Based on the analysis, the *p*-value for the organizational culture was 0.00, which is less than 0.05. Hence, it can be concluded that there was a significant effect and relationship between the organizational culture and business growth performance. Meanwhile, the beta coefficient for organizational culture was 0.491 which reflects that 49.1 percent of the total variation of business growth performance value was influenced by the dimension of organizational culture. Further, it also displays that the organizational culture has become one of the contributor to business growth performance value in the Malay restaurant.

The analysis shows that the *R* Square values was 0.300, which means 30.0% of the variation in business growth performance value can be explained by the dimensions of independent variable which is the market orientation and the figure showed the score of beta coefficient for market orientation was 0.548. It reflects that 54.8 percent of the total variation of business growth performance value was influenced by the dimension of market orientation. Thus, it also indicates that the market orientation has become one of the contributor to business growth performance value in the Malay restaurant.

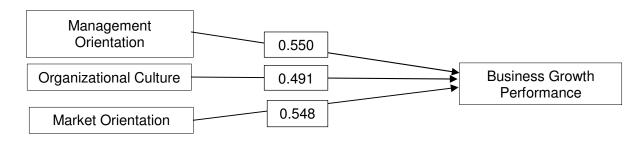


Figure 2. Result for Internal Factors



Above, the figure showed the score of beta coefficient for each internal factors and management orientation was said to be the highest one which was 0.550. It reflects that 55 percent of total variation of business growth performance value was influenced by dimension of management orientation. Based on this analysis, it can be concluded that all hypothesis under all dimensions were supported and accepted. It could be concluded based on the result that the internal factors which is management orientation, organizational culture, and market orientation provided by the Malay restaurant influence the business growth performance value.

The findings suggest that food service leaders are aware of the effective organizational culture that could determine the level of future operational success. Culture also involve employees, the power of a strong culture to guide business success become more obvious, happiness, better to co-workers and high morale. Jorritsma and Wilderom (2012) found that improving service through organizational culture is an essential tool to the survival and growth in the companies. According to Koutroumanis et al. (2012) the main components in the organizational culture includes service quality and customer intentions. Organizational learning culture and customer satisfaction have the relationship with the role of employee's job satisfaction (Pantouvakis & Bouranta 2013). According to the data collected, this study found that, market orientation is crucial to enhance the business development and performances. This result also portrayed that about 54.8% of the management teams of Malay ethnic restaurant come to an agreement that the internal factor of market orientation has influenced positive business development performances.

4. CONCLUSIONS

The research objectives were to investigate the relationship of management orientation, organizational culture, and market orientation toward business growth performance in Malay restaurants. Explicitly, it shows that the management staffs in Malay restaurant agree that management orientation has become one of the primary factors that contribute to business growth performance. Based on the result, this study also conclude that organizational culture and market orientation had a positive and significant relationship towards business growth performance in Malay restaurant.

The outcome in this study has emerge the new knowledge that can be beneficial for industry and academician based on the internal factors such management orientation, organizational culture and market orientation towards the business growth performance. Within this study, the study identified positive significant relationship for all internal factors on business growth performance in Malay ethnic restaurant. Therefore, this finding showed positive outcome as well as proven from the previous study had made with differ factors in the business context and differ demographic data. Lastly, it is recommended that the owner or management must use professional development such as doing the business market research. Business market research is the process of collecting data to decide whether a product or services will satisfy the needs of the competitors. Market research is important because it can build a stronger business such as understand customer needs and wants, identify the new opportunities, develop marketing strategies, minimises risk and can help to make better decisions and gain advantage against the competition.

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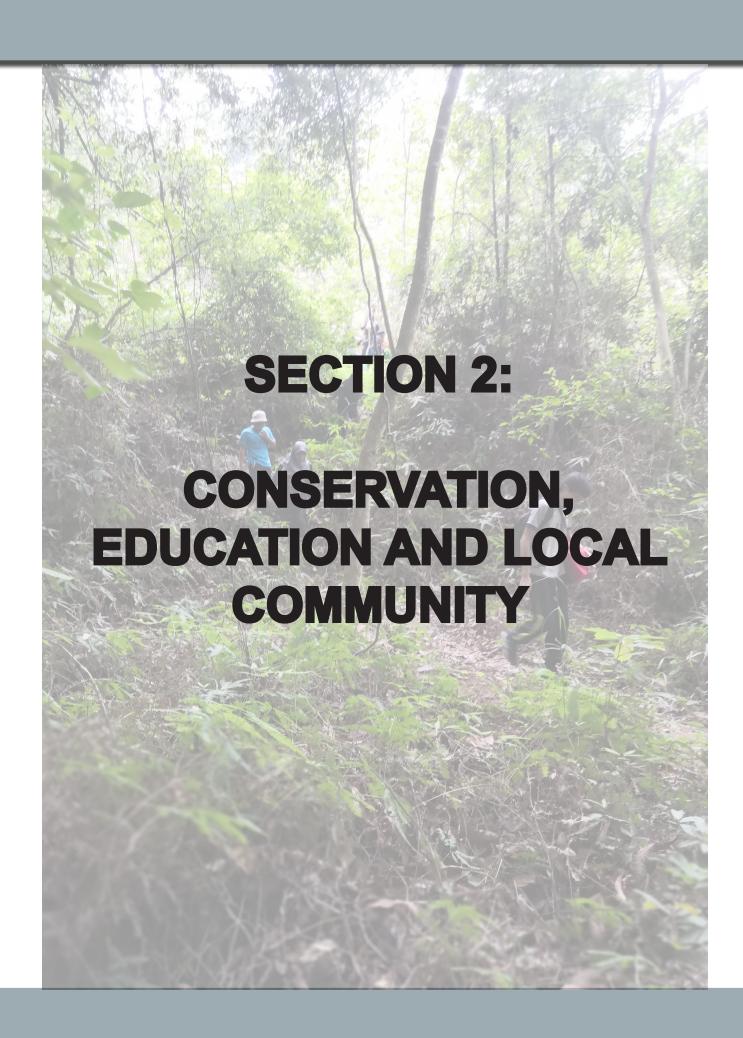
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NATURE-RELATED EXPERIENCES IN INFLUENCING PRIMARY SCHOOL CHILDREN'S LANDSCAPE PREFERENCES

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ABSTRACT

The rapid growth of urbanization has indirectly changed the trend of how young people spend their leisure time. A decline in direct experience with nature can lead to disaffection towards the natural environment and its wildlife, as well as public indifference toward biodiversity conservation. This lack of contact may also shift one's attitude towards nature conservation. A survey for urban and suburban schools was conducted to measure school children's attitude towards landscape preferences and to examine the relationship between attitude and childhood natureexperiences. Among the school children surveyed (N= 401 respondents), the results showed that there was a shift in nature-experiences from direct contact to vicarious mode. The children's preference showed positive attitudes, whereby the highest preference was recreation in urban parks (M=0.91), while the lowest was oil palm plantation areas (M= 0.35). Male children preferred forests more than female children. The urban school children preferred forest and rubber plantation landscapes more than suburban children. In the present modern life, it has been well-documented that children have shifted in their ways of spending their leisure time. Children who had frequent contact with nature displayed positive views with urban (urban cities and recreation parks), agriculture (paddy field, rubber, and oil palm plantations) and natural (forest) landscape preferences. Therefore, the common direct and vicarious nature-related experience by school children in Malaysia can be regarded as significantly important as it is in Western and developed countries. The difference in socioeconomic backgrounds also affected the level of landscape preferences among school children. Rapid urbanization could be a potential reason for conservationists to gain support from society for biodiversity conservation.

Keywords: Urban, forest, childhood nature experience, conservation, Malaysia

1. INTRODUCTION

Studies concerning children focusing on nature experience and conservation attitudes have been conducted in Western countries, such as Norway (Bjerke 1998), Portugal (Almeida et al. 2014) and North Carolina, United States (Shapiro et al. 2017). In Asian countries, case studies are focused in selected countries such as China (Zhang et al. 2014) and Japan (Soga et al. 2016). These studies have supported the hypothesis that children who are frequently involved in nature activities displayed higher preferences towards wild animals than those less frequently involved (Zhang et al. 2014; Soga et al. 2016). In fact, the psychological aspect of involvement with nature may help to develop an innate biophilia, which is significant for development among children (Wilson 1984). Through daily contact with nature, involve-



ment at an early age could strengthen children's emotional bond and concern for the natural environment (Collado et al. 2013).

Direct experience involves actual physical contact with the natural settings and non-human species, such as spontaneous play in a forest, creek, neighborhood park, backyard, or even at a vacant lot (Kellert 2002). The direct and indirect (including vicarious) experiences gained by children could lead to an essential pathway towards shaping environmental attitudes and behaviors in adulthood (Wells & Lekies 2006). However, these direct and indirect nature experiences have pointed out several changes as a consequence of rapid urbanization and changes of land use (Sodhi et al. 2004), crime (Sreetheran & Van den Bosh 2015), and parental concern regarding outdoor safety (Valentine et al. 1997), which have led to constriction in opportunities and orientations for direct nature experiences (Soga & Gaston 2016).

In modern and urbanized cultures, children have become more exposed to indirect experiences. 'Virtual nature' is defined as 'nature experienced via electronic means' (Kellert 2002). In fact, screen-based entertainment has become a vital experience among children, thus generating a decrease among children to have direct contact with nature. Frequent contact with virtual nature experiences tend to sensationalize nature's hazards and habitats, hence generating the perception that local natural areas are simultaneously dangerous and lackluster (Zaradic & Pergams 2007). Bixler and Floyd (1997) have asserted that the negative perceptions of wild nature is related to least preference for wild nature. For those with higher sensitivity and desire for modern comfort, they displayed less preference for the wilderness, but have higher preference for indoor, built, and human-modified environments. In the long-term, children who have less contact with direct nature could consequently face issues affecting their mental, health, and well-being (Maller et al. 2010), social skills (White 2004), as well as a decrease in their emotional affinity to nature, thus leading to disaffection toward biodiversity conservation (Miller 2005).

Over the last century, Malaysia being one of the 12 megadiverse nations at a global scale, has faced rapid changes from one that is dominated by natural landscapes to agricultural landscapes (Global Diversity Outlook 2001). As a developing and urbanizing country in the Southeast Asian region, the forest areas of Peninsular Malaysia have declined from 73% in the late 1960s to 44% in 2001 (Vincent & Hadi 1993; Abdullah & Nakagoshi 2006). This tropical country has experienced drastic urbanization and degradation of natural landscapes with rapid population growth from 6.5 million in 1957 to 22 million in 2000 (Yaakob et al. 2010). Land has been converted to agricultural areas mainly for rubber and oil palm plantations, which increased from 1% to 3% and 24% to 51% in 1950, and expanded from 19% in 1950 to 28% in 1970 and 62% in 2000 (Yaakob et al. 2010). Nevertheless, the last decade of the century has witnessed urbanization impacting on the growth of urban population, expanding from 19.0% in 1950 to 28.4% in 1970, and 62.0% in 2000 (Yaakob et al. 2010). Hence, its population grew from 6.5 million in 1957 to 22 million in 2000 (Yaakob et al. 2010). One specific phenomenon in Malaysia is the introduction of the mixed-use urban neighborhood, where residential development is nestled within industrial establishments. As availability of natural environment is key to enabling children interact with nature (Maller 2009), rapid changes in land use and urbanization from 1960 to 2000 have likely caused negative preferences to natural landscape among Malaysian school children.

Landscape preferences have been widely discussed in landscape planning and environmental psychology. Understanding people's perceptions and attitudes toward landscape is important as they could influence their behaviors in varied circumstances. In fact, researchers have even acknowledged that sometimes people act and think in a contradicting manner (Ajzen & Fishbein 1980; p. 239). Understanding young people's environmental attitudes is also essential as they may face environmental issues in life and require the skills and disposition to work on resolutions to address the problems (Bradley et al. 1999). A growing number of studies have proven that individuals' attitudes concerning nature play a key role in the decision-making process pertaining to biodiversity conservation and wildlife management (De Pinho et al. 2014). Ulrich (1986) claimed that most of the reviewed works were pertaining to preferences

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for natural landscapes, forests, urban versus natural scenes, as well as the importance of vegetation in urban landscapes. Meanwhile, researchers worldwide have investigated cultural and sub-cultural (Yang & Kaplan 1990; Yu 1995), ethnicity (Kaplan & Talbot 1988), and group variances in preference (e.g., van den Berg et al. 1998; Brush et al. 2000). Moreover, several factors, such as personality (Abello & Bernaldez 1986), environmental orientation (Kaltenborn & Bjerke 2002), and education background (Kent 1993) have also been reported to influence preference.

However, existing quantitative studies have mainly focused on adults, and not many studies assessed children's attitudes towards built and natural environment as its research is limited towards developed Western countries. In modern and urbanized cultures, children have become more exposed to vicarious experiences. This type of medium (via. electronic media e.g., TV, computer games, and smartphones) has influenced the development and connection children have with nature, thus creating a generation with decreasing direct contact with nature (Clements 2004; Robison & Ridenour 2012). Therefore, the understanding of children's own experiences on their nature-related activities, especially in vicarious mode, and the influence of their perceptions on children's landscape preferences or attitude is still inadequately researched, particularly in developing tropical countries (however, cf. Mustapa et al. 2018).

Children's affinity for the natural environment has been widely expressed in Brazil (Bizerril 2004) and Finland (Korpela 2002). The studies showed that children with frequent exposure to the natural environment gained beneficial effects to their psychology. Moreover, Bixler et al. (2002) investigated the correlation between play environments prior to age ten and adolescents' environmental preferences within the domains of education, recreation, and work. Based on Bixler et al. (2002), childhood play location affects later interests in wildlands, environmental preferences, outdoor recreation, and occupations that involve outdoor environments.

The parent rating of the naturalness of the view from home has also been examined and used to predict children's performance on several tests of concentration, impulse inhibition, and delay of gratification. The findings suggested that exterior green space could help girls lead a more effective and self-disciplined life. As for boys, a more distant green space is equally important (Taylor et al. 2002). Besides, the children's home setting could also influence landscape preferences, especially in central urban neighborhoods, which could be most intensively affected by the increasing traffic and lack of social safety. Hence, urban children get less opportunity to play outside and explore their neighborhood independently (Kytta 1997).

In the wake of urbanization, urban dwellers have an increased desire for recreation and land-scape experiences (Boll et al. 2014). Interestingly, preference for a recreation area outside the city did not depend on the frequency of use, which indicated that certain recreation areas have symbolic value besides their use value. Moreover, the main features of the recreation areas were perceived naturalness, which have been strongly related to preference. The respondents have considered diversity, uniqueness, and naturalness of the landscape to be more important than the accessibility of the recreation areas and the provision of service facilities. Other than that, O'Brien and Murray (2006) discovered that childhood effect is linked to childhood contact with nature and early environmental education to adulthood perception of urban green space. Additionally, nature education provides children with more opportunities to interact with nature, such as studying wildlife, tree planting, and gardening. As such, forest and nature schools established in other nations could offer valuable references. Thus, measuring children's attitudes towards natural landscape preferences can support the awareness among children concerning biodiversity conservation, which later could enhance their willingness to conserve and show pro-environmental behavior.



This study has hypothesized that children in these present times experience nature vicariously rather than have a direct nature experience. A questionnaire survey was carried out on 401 school children around Kuala Lumpur and the state of Selangor pertaining to their experience with nature-related activities. Factors such as gender, ethnicity, and their school locations or environments associated with experiences of nature-related activities, various sociodemographic factors were embedded in the questionnaire to control possible effects. This study addresses the following specific research questions: (i) Which is frequently experienced by Malaysian primary school children; direct or vicarious nature-related experience? and (ii) Do nature-related experiences (i.e. direct or vicarious) or sociodemographic variables have an influence on children's landscape preferences?

2. METHOD

2.1 Survey Procedure

The survey was conducted in November 2016 at several selected elementary schools located in three urban towns (Kepong, Kuala Lumpur and Putrajaya) and three suburban districts in Selangor (Kuala Selangor, Hulu Langat and Hulu Selangor). Urban schools have a certain percentage of urban parks, lakes, or gardens within the urban area; while schools in suburban areas are naturally surrounded with varied agricultural landscapes, such as paddy fields, rivers, or oil palm plantations. Since this study employed data with zero identifiable information, neither formal questionnaire nor written consent from parents was required (Mohamad Muslim et al. 2017; Mohamad Muslim et al. 2018). The survey session in schools were performed among selected classes from standards four, five and six. The selection of age from ten to twelve years old was based on previous research studies from various countries, e.g. Japan (Soga et al. 2018); Switzerland (Schlegel et al. 2015) and China (Zhang et al. 2014). At the age of ten to twelve years old, children can experience their nearby wild or semi-wild natural world independently (Chawla 2015).

Students who were willing to participate in the survey were given a six-page questionnaire with pictures of landscape preference as references. Every student that was willing to participate was given a questionnaire form. Accompanied by a classroom teacher, the authors explained to the students the purpose of the questionnaires. The briefing was also conducted in the Malay language to avoid probable confusion. The students were allowed to ask the researcher or any of the assistant researchers questions at any time during the survey sessions. In total, 401 (female = 193, male = 208) school children from Standards 4 to 6, aged 10-12 years old participated in the survey.

2.2 Questionnaire Designed for School Children

The questionnaire comprised three main sections, namely (i) Attitude towards willingness to conserve nature, (ii) Direct and vicarious nature-related experience, and lastly, (iii) Social characters of school children (without name or identity). Part of the questionnaire form contained colorful photographs of twenty-two commonly found animal species and types of landscapes. There were no right or wrong answers for this questionnaire as it is evaluated based on the general perception of attitudes among school children towards nature. In addition, no time limit was given to complete the questionnaire.

Frequency of Direct Experience of Nature

Twenty-six nature-related activities were listed to measure the the direct nature experiences, along with the natural places frequented by school children outside school hours within the Peninsular Malaysia region. Eight items were selected based on some popular places comprising forest landscapes to main



agricultural landscapes including human-modified landscapes (e.g. parks, aquarium) found in Peninsular Malaysia (Abdullah & Hezri 2008). The eight main places selected reflect the common places children visit in the Peninsular Malaysia region.

In gathering responses, the following frequency was used (1 = never, 2 = seldom, 3 = sometimes, 4 = often) to measure nature-related activities for the twenty-six listed activities. The frequency also corresponded to 'less than once a month', 'almost every month', 'almost every week', and 'almost every day', respectively. The mean of these 26 items (eighteen nature-based activities and eight items on frequency of visitation to nature places) were measured as a frequency of direct experiences of nature. Internal consistency was acceptable (Cronbach alpha = 0.80).

Frequency of Vicarious Experience of Nature

As for vicarious experiences, the activities were modified from Soga et al. (2016), whereby this present study included new vicarious activities, such as playing videogames related to nature or wildlife. To measure the frequency of vicarious experiences of nature, the following questions were asked; (i) "How frequently do you read books or watch TV programs about nature or wildlife?", (ii) "How frequently do you talk about nature or wildlife with your parents or friends?", and (iii) "How frequently do you play videogames related to nature or wildlife?". Responses were scored based on a 4-point scale (1 = never, 2 = seldom, 3 = sometimes, and 4 = often). The items corresponded to 'less than once a month', 'almost every month', 'almost every week', and 'almost every day'.

Landscape Preferences

Colored photographs with six main landscapes found in Peninsular Malaysia were indicated to measure schoolchildren's preferences towards nature landscapes. Each picture differed in color, angle, and quality of image, with three different pictures for each nature landscape to minimize the aspect of biasness. This photograph approach is adapted from several prior studies, such as that employed in Germany (Hofmann et al. 2012) and Michigan (Kaplan & Talbot 1988). The selection of pictures was obtained from a list of main nature landscapes in Peninsular Malaysia, which ranged from forest, agricultural, and human-modified landscapes (Abdullah & Hezri 2008). School children were asked to respond to the photographs that comprised of a variety of urban and natural areas, including forests, paddy fields, oil palm plantations, rubber plantations, urban cities areas, as well as well-manicured park settings, such as urban recreational parks. The question related to the nature landscapes section is 'Do you like these nature landscapes?' The related responses were recorded based on a 3-point scale (0= dislike, 1=no feeling, 2=like). Then, the mean values for nature landscapes preferences items were employed to measure the children's affective attitudes toward landscapes. Each child's response to the preferred landscapes ranged from -1 to 1.

2.3 Data Analysis

All data retrieved from this study were gathered and compiled in Microsoft Excel and analyzed by using the R software version 3.4.3 (R Core Team, 2017). In attempting to answer the first question, the frequencies of direct experiences (26 nature activities) scores were determined. Next, in calculating the mean values for vicarious experiences, the total scores of the three questions were calculated. Then, the sum of the scores for vicarious experience was divided by the three items. The mean values for vicarious experiences ranged from 1 to 4. Next, in the attempt to answer the landscape preferences question, the mean scores for each of the six main landscapes were calculated. As a result, varying scores were obtained for forest, rubber estate, oil palm plantation, paddy field, urban cities, and urban recreation park landscapes. Then, the generalized linear mixed models (GLMMs) were applied to identify the effects of the landscape preferences and the nature-related experiences. The GLMM analysis was performed



with the Ime4 package in R ver. 3.4.3, respectively. As such, the mean scores of landscape preferences were used as the response variable. Meanwhile, the explanatory variables comprised sociodemographic factors (gender, age, and ethnicity), school locations (urban and suburban), and both nature-related experiences (direct and vicarious). Furthermore, the respondents' IDs were used as random effect.

3. RESULTS

3.1 Frequency of Nature-related Experience

The results showed that 'vicarious' emerged as the most frequent nature-related experience among Malaysian children (Figure 1). Most of the school children's experiences were frequently vicarious activities, such as reading books or watching television about nature or wildlife programs, talking to parents or friends about nature or wildlife, and playing games related to nature, instead of having direct contact with nature itself. Besides, the direct and vicarious experiences displayed by the respondents are positively correlated to each other (Pearson's r = 0.41, p < 0.001).

Nature-related experience among school children

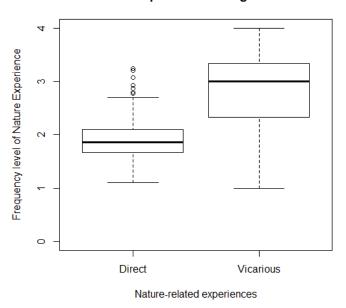


Figure 1. Nature-related experiences among Malaysian school children (*n*=401).



3.2 Preferences for Nature Landscapes

Table 1: Mean scores of nature landscape preferences among Malaysian school children (*n*= 401).

Landscapes	Mean Score
Forest	0.40 <u>+</u> 0.62*
Paddy field	0.79 <u>+</u> 0.47
Oil palm plantation	0.35 <u>+</u> 0.63
Rubber plantation	0.59 <u>+</u> 0.60
Urban cities	0.65 <u>+</u> 0.57
Urban park	0.91 <u>+</u> 0.33

The preferences for natural landscapes revealed the three highest scores for urban recreation park, paddy field, and urban cities. However, rubber plantation, forest, and oil palm plantations appeared to be the three lowest landscapes preferred (Table 1). The children's preferences showed positive attitudes towards the main nature landscapes in Malaysia (Table 1). The highest preference was the recreation urban park (M = 0.91), while the lowest scores were forest (M = 0.40) and oil palm plantation areas (M = 0.35).

3.3 Effects of Nature-related Experiences and Sociodemographic Aspects Influence Children's Landscape Preferences

Table 2: Results retrieved from GLMM that included six explanatory variables

Nature landscapes (Preferences)	Direct	Vicarious	Male	Malay	Urban school	R ²
Forest	0.38***	0.08	0.17**	0.03	0.20**	0.13
Paddy field	0.17*	-0.02	0.01	0.03	-0.04	0.04
Oil Palm	0.22	0.04	0.06	-0.09	0.06	0.04
Rubber plantation	0.28**	0.03	0.02	0.02	0.02***	0.06
Urban cities	-0.21*	0.03	0.04	0.16	-0.10	0.04
Recreation urban park	-0.04	0.06*	-0.02	0.13**	-0.01	0.04

The levels of significance: *p <0.05, **p<0.01, *** p<0.001.

Direct, and vicarious nature experiences; gender (male as reference); ethnicity (Malay as reference); and school location (urban as reference) to explain children's preference for forest, paddy field, oil palm plantation, rubber plantation, urban cities, and recreation urban park landscapes.



The linear mixed models showed that the children's preferences for landscapes were significantly associated with direct nature experience (Table 2). Children who frequently indulged in direct nature experiences displayed positive feelings to all four selected landscapes, except for oil palm and recreation urban park. Males were significantly associated with forest landscape preferences, whereas for ethnicity, Malays showed a significant preference towards recreation urban park. The urban school children were significantly related to forest and rubber plantation landscapes. On the other hand, children with less direct nature experiences significantly preferred urban cities, whereas those attached to vicarious nature experiences preferred recreation urban park landscapes

4. DISCUSSION

4.1 Nature-related Experiences among Malaysian School Children

The study indicates that Malaysian children experience both direct and vicarious experiences for nature. However, vicarious nature emerged to be an important trend to experience nature even in a tropical, developing country such as Malaysia. In this present modern life, it has been well-documented that children have shifted their ways of spending their leisure time. In fact, about 70% of Southeast Asian children play mobile games during their spare time, compared to 56% in the United States (Venture Beat 2016). The Association of Southeast Asian Nations (ASEAN) countries, such as Indonesia, Singapore, Vietnam, Thailand, and Malaysia, have projected that children have shown changes in play trends, especially those in urban areas, whereas attraction to screen-based entertainment and gadgets (e.g.internet and online games) has increased substantially (Venture Beat 2016). Modern children are strongly influenced by electronic media, such as the internet. Hence, it is important to monitor the shift that is taking place in children's experiences related to nature and how these changes could affect their physical and mental health, as well as their attitudes towards nature. Moreover, this particular study supports the findings retrieved from research conducted in Japan (Soga et al. 2016) and the United States (Zaradic & Pergams 2007), which explore vicarious nature experience as a popular trend that represents the principal shift away from the biophilia hypothesis (Wilson 1984; Nabhan & St. Antoine 1993) to videophilia (Zaradic & Pergams 2007).

4.2 Landscape Preferences

This present study revealed that children who have frequent contact with nature displayed a positive view with nature-based landscape preferences. This result supports that those who had frequently experienced nature directly were more appreciative towards the value of nature (Soga et al. 2016). Besides, experiencing nature during childhood remains rather encouraging for significantly positive feelings, which in turn may allow children to continue building their appreciation and gain the benefits from nature later in their life (Cheng & Monroe 2012). As such, it has repeatedly been demonstrated that direct nature contact generates positive impacts on mental, emotional, and social development among children (Maller 2009), people's behavior (Rajecki 1982), as well as improving aesthetic appreciation and recreation (Dallimer et al. 2014).

A significant association was found between childhood nature experiences and adults' attitudes towards natural entities, such as trees, and nature-based practices like gardening. The present findings reported that direct nature experience has mostly been significant towards forest landscape among children's nature preferences (Table 2). Indeed, the preference towards forest landscape in a direct manner suggests that children favor wild and natural landscapes, indicating a positive sign of nature conservation effect. In the case of Malaysia, urban children preferred natural landscapes, such as forest and rubber plantations. Therefore, nearby forest areas can become suitable 'playscapes' for children to enhance



their physical performance, along with their socialization skills (Said 2012). Similarly, a positive relationship was discovered between childhood nature experience and interest in environmentally friendly practices (Cheng & Monroe 2012), as well as between positive perceptions of natural environments and outdoor recreation activities (Bixler & Floyd 1997). More time outdoors can help children to develop positive values regarding nature and contribute to a close bond with nature (Davis et al. 2006). It is that boys have more opportunities to explore nature independently as compared to girls, hence suggesting their preferences towards forest, which reflects almost zero influence by the nature within their immediate home vicinity (e.g. neighborhood park) as they could have played further away (Lachowycz & Jones 2013). Hence, the spatial ranges displayed by boys (travel distance away from home unaccompanied by adults) to play further unsupervised suggests flexibility (Hart 1978), as well as preferences towards being engaged in rough and wild adventure at competitive places (Singer et al. 2009). The significant preferences of nature landscapes towards forest and rubber plantations by urban children indicate their increasing desire for natural areas, when compared to their rural counterparts (Boll et al. 2014). Both forest and rubber plantation landscapes are obviously located within rural and natural areas (Thompson 2004), hence, fulfilling the needs of urban children's outdoor environment diversity and naturalness of the landscape (Boll et al. 2014).

5. CONCLUSION

The school children experienced both direct and vicarious nature-related experiences. The vicarious activities appeared to be the most frequent experiences, indicating a decline in direct contact with nature among children. However, only direct nature experience had an influence upon the children's landscape preferences. Therefore, the common direct nature-related activities experienced by school children in Malaysia can be regarded as significantly important. This is the important element to be considered in efforts to create urban conservation centers or other public spaces to reconnect children with nature. Hence, it is notably important to provide and consistently organize hands-on environmental education to encourage children to continue building a positive bond with nature, which will be beneficial in their future lives.

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BEHAVIORAL INTENTION OF BIRDWATCHERS TOWARDS BIRDWATCHING ACTIVITY IN MALAYSIA

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ABSTRACT

Birdwatching activities can have positive and negative impact on bird's daily lives. This study was carried out to determine the factors that influence the behavioral intention of birdwatchers in Malaysia towards birdwatching activity. The Theory of Planned Behavior (TPB) was used to provide explanation and reveal the major predictors that influence bird observer behavior towards birds in Malaysia. A total of 100 questionnaires were collected from 14 states in Malaysia using online Google form. The link for Google form was sent to all Facebook groups related to birdwatching activity, such as the Malaysian Nature Society (MNS) of all state branches in Malaysia. Six factors were used in the questionnaire to reflect the behavioral intention of birdwatchers, which included feeding the birds, socializing, approaching, recording, keeping wild birds and observing. Factors such as socio-demographics and category of birdwatching were tested to determine the relationship between the behavioral intentions. The results revealed that Perceived Behavioral Control (β = 0.598) was the strongest driver of Behavioral Intention (β = 0.202) compared to Subjective Norm and Attitudes (β = 0.023) by using the method of path estimation analysis. The category of birdwatching and behavioral intention has a significant relationship, while gender and behavioral intention has no significant relationship. The study shows that the possibility of the birdwatchers to explore more on bird diversity in future has higher effect compared to other factors.

Key words: Theory of Planned Behavior (TPB), birdwatching, path estimation analysis, behavioral intention

1. INTRODUCTION

Birdwatching has become a recreational activity and a major focus on hobbies since the 18th century (Moss 2004). In the 1900s, there was an order of protecting birds by avoiding taking away the specimens from their native habitats in the observation of free-living birds (Moss 2004). The instruction was executed when people were often collecting the bird and egg specimens for institutional and private collections which can intrude the ecosystem.

This activity has also proven that birdwatching plays a vital role in increasing the value of tourism in a country. According to United Nation of World Tourism Organization (UNWTO) (2016), Malaysia recorded about 26.8 million tourist arrivals in 2016, which has shown an increase of one million from the year 2015. However, according to Sekercioglu (2002) who conducted a study on the impacts of birdwatching on human and avian communities, it found that mostly the birdwatchers are well-educated, highly motivated, and well prepared. Birdwatching activities will give an effect and benefit towards the economy as well as the locals. Therefore, there is a need to minimize the risk, especially where vulnerable species or habitats are concerned (Burger & Gochfield 1993).

Malaysia has 54 protected areas of more than 1,000 hectares (ha.), totaling 1,483 million ha. It is about 4.5% of the land surface of the country. They include 28 district nature reserve, where 90,070

SECTION 2: CONSERVATION, EDUCATION AND LOCAL COMMUNITY



ha. are not open for tourism activity (Norizan 2000). Wildlife tourism is one of the fastest-growing tourist destinations in the world. According to Rodger et al. (2007), the desire for people to interact with wildlife in the natural environment continues to grow, and visitation to sites with wildlife is on the increase. Malaysia is one of a great country that has many kinds of wildlife tourism activities, both consumptive and non-consumptive.

Despite having an ostensibly good reputation on birdwatching, there is a high potential of disturbances towards bird breeding due to human presence around bird nests, done especially for photography or even bird identifying purposes and these can increase the likelihood of nest abandonment (Hay Smith & Hunt 1995). Generally, the birds with small species are less vulnerable than larger birds that are higher up the food chain or those feed in flocks in an open area. Several issues are commonly met by chance by nature conservation professionals in an endeavor to ensure continued or enhanced ornithological interest in the face of increasing pressure from disturbance. However, Burger et al. (1995) stated that birdwatchers that visit a new area particularly would like to see the rare and shy species, which are also likely to be the most vulnerable. Birdwatching tourism has attracted the attention in recent years as a booster for economic value towards a country in an environmental-friendly way. Therefore, Tourism Malaysia has cooperated with non-governmental organizations, namely the Malaysian Nature Society (MNS) which is dedicated to promoting Malaysia as the preferred birding destination. The programs and seminars organized by MNS are held every year to promote and conserve the avian species. For example, Raptor Watch in Tanjung Tuan, the Taman Negara Bird Count, Fraser's Hill International Bird Race and the Wings of Kuala Kubu Bharu are held annually. During the Borneo Bird Festival in Sandakan, Sabah, a seminar with the main topic- Malaysia A Preferred Birding Destination was discussed. Birdwatchers usually have good intention, and they are aware of the conservation value of birds. However, Ream (1978) stated that even birdwatchers and photographers were likely to harm wildlife. Disturbance can occur in terms of technical effect such as the light from flashlights and camera sounds without realizing that their action might have an impact on wildlife. Nowadays, birdwatching activity is getting popular and keeps increasing on a global scale as a recreational activity (Steven et al. 2015). Negative impacts towards wildlife can be found which is caused by wildlife tourism, and there is the possibility that the number of negative impacts are getting higher. To minimize these problems, research is required specially to study on the behavior and psychology of tourists to explain tourist behavior in future.

The research questions for the study: Does a statistically significant relationship exist between birdwatching category and Behavioral Intention from the Theory of Planned Behavior?

H0: p > 0.05

There is no statistically significant relationship between birdwatching category and Behavioral Intention from the Theory of Planned Behavior.

H1: p < 0.05

There is a statistically significant relationship between birdwatching category and Behavioral Intention from the Theory of Planned Behavior.

2. METHODOLOGY

2.1 Data Collection

As this study focuses only on one group of people who are the birdwatchers, the purposive sampling method was used because it is a convenient method which falls under Typical Case Sampling. This sampling technique is one of the non-probability sampling methods. This technique was used because it



is the most suitable and appropriate method in order to obtain the exact source of the sample ordinance population that are willing to provide the desired information in the study (Salleh et al. 2013). In this study, the respondents were asked to fill in the survey questionnaire using an online Google form. The survey link was sent to all Facebook groups related to birdwatching activity that are available in Malaysia. They are the Malaysian Nature Society (MNS) of all state branches in Malaysia, Wild Bird Club Malaysia, Kuala Selangor Nature Park, MNS Nature Guides, and Nature Guides: Raptor Watch 2019 including those from the Sarawak and Sabah groups. A total of 100 completed questionnaires were collected.

Structured questionnaires were used as the main instrument to collect the primary data through the online survey. The questionnaire was divided into two sections to ensure that the objectives of the study is fulfilled. Information relating to attitude, perceived behavioral control, and subjective norm were obtained in section A. Section B was set to obtain information on the socio-demographic profile of the birdwatchers. The questionnaires were measured using a five- point Likert scale. A five-point scale has been chosen because Elmore and Beggs (1975) stated that a five-point scale is good enough for all research, and that the increment from five to seven or nine points on rating scale does not improve the reliability of the ratings. The behavior statements were designed to emphasize on approach and disturbance caused by birdwatchers towards birds.

2.2 Data Analysis

The Statistical Package for the Social Sciences (SPSS) Version 25 was used to analyze the data as it is the best software to explore the constructs. Three methods of analysis were used in this study:

2.2.1 Descriptive Analysis

Descriptive analysis was used to find the percentage and mean for socio-demographics of respondents. The descriptive analysis was also used to determine the level of attitudes of birdwatchers towards birdwatching activity. In general, this analysis has provided an overall image of the data distribution.

2.2.2 Multiple Regression Analysis

Multiple Regression Analysis is an inferential statistical analytical tool used to estimate the relationships between variables. An ongoing goal of regression analysis by organizational researchers is to make inferences about the relative importance of predictor variables (Nimonet al. 2010). It concentrates more on the relationship between a dependent variable with other independent variables. In this situation of study, the dependent variable was the behavioral intention level towards birdwatching activity, while, the independent variables were attitudes, subjective norms, and perceived behavioral control variables.

2.2.3 T-test Analysis

The *t-test* analysis was used to examine the relationship between the independent variables and behavioral intention from the Theory of Planned Behavior model. These variables were used to answer the research question.



3. RESULTS AND DISCUSSION

3.1 Reliability Test

Reliability test was carried out to determine the consistency and stability of the information gathered using the Cronbach Alpha score. The target reliability of Cronbach's Alpha coefficient for the instrument and subscale must be at least 0.7 (Hill & Lewicki 2019). Table 1 shows the reliability statistic of Cronbach' Alpha for attitudes, subjective norm, perceived behavioral control and behavioral intention.

Table 1: Cronbach's Alpha of Attitude, Subjective Norm, Perceived Behavioral Control and Behavioral Intention

State	ments	Corrected Item- total correlation	Cronbach's alpha if item deleted
Attitu	ıde ($α = 0.713$)	101411 001101411011	
•	Feed Every Bird	0.385	0.693
•	Enjoy socializing	0.411	0.688
•	Approach Wild Birds for Photography	0.534	0.644
•	Use Recorded Bird Sound	0.533	0.651
•	Keep Wild Birds	0.294	0.717
•	Spend Time Watching Bird	0.544	0.641
Subje	ective Norm (α = 0.705)		
•	Should Not Feed Wild Birds	0.671	0.584
•	Less Socialize	0.292	0.706
•	Should Not Approach Wild Birds for		
	Photography	0.531	0.638
•	Should Not Use Recorded Sound	0.542	0.631
•	Allow Keep Wild Birds	0.119	0.760
•	Watch from Afar	0.512	0.641
Perce	eived Behavioral Control (α = 0.718)		
•	High Chance Feed	0.336	0.696
•	High Possible Socialize	0.430	0.669
•	High Possible Approach Wild Birds		
	for Photography	0.551	0.626
•	High Possible Use Recorded Sound	0.452	0.663
•	High Possible Keep Wild Birds	0.355	0.692
•	Possible Watch Bird Very Close	0.513	0.641
Beha	vioral Intention (α = 0.756)		
•	Plan Feed Wild Birds	0.290	0.766
•	Intend to Social	0.675	0.669
•	Plan to Approach Wild Birds for		
	Photography	0.658	0.673
•	Will Use Recorded Bird Sounds	0.336	0.758
•	Not Intend to Keep Wild Birds	0.412	0.753
•	Plan to Watch Wild Bird Really Close	0.639	0.681



3.2 Socio-Demographic Characteristics

Birdwatchers in the lower age groups (18 to 34 years) form the major proportion of the sample rather than the older ones. Out of 100 respondents, most of the respondents were Malaysian (78.0%) and 22.0% were foreigners. The total number of foreigners was considered quite a big number, which has represented a quarter from the whole sample. Moscardo (1997) found from a survey conducted on visitors of North-Far North Queensland that birdwatchers were highly probable to be foreign tourists compared to non-birdwatchers because they travel as part of an organized group or club. However, the local birdwatchers represent almost the whole sample. The corresponding increase in local understanding of the value of bird biodiversity may be the best answer to preserving many wilderness areas close to centers of the human population (Sekercioglu 2002).

The category of birdwatching for the sample are correlated to the behavioral intention resulting in the different types of birdwatcher category, which consists of bird observers (61%) is a typical birdwatching activity, followed by bird photography (38%) and bird collectors (1%). Knight and Temple (1995) stated that when the birds are visually shielded from observers, they are less sensitive because there is no interaction between human and wildlife. Therefore, the bird observer has higher frequency rather than another birdwatching category. Lenses with a higher millimeter can also be used from a safe distance to obtain high-quality images. However, the rate is quite costly, causing them to categorize under the bird observer and not bird photography.

3.3 Relationship between Attitude, Subjective Norm, Perceived Behavioral Control and Behavioral Intention of Birdwatchers towards Birdwatching Activity

The analysis of the birdwatcher's behavioral intention was measured by using mean score, and percentages of the agreement from strongly disagree (SD), disagree (D), neutral (N), agree (A) to strongly agree (SA). However, it is clearer to do a total sum of percentages of strongly agree and agree into agreements while strongly disagree and disagree into disagreements from the five-points Likert Scales.

Based on the Table 2, the *R2* value from regression model summary indicates that the dependent variable is 0.491 and that 49.1% of the variation is explained by the independent variables. However, there are still 50.9% of the variation are unexplained and it might be explained by the other variables such as past behavior, descriptive norm and value orientation which are not covered in this study.

Table 2: Regression Model Summary on Birdwatchers Behavioral Intention

	Model	R	R ²	Adjusted <i>R</i> ²	Std.Error of the Estimate
1		0.701 ^a	0.491	0.476	0.28345

Notes: Dependent variable: Intention, Independent Variable: Attitude, Subjective Norm and Perceived Behavioural Control

The path analysis method was used to conclude the result from the multiple regression analysis. Based on the result, the perceived behavioral control had the strongest effect on intention (β =0.598), followed by the attitude (β =0.202) and subjective norm (β =0.023). In this research, perceived behavioral control was the strongest predictor of the path analysis model. The less barrier and more resources that individuals perceive, the higher their perceived behavioral control and the stronger their intention to perform the behaviors (Ajzen & Madden 1986). For this study, birdwatchers are now having easy access and more exposure towards variety birdwatching activities and trends due to advanced technology such



as social media which can easily gain more information about the activity. Thus, it drives birdwatcher intention to perform and try something new that has never been tried before.

Table 3: Correlation Coefficients between Attitude, Subjective Norm and Perceived Behavioral Control

Variables	Unstanda Coefficie		Standardized Coefficients	t-value	<i>p</i> -value	
	В	Std. Error	Beta	_		
Attitude	0.147	0.058	0.202	2.523	0.013	
Subjective Norm	0.017	0.058	0.023	0.292	0.771	
Perceived Behavioral Control	0.391	0.052	0.598	7.532	0.001	

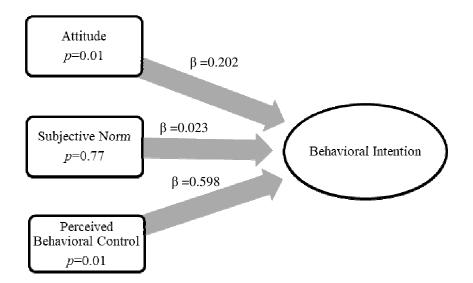


Figure 1. Path Analysis towards the Behavioral Intention of Birdwatchers on Birdwatching Activity

3.4 Comparison of Behavioral Intention between Birdwatching Category

A *p*-value of less than .05 to indicate significance. Based on the result from Table 3, it shows that attitude, perceived behavioral control and intention variables were significant while the subjective norm was not significant. The results for the three variables showed that the null hypothesis to be rejected, and there is a relationship between birdwatching categories and behavioral intention variable based on the Theory of Planned Behavior.



Table 4: Comparison of Behavioral Intention between Birds Observer and Birds Photography towards Birdwatching Activity

Birdwatching category ²	N	Mean	Standard Deviation	<i>p-</i> value ¹	<i>t-</i> value	Degrees of freedom
Birds Observer	61	2.10	0.60	0.01	0.523	97
Birds Photography	38	2.04	0.41			

¹ Mean difference is statistically significant at p<0.05

Based on the results obtained, there are two categories of birdwatchers (birds observer and birds' photography) considered as the grouping variable. After the *t-test* analysis, it is concluded that the results were significant with the behavioral intention from Theory of Planned Behavior. It shows that both categories provide enough data to achieve the significance value. Therefore, the differences observed in the sample can be used as a basis for a population efficacy inference. This result is important because birdwatchers represent a potential economic and political influence for wildlife conservation efforts (Wiedner & Kerlinger 1990).

4. CONCLUSION

The study has found that attitude, subjective norms, and perceived behavioral control have significant positive effects on behavioral intention towards birdwatching activity. The effects of predictors on the intention from path analysis were as follows (decreasing order): perceived behavioral control (β =0.598), attitude (β =0.202) and subjective norm (β =0.023). The results can be concluded that most birdwatchers have awareness towards conserving wildlife. These findings show that perceived behavioral control had the strongest effect on intention compared to attitude and subjective norm, which means a birdwatcher tends to perform a behavior by themselves without any influence from the environment. The TPB model and its measures were found suitable for the studied group based on the overall results (Ajzen 1991). Besides that, it can be concluded that the category of birdwatching has a significant relationship between behavioral intention which has driven the birdwatchers to perform a behavioral act. Therefore, it is an opportunity for government or non-government organization to consider alternative ways to create a program which can increase the awareness of birdwatchers towards wildlife.

5. LIMITATIONS AND RECOMMENDATIONS

This study produced empirical data on birdwatcher's behavioral intention towards birdwatching activity. This study provides useful information within the wildlife management scope to both government and non-government organizations, especially to PERHILITAN and MNS in order to minimize the effect of birdwatching activity on wildlife in the future. Jafarpour (2016) stated that the research could give the management chances to manage conservation based on priorities from the predicted intentions of birdwatchers towards disturbance behavior on birds. It also provides further understanding and awareness of the importance of no disturbance of wildlife habitat in Malaysia.

² Cell entries are 5-point Likert Scale 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree



In addition, this research can increase the awareness of birdwatchers towards the importance of conservation value of birdwatching activity. Normally, birdwatchers' opinion is to conserve wildlife, therefore, when they realized that their actions or behavior might give a negative effect on birds, they will change their act or action to minimize the disturbance. The methods used in this study is the basis for predicting human attitude in determining their next action, specializing deeper into the models used to get more accurate results which may improve the quality of the research. There are many types of the research model that can be used for this kind of research such as the Behavioral Change System (Hungerford & Volk1990), and Elaboration Likelihood Model (ELM) to develop more effective ways to predict the influence and behavioral changes. Furthermore, R Software, Structural Equation Model (SEM) and AMOS are other good software to be used especially in performing path analysis. However, the basic methods from this paper are also useful for other researchers to study the behavioral intention of human in future.

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RIVER CONSERVATION AWARENESS PROGRAM AT ECOTOURISM SITES IN MALAYSIA

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ABSTRACT

Most ecotourism sites in Malaysia have mix natural resources such as forest, wildlife, and water. Many tourists are attracted to water and tend to get involved in water-based activities. Consequently, it can contribute to negative impacts on the environment, particularly at ecotourism sites. As a result, every year, cases and water pollution occur at ecotourism sites. Hence, awareness and education about water sources conservation are much needed, particularly for ecotourism operators and tourists in Malaysia. This will assist ecotourism operators to have better land use management and recreation planning. Also, tourists would appreciate the environment and knowledge about water resources at ecotourism sites. Giving awareness about a proper functioning ecosystem contribution towards the environment and humankind is crucial nowadays due to climate change and high pollution cases. Through limestone forest river awareness and conservation program, visitors will have hands-on experience about solid waste collection, river water quality assessments and limestone interpretation. The main objective of this study is to foster awareness among the visitors about the importance of limestone forest rivers towards our environment through a special conservation program. The study area is in Langkawi, Kedah. Fifty-six university students with five researchers from two universities and key stakeholders of the ecotourism sector were involved in this program. Both pure and social science data were conducted to get rich data set of this study since no proper research had been done at the site before. The result showed that stakeholders and visitors would be more aware and careful with their behavior once they joined the river awareness and conservation program while limestone rivers at the study area formation resulted from limestone spring from the fractures of carbonates rocks and rain. This paper should add more data on the limestone forest river, which is significantly lacking.

Keywords: Malaysia, ecotourism, tourists, forest conservation and awareness.

1. INTRODUCTION

Langkawi Island is located within the state of Kedah, at the north part of west Malaysia with an area of 478 square kilometers. This island is the third-largest island by area in Malaysia. The topography varies from flat coastal plains, hilly areas to rugged mountains (Baban & Wan-Yusof 2003) technical knowledge and experience. Consequently, the procedures used are not based on a defined criteria in addition to being time consuming and expensive. Furthermore, the failure of a number of dams and the increase in environmental awareness will require the inclusion of environmental and social factors in the processes besides economy. In this study, a criteria was developed and implemented to locate potential sites for reservoirs in the Langkawi Island, Malaysia based on all relevant factors including: topography, geology, hydrology, land use/cover types and settlements. A satellite imagery and digitized geological and elevation maps were utilized to generate the necessary data layers for the developed criteria. Then IDRISI, a raster based GIS was employed to implement the criteria using the Boolean and the Weighted Linear Combination (WLC with tropical humid monsoon climate with a mean annual temperature about 32 °C (33-24 °C). The average yearly rainfall is around 2500 mm (Shamshiry et al. 2011) and its climate



is influenced by two wet monsoons: between April and May when the monthly average rainfall is over 180mm, and between August and October when the average reaches over 220 mm (Shaaban & Sahat 1996; Baban & Wan-Yusof 2001). Due to the geographical location of Langkawi close to Thailand, the island has significant similarity with climate and weather of southern Thailand.

Langkawi Geopark was declared as UNESCO Geopark on May 31st 2006 and it is the first Geopark in Malaysia and Southeast Asia. A Geopark is a special conservation area with outstanding geological and biological resources (Ismail et al. 2004; Ismail et al. 2005). Langkawi Geopark is the most northern Archipelago and a popular ecotourism sites for domestic and international tourists. In 2017 the island received 3.5 million of tourists and Langkawi Development Authority (LADA) targeted to make the island as top 10 islands and ecotourism destination globally (UNESCO Global Geopark Gazette [UGGG] 2018). Hence, LADA has been actively promoting Langkawi as an ecotourism destination, particularly UNESCO Geopark.

Nowadays, ecotourism has become a worldwide trend, particularly in developed countries such as Malaysia. More tourism agencies and operators like to associate their agencies to ecotourism activities or green tourism activities (Isa et al., 2015; see UGGG 2018). Stabler and Goodall (1997) stated that many ecotourism tourists are most likely willing to pay higher prices for environmentally less damaging products. Most scholars use the definition of ecotourism from the person who first coined ecotourism concept that is Ceballos-Lascurain in 1983. Later, he defined ecotourism as "travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas" (Ceballos-Lascurain 1987; pp. 13-14). Nonetheless, some scholars prefer to use other names for ecotourism, such as green, nature, responsible, or sustainable tourism. The main distinction between these terms is the motives and ethics behind them. Due to that, many ecotourism destinations use multiple strategies to attract all market segmentation to their destination as they have facilities and services that meet the requirements of the high, middle, and lowend market. These ecotourism destinations such as Bali, Krabi, Langkawi, Kyoto and Queenstown use mixed marketing strategies to cater to all type of tourist markets (Isa et al., 2015; see UGGG 2018). For example, Langkawi is not only known as an ecotourism destination but also for shopping because it is a duty-free island; for meeting, incentive, conference and exhibition (MICE) market. However, the primary focus of this article is on ecotourism sites in Langkawi.

According to LADA, karst can be defined as a landscape of limestone elongated hills and island. Limestone karsts (hereafter referred to as karsts) are sedimentary rock outcrops that consist primarily of calcium carbonate. Most karsts were formed millions of years ago by calcium-secreting marine organisms (e.g. corals and brachiopods) before tectonic movements lifted them above sea level (MacKinnon et al. 1996). In Southeast Asia, karst covers an area of around 400,000 square kilometers (km²), with geological ages ranging from the Cambrian to Quaternary (Day & Urich 2000). Malaysia contains no fewer than 800 separate limestone outcrops, ranging from hills tens of meters across to plateaus many square kilometers in size (Wilford 1964). Although, limestone hills occupy only 0.4 % of land area in Peninsular Malaysia (Chin 1977), World Wildlife Fund (WWF) Malaysia (2016) reported the areas are estimated at 26,000ha, mostly concentrated in the northern states and 50,000ha in Sabah and Sarawak. A number of these are limestone islands in the Langkawi archipelago, with major outcrops in Kelantan, Perlis, Kedah, Perak, and northern Pahang.

In the Langkawi Island, rapid development in ecotourism has led to uncontrolled land conversion including on limestone forest. All these activities result in loss of vegetation cover, increased influx of solar radiation, increased risk of fire, desiccation, and the resulting loss of top soil (Schilthuizen 2004). The existence of vegetation is important for karst ecosystem for its role in absorbing and supplying water in the area. The absence of vegetation would cause insufficient water supply during the dry



season (Satyanti & Wahyu 2010). The Deputy Minister of Energy, Green Technology and Water, Datuk Seri Mahdzir Khalid said that Langkawi's rapid development calls for additional water supply as more hotels, houses and business premises are coming up. This is because Langkawi has inadequate water supply and may face water scarcity by 2020 (The Malay Mail online 2014). Based on that notion, the main objective of this study is to foster awareness among the public about the importance and uniqueness of rivers flowing in limestone forest towards our environment through a focused conservation program. The specific objectives of this study are:

- a. To investigate the awareness level of the limestone river conservation program among visitors at ecotourism sites
- b. To observe visitors' behavior when they participated in limestone river conservation program at ecotourism sites

2. LITERATURE REVIEW

Ecotourism sites can play a vital role in conservation activities because it is part of the ecotourism concept. However, proper planning is required in designing conservation activities at ecotourism sites such as limestone forest river due to its fragile surrounding since limestone forest took thousand or million years to form (WWF 2016). Hence, careful measures must be taken into consideration before any activities and programs are implemented at any ecotourism sites.

According to Clement (2006), many limestone outcrops are being quarried as an important raw material used to manufacture commercially valuable product such as cement and tiles. Quarrying for cement, marble, and surfacing material for roads is the most destructive of these, and several hills have completely disappeared, leading to the documented extinction of some site-endemic species (Vermeulen 1994). Currently, there is one cement company which claimed to contribute towards the disappearance of Tok Sabong Cave and Balai Cave after they started their operation in that area (De Faoite 2015). Other disturbances of limestone outcrops include logging and agricultural activities (Schilthuizen 2004). Although the terrain of a limestone outcrop itself is usually too rugged for large scale forestry or agriculture, timber extraction for local consumption is common, and cultivation usually reaches up to the fertile foot soils of the hill (MacKinnon et al.1996). As a result, this can contribute towards environmental pollution and damaging limestone forests, particularly at the most sensitive area, which is the rivers or water ponds.

Water is a renewable resource and important to humankind but always taken for granted. Surface water plays an important role in the assimilation of municipal and industrial wastewaters. The surface water quality in an island is of paramount importance as a source of drinking water and upon which many users and the ecosystem are dependent. In islands, the pollution of surface water causes rapid degradation. Additionally, in most islands, streams collect much of the rainwater that falls on the land and receive pollution that the rain picks up as it runs off the land and drains into the streams (Aris et al. 2013).

Since treating polluted water source such as from algal blooms has been reported to be costly (Dunlap et al. 2015), in some cases, cost-prohibitive, awareness program involving the community is vital to educate and promote the knowledge and sustainable use of water resource. In addition, there is a high necessity in sharing real information about water sources inside the forest or known as forest hydrology. It specifically covers river conservation from its basic scientific knowledge, the effect of the disturbance, land use management, catchment areas, and hands-on techniques or skill to manage the resource. This study designed a special program of forest hydrology that is suitable for the study area and visitors with a multidisciplinary approach. Importantly, all visitors can follow and understand the content of the program. Further explanation about the program will be presented in the next section.



3. RESEARCH METHODOLOGY

In this section, it discussed in detail how this research was undertaken. Based on the objectives of this study, face to face interviewed were conducted to cover the social science study while for the pure science study, two forest hydrology experts provided interactive explanation and conducted a few simple tests using water quality instruments at the study sites such as the YSI 550A Meter to test Electric Conductivity and Salinity, YSI 60 pH and Temperature Meter to test pH and Temperature, YSI DO200 Meter to test Dissolved Oxygen and Total Dissolved Solid, and HACH Portable Turbidity to test Turbidity.

3.1 Study Site

The location of the study is at the Penarak Nature Centre (PNC) Sdn. Bhd., situated about three kilometers to the east of Kuah Jetty, comprising a total land area of 13 hectares (Figure 1). Since the land area of bedrock bared counted for more than 50 percent of the total area, which are mainly limestone forest and located close to the Kilim Karst Geoforest Park, the research centre has similar rock formation, the Setul Formation. Due to the unique geological characteristics, the forest has its highest elevation about 90 metresa.s.l., where many underground monsoon streams, caves, sinkholes, tufa falls, as well as a rich variety of plants and animals, are found. The size of water catchment area inside PNC is about 2 square kilometers where most of the limestone forest was classified as undisturbed forest by the Kedah Forestry Department. PNC is home to many types of vegetations such as Melunak (*Tiliaceae*), Minyak beruk (*Xanthophyllumlanceatum*), *Streblusilicifolius*, wild orchids, mushrooms and many more. Besides, the limestone forest is a perfect habitat for many bird species including the white-bellied sea eagle and Brahminy kites, small mammals such as the Dusky Leaf Monkey, insects and aquatic lives.

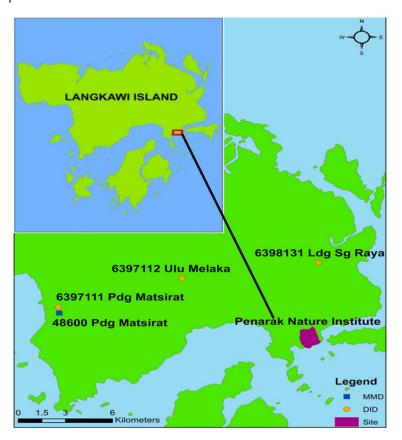


Figure 1. Location of Penarak Nature Center in Langkawi Island



For the first stage of study, visits to gather the needed data at the PNC site were done in February 2019. Based on the first visit, a special limestone river conservation program was designed and tested on four key tourism stakeholders in Langkawi. Their comments and suggestion were gathered, and some amendments were made to the program. This is necessary in order to make sure the program meets the objectives of this study. The real program involved 56 students from Universiti Putra Malaysia (UPM) and Queensland University of Technology (QUT), six staffs from UPM and four staff from QUT. The program was held from 23-25 September 2019. These students were divided into two groups. The first group was students who have pure science background, while the second group was from the social science background. All students were asked to prepare a report on their experiences, opinion, and suggestion about the program at the study area. Six students from UPM and four from QUT were interviewed to get their feedback about the program. This study also interviewed staff from UPM, QUT and key tourism stakeholders in Langkawi were also interviewed to obtain their opinion about the program. Data from the reports and interviews were analyzed using transcription technique to discover significant themes from their answers. The results were reported in section 4.1. Before the visit, both groups were given a briefing and explanation about limestone forest in general by experts from PNC, UPM and QUT.

3.2 River Conservation and Awareness Program

Three rivers awareness and conservation program were conducted at PNC limestone area. All participants were transported to the area by speed boat from the Penarak jetty since there is no access by road. The program can be divided into two parts: the social science and pure science as presented below.

3.2.1. Social science program

All participants were required to collect solid waste at the beaches and rivers at the PNC site which is locally known as Batu Ayam and Batu Orchid. Most of the solid waste were brought from the sea since its location is to Kuah town and is a busy waterway for ferries and ships. Also, trashes from participants' lunch and drinking bottle were transferred to dumping area provided by the local authorities at Penarak jetty. The reason for this activity was to explain to the students about the "leave no trace" principle which is significantly important in outdoor recreation ethic. Also, to instill responsibility among the participants to take care of the environment particularly at fragile area.





Figure 2.Participants from UPM and QUT with PNC staff taking group photo after the cleaning activities at Batu Ayam and Batu Orkid.

Source: Personal photo

Both groups were taken for an interpretive trekking activity along the limestone forest trail. Both groups were taken into the limestone forest from the Batu Ayam Beach (trail head) to a unique tufa fall of Batu Orkid, which is located about 300 meters from the trail head. Besides visiting the tufa fall, they were also taken around the limestone forest, caves, and streams. They were introduced to some features of limestone forest such as the rock formations, sinkholes, vegetation, and wildlife. They were accompanied by a few experts in the field of pure and social science. An expert in environmental interpretation gave a briefing and explanation to the students during the forest trekking activity. The interpretation session covered the theory and knowledge about the water resources, geology, vegetation, insects, wildlife, and birding; their role and relationship towards limestone forest and geopark, as well as the importance of biodiversity to ecotourism in Langkawi Island.





Figure 3: (A) Students from UPM and QUT were briefed by a few experts before and after their trekking activities. (B) Students were taken to Batu Orkid tufa fall formation.(C) Students from both universities visited small caves formation along the forest trail.

3.2.2 Pure science program

The students from the pure science participated in the water quality and groundwater study and assisted by a few experts. The stream within the PNC was observed before being chosen for on-site water sampling and water analysis, using the multivariable meter and turbidity meter. The stream includes the waterfall, small pools, sinkholes, spring, valley terraces and other formation that is related to the geoheritage resources. Water quality analysis was conducted on two different zones with a stream where each zone was further divided into five points along the stream within PNC. The zone was selected based on accessibility and water availability since PNC was affected by two different seasons (dry and wet season). Finally, only one point from each zone was selected based on consideration and suitability for preliminary data collection. Several parameters were tested, such as Electric Conductivity (EC), Temperature (T), Total Dissolved Solid (TDS), Salinity (S), Dissolved Oxygen (DO), pH, odour, floatable and taste, at the selected points, whereas, Total Suspended Solid (TSS) was tested at Hydrology Labat Faculty of Forestry, UPM according to World Health Organization (WHO) and APHA method (2017).





Figure 4: (A) & (B) Students from QUT are taking water quality data and collecting water samples for further data analysis from Zone A (III) and Zone B (II) respectively.

4. RESULT AND DISCUSSION

In this section, the result and discussion is presented into two parts. The first part is on the social science program and the second is based on the pure science program.

4.1 Participants Hands-on Experience at the Study Site

Through the visit at PNC, participants showed that they are highly aware and appreciate more of the limestone forest after the visit compared to just listening and watching information about limestone forest. Majority of the participant commented that they think the limestone forest at PNC is beautiful and will be able to attract many visitors, especially those who like nature because of its rich biodiversity. While trekking and interpretation activities are good for visitors, it must be limited to a smaller number to make sure the information can be delivered effectively to everyone. From the students' report, they suggested the area to be open to the public. However, strict rules and regulations must be imposed to the visitors due to the sensitivity of the limestone forest. They agreed that through the on-site visits to PNC, it makes them realize the importance of limestone forest towards the environment and humankind.

They also gained more conservation experiences through the cleaning activities nearby the river and beach besides understand that everyone should have their environmental responsibilities towards saving water sources from pollutions. Also, this activity teaches them about the "leave no trace" practices and principal in outdoor recreation.

4.2 Water Quality and Groundwater Study

The data measurement in Penarak from the 24th to 25th September showed that the streamflow, water velocity and visibility of the river were almost similar for both days. As this study was carried out during September, the water level for the rivers at Penarak remains the same for both days, which was at 0.28 M. According to climate data from the Department of Irrigation and Drainage (DID), Langkawi receives moderate to high volumes of precipitation beginning March to November which indicate wet season with its monthly mean rainfall in July at 268.8mm. Nine parameters were measured: temperature, electric conductivity, dissolved oxygen, salinity, pH, total dissolved solids, floatable, odor and taste meanwhile



several tests for groundwater and minerals content will be conducted at hydrology laboratory soon. The data shows differences in electric conductivity for both days at Zone A and Zone B. The high reading of EC in this study area is mainly because the stream water are from the limestone spring coming out from the fractures of carbonates rocks in Penarak and could be contributed from a high concentration of dissolved solids in the stream. The mineral content release ions into the waters that flow through or over them, where the geology of a certain area will determine the amount and type of ions. These ions include sodium, (Na+), calcium (Ca+2), potassium (K+) and magnesium (Mg+2) (Clean Water Team, 2004).

Besides, the reading of TDS also shows some increase from 0.3093 g/L to 0.3320 g/L (Stream A), and 0.2980 g/L to 0.3086 g/L (Stream B) from 23th to 24th. This parameter could support why the EC increase for both zones. As the rainfall increase, the discharge of groundwater from the limestone, which brings along the nutrients or chemical substances that dissolved in the water. The salinity of stream water in all sites is very low, 0.2 ppt and stayed the same for both days, much contributed from the groundwater in PNI where the water originates from spring as Arandacirerol (2006) reported that nutrient water quality is regulated by groundwater discharge, which is cooler and has lower overall salinity and higher NO $_3$ (116.92 \pm 79 mmol l^{-1}).

Furthermore, the rugged and undulating topography in Penarak restricts human activity such as agriculture or tourism, which could affect the water quality of the stream. Both streams also recorded low dissolved oxygen value for both days. As the river flow source is mainly from groundwater, it naturally has low DO. During summer, the cooler groundwater inflow may come at first lower the DO concentration. However, it also tends to reduce the river temperature, which improves the ability of the water to hold oxygen (MPCA 2009). The temperature of the zones stays almost the same about 26-27 $^{\circ}$ c which is the mean temperature in this tropical island. Whereas the pH of both stream stay between 6.5 - 7.0 indicating neutral water due to undisturbed areas and could also be contributed by the seasonal change (dry season) since United States Geological Survey (USGS) reported acid rain could be very acidic, and it can affect the environment in a negative way. Finally, there were no visible floatable materials or debris or no objectionable odor, or no objectionable taste observed at the stream.

5. CONCLUSION

Conservation and awareness programs are needed to improve the sensitivity and raising more understanding of environmental problems to achieve a sustainable environment. This can be done via knowledge and culture transfer to raise awareness, educate and assist the local community and ecotourism operators to understand the importance of limestone in Langkawi Island. Proper land use management and sustainable resources utilization in karst area are important issues that need to be highlighted and shared to the communities. Among the important practices and principals in ecotourism is to include the local community in tourism development and to promote responsible tourism among the stakeholders and tourists. By promoting ecotourism activities and programs in sensitive areas such as rivers or at any water catchment areas can help to promote responsible behavior among the stakeholders and tourists. As a result, this sensitive area will have a longer life span.

While river awareness and conservation program, for example, water quality monitoring showed participants on how to identify the high quality of water and the importance to take care of our surrounding and ecosystem. Through comparing water quality activity, participants are more aware and have a basic understanding of limestone forest water resources at PNC area. With its rich biodiversity features, due to its isolation from the mainland, this area has high potential as a research and ecotourism center particularly relating to awareness and conservation program. Participants gained knowledge directly from the experts and gained hands-on experience in handling the water sampling on the field.



Among the limitation faced by this study is the lacked of data about limestone forests, for example; its hydrological features, geological formation and vegetation in Malaysia. Hence, extensive studies relating to this topic should be done in the future for further understanding about water resources at limestone forest area.

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INTERPRETIVE FUNCTIONALITY OF EXHIBITS AT THE BIRD INTERPRETIVE CENTRE, FRASER'S HILL

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ABSTRACT

Interpretive centre is widely used as a means of interpretation to convey important messages and concepts to visitors. The Bird Interpretive Center, Fraser's Hill is operated to provide information regarding Fraser's Hill and the birds found there. The centre is only accessible upon request as the management does not station any staffs there. Therefore, all exhibits are supposed to be functional in delivering interpretive messages as these non-personal products are the sole medium at the centre that could influence visitors' emotion and intention towards the interpretation objective. Due to its crucial role, the products in the interpretive centre need to be assessed to determine whether the 'call for action' could be delivered effectively to visitors consistent with the objective of the centre. This study sought to evaluate the functionality of the interpretive products at the Bird Interpretive Centre, Fraser's Hill. Exhibits evaluated include interpretive boards regarding birds and birdwatching. An assessment form was used to qualitatively analyse the interpretive elements in the centre. Findings indicate an effective use of theme along with the attractive design of the exhibits. However, minimum use of interpretive principles made the interpretive products lack in persuasive elements. There was no clear 'call for action' on the exhibits that could make visitors aware of the actions they should take after reading the contents. It is crucial to provide improvement for the interpretive products at this centre to ensure the interpretation objectives of the centre could be delivered to visitors.

Keywords: Non-personal interpretation, 'call for action', theme, interpretive contents.

1. INTRODUCTION

Interpretation is referred to as communication aimed at provoking visitors to let them know about the significance and meaning of their experience (Ham 2013). Effective interpretation could create opportunities to forge an emotional and intellectual connection between the visitors and the meaning associated with the place (Brochu & Merriman 2015). This connection is formed through effective messages delivered to visitors consistent with the objectives or 'call for action' intended by the management.

The interpretive centre is one of the places that is operated to deliver such messages to visitors. This centre utilized non-personal communication which includes static products such as exhibits, labels, panels, signage, and other interactive media. These interpretive products are found to positively influence visitors' satisfaction, experience and their behavioural intention (Stern & Powell 2013; Mayorga et al. 2017; Price et al. 2018). They served as management tools to develop visitors' understanding and support the management of the resources (Knudson et al. 2003).

"Good labels can attract, communicate, inspire, and help visitors get what they are seeking" (Serrell 2015, p. 65). Thus, a functional interpretation shouldhave a good theme, design and message contents based on the objectives intended by the management. The provocative theme is proven to be effective in attracting visitors' attention and developing an emotional connection with them (Beck & Cable 2011;



Morgan & Hwang 2014). Meanwhile, the use of interpretive graphic increased visitors' time spent reading the exhibit compared to less interpretive exhibit with less attractive graphic design (Price et al. 2018). The exhibit needs to be correct, compelling, educational and respectful to visitors and resources as they usually served as the only "communicator" a person can encounter during his/her visit at the interpretive centre (Fogelberg 2014).

Despite its crucial roles in enhancing visitors' experience and its beneficial value to resources, many interpretive centres are still struggling to maintain their operation due to their dependency to public support and funds (Barrett et al. 2017). Bird Interpretive Center, Fraser's Hill is operated generally to provide information regarding Fraser's Hill and the birds available there. Due to some internal problems, there is no staff appointed by the management to manageand help visitors who come to the centre. The centre is also only accessible if visitors request to visit the centre from the Puncak Inn staff. Difficult access to the interpretative products at the centre hinder the opportunity for visitors to experience the connection with the place. This makes it difficult to convey to visitors the 'call for action' of the interpretive products available at the centre. Thus, it hampered the effort to influence visitors' emotion and modify their behaviours towards the management objectives.

Interpretation is important to let people understand and appreciate the information they get and thus answering the 'call for action' intended by the management. The objectives of this paper are:(i) to identify the theme and 'call for action' of interpretive products and (ii) to assess the contents and design of the products in order to determine whether the exhibits are functional in conveying the 'call for action' of the centre.

2. METHODOLOGY

2.1 Study Site

Located at Fraser's Hill, Pahang the Bird Interpretive Center was founded to promote sustainability practices through conservation and protection of birds, other wildlife and natural resources in Fraser's Hill. The interpretive products available are primarily related to birds and birdwatching activity which are displayed in the form of panels, replicas, and interactive media. The centre also displayed information regarding places to visit at Fraser's Hill, activities that tourists can do here as well as endemic species of flora and fauna available.

Identified as the Important Bird Area [IBA-MY09] (Birdlife International 2019), Fraser's Hill has more than 250 species of wild birds and migratory birds that come from as far as Siberia (Tourism Pahang 2018). The diverse species of birds make this region as a popular hub for birdwatching activity. In an attempt to promote Fraser's Hill as a bird sanctuary, Tourism Pahang and Frasers Hill Development Corporation offer opportunity for birdwatching activity from local and international birdwatchers to participate in the annual International Bird Race which is a competition that requires participants to spot and record birds species at this area (Tourism Pahang 2018).

2.2 Data Collection

Interpretive exhibits assessment was conducted from 19 to 21 February 2017. The evaluation form was specifically designed for this study to assess exhibits materials inside the Bird Interpretive Centre which feature various sizes of interpretive boards. The elements in the evaluation form include the 'call for action' of the exhibits, their themes, legibility of text, content structure, colour and contrast as well



as illustration. The observation was conducted for the inventory of the products and items available in the centre that are related to birds and birdwatching. Each item and area were observed, and pictures were taken for the record to help in the analysis process.

2.3 Data Analysis

The process involved qualitative analysis of all the data recorded in the evaluation form (Appendix A). Interpretive exhibits materials regarding birds and birdwatching were assessed and analysed based on the data collected from the evaluation form.

2.3.1 Identification of the Themes and 'Call for Action' of Interpretive Products

The exhibits were determined whether they have clear 'call for action' that is consistent with the objective of the centre. Each exhibit was also analysed in term of its ability to provide a theme that could represent the whole idea of the messages in the interpretive exhibits.

2.3.2 Assessment of the Legibility of Text

Legibility of text was assessed by appropriate typeface, cases, simplicity of sentences, message layering and reading ease of exhibits. The reading ease was tested using the Flesch Reading Ease. This test provided data regarding the exhibit's scripts readability based on their sentence length and word complexity. Flesch Reading Ease = 206.835 - (1.015 x Average Sentence Length) - (84.6 x Average Syllables Word). The scripts were run through an established online readability accessor, Readable. io.The score indexes were ranged from 0 to 100, with 100 being the easiest to read.

2.3.3 Assessment of the Interpretive Design Principles

The use of colour-coded heading, contrast text and background, the appropriate image with enough whitespace around illustration and text were also analysed to determine whether all the exhibits evaluated comply the design principles of the interpretive exhibits. Other general problems were also analysed with the suggestions for the improvement of the exhibits.

3. RESULT AND DISCUSSION

Results of the study are presented according to the analysis of the themes, 'call for action' and design principles for seven interpretive exhibits related to birds and birdwatching.

3.1 Products at the Bird Interpretive Centre

The Bird Interpretive Centre consists of several types of exhibits. The products include interpretive boards, birds' replicas, interactive media, additional sections, collections, lab apparatus, specimens and 3D models. Consistent with the name of the centre, this study will focus on seven exhibits related to birds and birdwatching (Table 1).



Table 1: Interpretive Exhibits

B1- About Birds

B2- Why Bird Can Fly

B3 - Outer Anatomy, Digestives System, Respiratory System, Human and Bird

B4 - Type of Feet

B5 - Sounds of Birds

B6 - Making your Birdwatching Successful

B7- Replica of bird- Silver-eared Mesia

3.2 Analysis of the Theme, 'Call for Action' and Design Principles of Interpretive Exhibits

The criteria used for the analysis for each interpretive exhibits include the theme, behavioural objective ('call for action') and design principles (legibility of text, contents structure, colour and contrast, illustration) of each of the exhibits. The results of the evaluation are summarised in Table 2.

Table 2: Analysis of Interpretive Exhibits

Categories	Interpretive Elements	Interpretive Exhibits						
	•	B1	B2	В3	B4	B5	B6	B7
Theme	Theme	/	/		/	/	/	/
Objective	Behavioural ('call for action')	/					/	/
Legibility of	Appropriate typeface	/	/	/	/	/	/	/
Text	Appropriate cases	/	/	/	/	/	/	/
	Familiar words	/			/		/	/
	Short sentence		/		/	/		
	Minimum repetition	/	/	/	/	/	/	/
	Readability score	51.0	84.3	60.2	81.7	70.1	62.6	57.0
Content	Message layering	/		/			/	/
Structure	Chunked paragraph	/	/	/	/	/	/	/
Colour and	Colour-coded heading	/					/	/
Contrast	Contrast text and background	,	/	/	/	/	,	,
	Colourful image	/	/	/	/	/	/	/
Illustration	Enough whitespace		/					/
	Simple illustration	/	/		/	/	/	/

Note: Readability score based on the Flesch Reading Ease: 0-30=Very difficult; 30-50=Difficult; 50-60=Fairly difficult; 60-70=Standard; 70-80=Fairly Easy; 80-90=Easy; 90-100=Very Easy



3.2.1 About Birds (B1)

The analysis of interpretive panel regarding birds is for the display entitled 'About Birds' as in Figure 1. The display is divided into seven sub-topic which include 'Birds of Fraser's Hill', 'Migratory Birds', 'Finding Way Back', 'V Formation', 'The History of Birdwatching', 'Fraser's Hill International Bird Race', and 'Why are Birds Important to us'.

Theme

This board provided interesting facts about birds in general and activities related to birds in Fraser's Hill.

Behavioural Objective ('Call for Action')

On the subtopic of 'Fraser's Hill International Bird Race', the exhibit explained about birdwatching activity, specifically bird race in a way that can be understood by people who never participated in this activity. The 'call for action' for this board indirectly asked people to join birdwatching in Fraser's Hill by revealing species of birds in Fraser's Hill, the International Bird Race event and promoting Fraser's Hill as the best spot for birdwatching.



Figure 1. Interpretive board entitled 'About Birds'

Another 'call for action' in this board wasabout the conservation of birds on the last sub-topic, 'Why are Birds Important to us'. The revelation of the importance of birds to human will make visitors feel the needs to protect birds. However, therewas no concrete 'call for action' for which conservation activity readers can participate. For example, adding a website or contact number for donation activitycould give a clearer idea on what visitors need to do after reading the board.

Interpretive Design Elements

The title had an attractive design that can attract visitors. The use of sans-serif typeface in this display is appropriate as it is preferable in interpretation displays because it is easier and faster to read (Gross et al. 2006). Overall, this display used long sentences to tell the information on birds and birdwatching (reading ease: 51.4). This is obvious especially on the subtopic of 'The History of Birdwatching', 'Fraser's Hill International Bird Race' and 'Why are Birds Important to Us'. All three of these subsections should only pick important points and put more pictures related to the text.

Message layering showed clear title, subheading and text. The graphic design of the heading was attractive with the yellow and blue colour title. Black text and sky-blue background produced an adequate contrast that makes the display easier to read. However, the use of white text for the English text did not give the highest contrast with the background; nevertheless, it was still readable for visitors.





Figure 2. Interpretive Board on 'V Formation'

Even though the attractive design of the title will capture visitors' attention at first, the display was not able to make visitors reading the messages until the end. This is especially true for the sub-topic of 'The History of Birdwatching', 'Fraser's Hill International Bird Race', and 'Why are Birds Important to us' due to the use of long sentences. Visitors will tend to focus on "V Formation" that has an attractive design, relevant illustration and short sentences (Figure 2).

3.2.2 Why Bird can Fly? (B2)

Following is the analysis for the interpretive panel entitled 'How Birds Fly' as in Figure 3.



Figure 3. Interpretive Board entitled 'Why Bird Can Fly'



Theme

The display focus on the educational theme about the anatomy of birds that help them to fly.

Behavioural Objective ('Call for Action')

There was no clear 'call for action' for this board. The display only had an educational objective to provide new knowledge of birds' anatomy to visitors.

Interpretive Design Elements

The questioning approach in the title could attract visitors to read the interpretive board. Due to the use of scientific-themed display, there were scientific terms used on the labelling like "sternum" and "humerus". Its purpose was to tell visitors about each part of the birds that help them to fly. Despite that, the overall contents were easy to read (reading ease: 84.3) because of the use of labelling instead of long sentences.

The display only applied the message layering on its title and labels. It should provide an introduction on top of the labelled picture so that visitors could get the main idea of the display before they read further on each of the labels.

Overall, the display was able to hold visitors' attention to look onitdue to the presence of the striking picture of a bird. The illustration was attractive with a detail of anatomy that helps visitors to understand the display even without reading all the specific labels in detail. The high contrast of black text, brown picture and white background also make the display easier to read. Replacing scientific words with more familiar words would ensure them to read every single detail of the displays

3.2.3 Outer Anatomy, The Digestive System, Respiratory System, Human and Bird (B3)

Following is the analysis of the panel regarding birds' anatomy, digestive system, respiratory system and the comparison of human's brain and birds' brain as shown in Figure 4.





Figure 4. Interpretive Board on Bird's Anatomy

Theme

The display did not have a clear theme. It combined different topics of the outer anatomy of birds with other scientific information of the digestive system, respiratory system and bird's brain into one board.

Behavioural Objective ('Call for Action')

There was no 'call for action' for this display. The only objective was to expose to visitors about scientific information regarding the bird's anatomy and system.

Interpretive Design Elements

This board did not have a main title and only use sub headings in each topic. The reading was on the standard range of 60.2. This might be due to the use of long sentences for the introduction. Splitting the sentence into smaller sentences will help in making the reading easier.

There were also unfamiliar terms such as 'cerebellum'. It should limit the use of scientific terms or explain the term used. The best display would be the display that is understandable by 10-12 years old children (Serrell 2015). The use of familiar terms is important so that the display is understood by visitors of all ages.

Message layering in this board was utilised through the topic title, introduction and details of the label. The introduction provided the main idea of each of the topic.

"Compare with human, bird's brain was smaller than a human's brain, however, it was made to have a 'program' which can control simple activities like preening and feeding even migration."



The colourful and simple image makes the illustrations easier to understand. However, there was toomuch texton one board with minimum whitespace which make reading harder for visitors.

Given the nature of the display that tends to focus on the scientific parts of the birds, it will be hard to sustain visitors' interest to read especially on the "Digestive System" and the 'Respiratory System' subtopics. Meanwhile, simple introduction, direct illustration and comparison between human and bird's brain make the 'Human and Bird' subtopic interesting. Thus, visitors' attention would mainly be on the 'Outer Anatomy' and 'Human and Brain' subtopics that provided attractive and interesting illustrations that visitors could relate.

3.2.4 Types of Feet and Birds Track (B4)

Following is the analysis for the interpretive panel about 'Types of Feet' and 'Birds Track' as in Figure 5.

Theme

The panel provided information about different types of feet and the ways birds move.

Behavioural Objective ('Call for Action')

This panel focused mainly on the educational objective to give information about different types of birds' feet.



Figure 5. Interpretive Board on the 'Types of Feet' and 'Birds Track'

Interpretive Design Elements

There was no title heading available on the board. It should use a title such as, 'How Birds Walk?'. The questioning element in the proposed title could create attention towards the exhibit. All the types of birds' feet were explained with easy terms to ensure visitors understand the topic. The use of short sentences in each paragraph also makes the reading easier (reading ease:81.7).



The display followed the message layering of title, introduction and body of the text. Despite that, the use of excessive text makes it hard for visitors to read all the contents. This is especially true on the 'Type of Feet' topic. Attractive illustration of birds would be a better option rather than a long description of each of the feet types. Pictures help to visualize the information and make it more attractive and interesting. Other materials like a real footprint of bird could enhance other senses and allow children to be interested in knowing more about the topic.

On the contrary, the 'Bird Tracks' topic had a better distribution of the message layering. The simple introduction makes visitors interested in the topic. Pictures of bird tracks also play an important role in sustaining their attention to read the whole messages.

3.2.5 Sounds of Birds (B5)

Following is the analysis for the interpretive panel entitled 'Sounds of Birds' as in Figure 6.

Theme

The exhibit displayed scientific information about the anatomy of a part in birds that produce sound.

Behavioural Objective ('Call for Action')

There was only an educational objective to tell visitors about how birds produce sound.

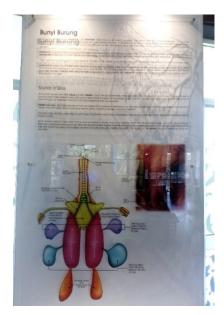


Figure 6. Interpretive Board on Bird's Anatomy

Interpretive Design Elements

This board used pictures to explain the scientific parts in birds' anatomy. The readability scale of 70.1 makes the reading of the display fairly easy. There was no message layering used except for the title and the body. The display only used black as the heading. This would make it ineffective to attract visitors because there was no attractive design or striking colour used for the title.



Overall, the display was not able to sustain visitors' attention read the whole contents. This is due to the lack of message layering on the board. The scientific approach of the display is also generally hard to understand. Developing an introduction with bigger fonts than the rest of the text could hold visitors' interest and make them curious about the rest of the contents. Include several pictures of birds with different sounds to make the contents more interesting and provoking. Use audio for all different sounds and get visitors to participate by pushing on the buttons to hear the sound.

3.2.6 Making Your Birdwatching Successful (B6)

Following is the analysis of interpretive panel about 'Making your Birdwatching Successful as in Figure 7. The display is divided into three subtopics which are tips for visitors to perform on birdwatching, the ethic that visitors must follow in birdwatching and the safety measure for birdwatching.



Figure 7. Interpretive board on 'Making Your Birdwatching Successful'

Theme

The primary theme for this display was the dos and don'ts before and while performing birdwatching activity for beginners or those who are interested in birdwatching.

Behavioural Objective ('Call for Action')

The 'call for action' for this display was for visitors to perform this activity according to the tips given to derive the best from birdwatching.

"Look for fruiting figs at the forest edge or in the forest as these will be exploited by a variety of frugivorous birds, allowing good opportunities to observe them."

The display also asked visitors to follow the code ethics in birdwatching by explaining the effects of birdwatcher's action on birds.



"When observing bird nest building, keep at a safe distance as disturbances may cause some birds to desert."

The third sub-topic asked visitors to follow safety considerations before and while doing the activity.

"Walk closely to marked trails. If you need to wander away from trails, do not go too far."

Interpretive Design Elements

The display used the appropriate typeface and familiar words throughout the contents. However, the excessive use of text makes the reading rather hard despite the standard reading ease of 62.6. This probably happened due to the lack of whitespace that makes the display looks too crowded. The display should include only important point to shorten the contents. Use of pictures instead of words is also applicable to deliver messages and make it more interesting.

The use of a blue background and images make the design looks attractive. The yellow heading and black text on the contents make the highest contrast for the text. While white colour is acceptable to use for the subheading, the use of a more contrast colour like red will be more effective to increase memory recall of the message (Alyahya & Nasser 2019).

Due to the long and excessive text, this display could not hold visitors' attention to read the whole contents. Despite having a basic message layering, it lacks a strong introduction that could provoke and grab visitors' interest. The use of attractive pictures to deliver the messages instead of long text would also ensure visitors to read and connect with the whole contents of the display.

3.2.7 Replica of Bird: Silver-eared Mesia (R1)

Following is the analysis for the replica of Silver-eared Mesia as in Figure 8.



Figure 8. Replica of bird: Silver-eared Mesia

Theme

The exhibit provided informative description and replica of Silver-eared Mesia at Fraser's Hill.



Behavioural Objective ('Call for Action')

The contents such as voice, habitat and habits of the bird served as the 'call for action' as they let visitors know where and how to find the bird.

Interpretive Design Elements

The description of the bird on the display used the appropriate typeface, but the font was a bit small for visitors to read from afar. Despite enough whitespace available on the display, the reading ease of the exhibits was difficult (reading ease: 57.0). This probably happened due to the use of long sentences for the description of the bird on the board.

The attractiveness of the bird's replica and colourful, striking picture were the strongest elements for this exhibit. It could effectively attract visitors, especially children to view the replica and learn more about the bird by reading the whole descriptions of the bird. This will eventually make them interested to watch the bird themselves, and thus make the display successful in delivering the 'call for action' to visitors.

4. DISCUSSION

Authors developed the technical evaluation to test the functionality of non-personal interpretive exhibits which covered the guidelines to construct the behavioural objective (call for action), title, themes, text, colours andgraphics as well as the organization of theinterpretive messages (Ballantyne & Hughes 2003; Gross et al. 2006; Moscardo et al. 2007; Veverka 2013; Bitgood 2014).

All seven exhibits generally focus on the bird-themed exhibits. The importance for the identification of themes in this study is in line with the meta-analysis study of interpretation best practices which revealed the effectiveness of themes development of the messages in enhancing visitors' satisfaction, knowledge, attitude and intention (Skibins et al. 2012). One prominent study found that children who participated in the thematic interpretive programshown a greater ability to identify themes, and recalls the messages compared to children who participated in the non-thematic program (Tarlton & Ward 2006).

The interpretive centre should have a clear goal for the whole centre and objectives for each of its exhibits. The exhibits in this centre clearly focused on the educational objectives while neglecting the significance of the behavioural objectives or 'call for action' in its interpretive exhibits. Similar findings at the Dillon Nature Centre, Hutchinson, Kansas also reported on the emphasis of learning outcomes in its interpretive products (Mayorga et al. 2017). Educational outcomes might not be enough in impacting visitors to reflect on the importance of natural resource in their lives (Sandberg & Ham 2015). In this case, emotional objectives and clear 'call for action' could help to add more opportunities for visitors to engage emotionally and enhance their intention to act according to interpretive objectives of the exhibits.

In general, all exhibits evaluated complied to the design principles of the illustration and colours used for the text and background. Effective use of illustration and graphics could increase visitors' time spent looking at the exhibits (Price et al. 2018). Use of pictures also triggered visitors' emotional response (Walters et al. 2012). Major problems of the exhibits evaluated are the excessive use of text with minimum whitespace. Crowded display requires readers to spent more time to process the message, and thus decrease their time spent on the exhibit (Dobres et al. 2018). The excessive text is associated with the fact that these exhibits use information-based messages rather than interpretive-



based messages on the exhibits. Indeed, information-based panels are also used extensively in natural areas to provide general information to users (Martin et al. 2015), yet only interpretive exhibits could provoke visitors' emotion and thoughts and influence their behaviour (Ballantyne et al. 2011; Skibins et al. 2019).

5. CONCLUSION

The study indicated that the bird-related exhibits mainly focused on the educational objective with limited behavioural objective or 'call for action'. Despite that, each of the exhibits had a theme of its own that was effective in delivering the main idea of the exhibit. Generally, the designs of the exhibits were attractive with appropriate use of illustration. However, most of the interpretive boards showed too much text and contents with minimum use of message layering. They were not able to sustain visitors' attention to read the whole contentsof each of the exhibit. This will hinder the function of interpretive boards as mediums to persuasively communicate and conveying the 'call for action' to visitors. The result of this study could be used by the management of the Bird Interpretive Centre to improve the function of all exhibits in this centre. It is crucial to set clear 'call for action' on each exhibit to persuade visitors to get involved in birds' conservation activities, participating in birdwatching and help in reducing the impact while doing the activity. In an effort to change visitors' behaviour, the contents of the interpretive boards need to be simple, direct and clear so that visitors could understand the message conveyed. This study only provides a one-way assessment from the researcher; thus, it might not directly translate into the effectiveness of this exhibits in visitors' perspective. Further study involving visitors is necessary to provide empirical evidenceon the effectiveness of the interpretive exhibits in delivering visitors 'call for action' of the exhibits and influencing their behaviour according to the objectives targeted by the centre.

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SECTION 2: CONSERVATION, EDUCATION AND LOCAL COMMUNITY



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APPENDIX

EXHIBITS EVALUATION FORM

EXHIBIT:

Interpretive Elements	Yes	Remarks	No	Improvement
A. Theme				
B. Behavioral objective ('call for action')				
C. Legibility of Text				
Appropriate typeface				
Appropriate use of cases				
Familiar words				
Simple, short sentence				
Minimum repetition				
Readability score				
D. Content structure				
Message layering				
Chunked paragraph				
E. Colour and contrast				
Colour-coded heading				
Contrast text and background				
Colourful image				
F. Illustration				
Enough whitespace around illustration and text				
Simple, direct illustration				



ECOTOURISM PROMOTES CONSERVATION ACTIVITY AT TOURISM DESTINATIONS

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ABSTRACT

Ecotourism has been the most important alternative form of tourism for more than three decades. Today, it is an important economic activity in natural areas, including localities with limited resources. Ecotourism can be used as tool to promote conservation activities at a tourism destination, as ecotourists might be expected to be more responsible towards the environment than other types of tourists. A case study approach is used to gather data on the applicability of using ecotourism as a tool for conservation activities in Penarak, Langkawi. Field trip studies were conducted to (i)examine geographically connected resources at Langkawi limestone forest tourist destinations, and (ii) undertake in-person interviews to elicit stakeholders' and visitors' views on ecotourism, conservation and protection of the specific limestone forest areas studied. These interviews were undertaken with ten visitors from multiple backgrounds after they had visited the Langkawi limestone forests. They indicated that through the handson experience, ecotourism promotes conservation and protection of the limestone forest. All respondents agreed that the Penarak area should be open to the public, especially for awareness, education and research purposes related to limestone forest formation. However, they suggested strict rules and regulations should be imposed on all visitors. This study adds on to the existing knowledge regarding how ecotourism can promote conservation activity at a tourism destination, which can be used to support development of a sustainable tourism destination and provide guidelines for future research.

Keywords: Ecotourism, conservation, limestone forest, Langkawi

1. INTRODUCTION

Ecotourism, first coined as a term by Romeril (1985), has been the most important niche tourism market or alternative form of the tourism industry for more than three decades. Today, it is an important economic activity in natural areas (Drumm et al. 2004) including localities with limited resources. One of the most quoted ecotourism definitions in the literature is that of Ceballos-Lascurain (1987:14; 1991). He stated that ecotourism is, ".....travelling to relatively undisturbed or uncontaminated natural areas with specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestation (both past and present) found in these areas". This definition demonstrates that ecotourism refers to activities that educate tourists about the local natural environment to provide maximum experience (Diamantis 1999). The term ecotourism, rather than the alternative synonymous terms, is used here in line with the Malaysian tourism industry and research community terminology.

According to the concept of ecotourism, the lesser the development at any one ecotourism destination, the higher the value of the destination to ecotourism tourists (Ceballos-Lascurain 1987). Accordingly, ecotourism practices should adhere to strict rules and regulations to provide more benefits for the environment and future generations. While ecotourism activists and operators may not always apply ecotourism principles and practices, instead undertaking activity which may harm the environment and natural resources (Valentine 1993), ecotourists might be expected to be more responsible towards



the environment than other types of tourist. The focus of this study is to investigate the benefits of ecotourism in promoting conservation activities at a tourism destination.

1.1 Ecotourism Development in Malaysia

The Malaysian government is very much committed to the concept of sustainable development in the tourism industry. At the 50th Pacific Asia Tourism Association (PATA) Conference in Kuala Lumpur, Malaysia endorsed five resolutions, including to adopt sustainable tourism and enhance ecotourism. Evidence of the government's intent is reflected in the establishment of parks and protected areas to support sustainable tourism development in the country. The Ministry of Tourism and Culture (MoTAC) has also taken steps to introduce tourism as a core subject in local universities, as well as teaching of the theme in schools. The National Ecotourism Plan, prepared by the then Ministry of Culture, Arts and Tourism in 1997, consists of 25 guidelines. These cover, among other aspects, categorizing sites and activities, carrying capacity and limits of acceptable change (LAC), marine parks and islands, national parks and reserves, mangroves, use of local accommodation, accreditation of ecotourism products and visitors' roles and responsibilities (MoTAC 2015). In 2017, MOTAC developed the National Ecotourism Plan 2016-2025, with a major focus on promoting sustainable development and conserving and protecting ecotourism sites in Malaysia, recognizing the significant role that ecotourism can play in conservation.

1.2 Ecotourism Promotes Conservation Activity at a Tourism Destination

Ecotourism activities can promote pro-environmental behavior towards natural areas (Ajuhariet al 2016) such as; enhancing conservation and protection of culture, forest, river and wildlife. Nowadays, natural areas need more conservation and protection due to the rapid development of natural areas happening all over the world. Many scholars agree that the ecotourism sector of the tourism industry is a mechanism which could be used to create awareness of, conserve and protect natural areas; Ibrahim and Isa (2018); Leung et al (2018) and MoTAC (2015) stated that tourists take part in ecotourism activity because it promotes environmentally-friendly and responsible tourism. However, as increasing interest in participating in ecotourism activities and programs may bring negative impacts to a tourism destination (WWF 2007), management bodies must introduce stricter rules and regulations, to maintain a sustainable tourism destination and environment. In addition, there has been concern about environmental damage due to the current levels of consumerism (Gatersleben et al. 2012). Since Langkawi is well known for its tourism activities, which provide important source of income for many of its residents, sustainable tourism development should be emphasized on the island. Tourism operators and stakeholders in Langkawi must follow ecotourism rules and regulations strictly to protect the island's environment. The Malaysian federal government agency Langkawi Development Authority (LADA)should play an active role as a leader in conserving and protecting Langkawi's culture, environment, and natural settings.

Most ecotourism activities and programs are held around natural areas (Valentine 1993). Some of these natural areas are located inside protected areas, such as reserved forests and United Nations Educational Scientific and Cultural Organization (UNESCO) Global Geoparks. Protected areas are a key component of global conservation strategy (Leung et al. 2018). In Malaysia, the Kilim Karst Geoforest Park, Langkawi (also known as Kilim Geopark) is one of the best-known limestone forests and is a UNESCO Global Geoparks site. Kilim Geopark covers an area of 100 square kilometers and attracts significant numbers of tourists. Unfortunately, many other limestone forests in Malaysia have not received public attention and their extinction has gone unnoticed (WWF 2016). Compared to rainforest or mangrove forest conservation and protection topics, limestone forests are the type of forest least likely to be mentioned anywhere in the literature (WWF 2016). Thus, it is timely to use ecotourism activities and programs to enhance conservation and protection of limestone forests. The nature of ecotourism practices and principles make this a suitable tool to promote conservation and protection of



the tourism destination (Boley & Green 2016). Therefore, the study was undertaken to provide guidelines on ecotourism activities and programs for conservation and protection purposes, supporting attainment of sustainable tourism development at a destination important to tourism stakeholders and the local community and decrease the substantial gap on this topic in the literature.

1.3 Aims and Objectives

Ecotourism has been steadily growing worldwide for more than a decade. It is an environmentally friendly form of tourism activity. Previous researchers agree that by applying ecotourism practices, the natural environment at the ecotourism destinations may have a longer life span and minimize environmental damage, particularly in protected and sensitive areas. Langkawi Island is a popular tourist spot in Malaysia, which has lost many of its forested areas to rapid tourism development; deforestation for tourism development in Langkawi has become the biggest threat to the local natural environment in recent years, including at limestone forest areas (WWF 2016). While most of the limestone forests belong to private owners on the island, they are often mined for marble. Hence, there is a need for the local community and tourism operators in Langkawi to adopt responsible tourism practices through ecotourism before more harm occurs on the island. Since most of the population on the island are heavily dependent on tourism as their main source of income, the ecotourism concept presents a workable solution to help conserve and protect the island's environment and nature whilst maintaining key income.

The research aim of this study is to investigate the role of ecotourism activities and programs in promoting the conservation and protection of the limestone forest at tourism destinations in Langkawi. This comprises two research questions:

RQ1:Do ecotourism activities and programs help to promote limestone forest conversation and protection in Langkawi?

RQ2:What types of ecotourism activities provide the highest impact on limestone forest conservation and protection in Langkawi?

A limitation to the study is that there are limited data about this topic in the literature and as such, existing data are difficult to obtain from reliable published resources. As a result, this study had to use data from all available resources, including personal communication with experts, locals, and some observations at the study area. Secondary data such as stakeholders newsletter and report were also used to enhance the data collection.

2. METHODOLOGY

2.1. Case Study Approach

As this is a novel topic, the area is relatively understudied and relevant data are thus poorly documented in the literature, a case study approach is used to answer the research questions (Yin 2003). The strength of the case study method is its ability to examine, in-depth, a "case" within its "real-life" context (Yin 2003:111-112; Isa et al. 2011). This study is among the first on limestone forests in Langkawi and through the case study approach, will contribute rich data set about this topic. Specific objectives were to (i) undertake field trips to conduct ecotourism activities and programs for selected participants, and (ii) undertake in-person interviews to elicit stakeholders' and visitors' views on ecotourism, conservation and protection of the specific limestone forest areas studied. Importantly, it is not the intention of this study to generalize the study findings.



2.2. Study Area

The first study area is located at Batu Ayam and Batu Orkid, situated next to each other in Penarak, Langkawi. It is about five minutes' boat ride from the Penarak jetty and approximately 5 kilometers from Kuah town. At present there is no accessible road to Batu Ayam and Batu Orkid. The site is approximately 13 hectares in area, with the highest peak at 400 meters above sea level. Limestone forest comprises the primary forest and has several water sources, mainly freshwater from a natural pond and saltwater from the two beaches. Local geology consists of limestone with some marble and granite, and sediments (Lee 2014). The whole area belongs to Penarak Nature Centre (PNC) Sdn. Bhd. and is not open to the public (refer figure 1). However, PNC plans to open a research and conservation centre at the limestone forest in the future. The second study area is the UNESCO Geopark located at Kilim, Langkawi, a popular ecotourism destination in Malaysia. As the first UNESCO Geopark in Southeast Asia this area attracts significant numbers of tourists from all over the world each year. The location of PNC area and UNESCO Geopark is close to each other only separated by the sea.

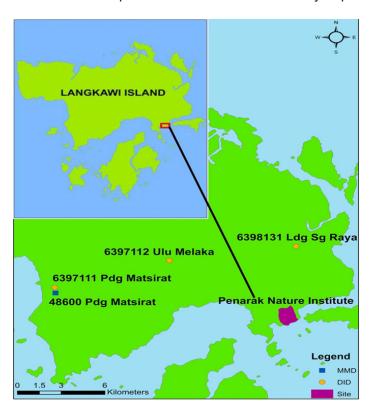


Figure 1. PNC Sdn. Bhd. Area and UNESCO Geopark, Kilim Located Scattered around the Sea Close to PNC Area.

Source: Google map 2020.

2.3. In-person Interviews

Expert testimony was first supplied by the General Manager at PNC Sdn. Bhd., who is the third author of this paper. In-person interviews were then conducted with two experts in fields related to the Malaysian forest. The first is an expert in the field of forest while the second is in the field of biology. Ten interviews relating to limestone forest awareness and conservation programs were also undertaken with selected visitors and participants, alongside twelve informal interviews with local residents. Interview data were coded using thematic analysis as appropriate for qualitative data (Boyatzis 1998; Sutton & Austin 2015) and are presented by identified themes to address the two research questions. Secondary data are also used to support the primary data.



3. RESULTS AND DISCUSSION

RQ1:Does ecotourism activities and programs help to promote limestone forest in Langkawi?

Since 2018, the research team has organized eight activities and programs on the limestone forest in Langkawi with the aim of creating awareness of their conservation and protection among the participants. This provision took place at Penarak and Kilim, and involved activities including; experts and nature guide talks, fieldwork and watching documentaries. Most participants were primary, secondary and university students, and people from the local community. Eight formal interviews and twelve informal interviews respondents were recruited randomly. All eight interviewees agreed that they are more aware about the existence and importance of limestone forests, particularly in Langkawi, since participating in the ecotourism activities and programs. Furthermore, they also want the limestone forest area to be protected.

PNC Sdn. Bhd. bought the limestone forest area in Penarak, Langkawi in 2014 solely for awareness and conservation purposes. During the stay of the General Manager of PNC Sdn. Bhd. on Langkawi for the past seven years, the island has developed at a rapid pace that has resulted in significant damage to the natural areas such as the beaches, hills and forests. As a foreigner, he had decided to migrate to Langkawi because of its beautiful environment, particularly its beaches and forest. Unfortunately, the current focus on development for mass tourism attractions on the island may cause greater harm to Langkawi's natural environment in the future. For example, at Kilim Geopark, a popular ecotourism site in Langkawi, where a jetty collapsed, and 12 visitors were injured (Bernama 2018). Local authority should impose LAC or carrying capacity because LAC or carrying capacity can minimize the probability of accidents and help to conserve and protect the environment.

Rather than a focus on duty free shops, island hopping and other mass tourism activities at Langkawi, the PNC Sdn. Bhd., General Manager aimed to have more awareness and conservation campaigns on the environment, particularly relating to limestone forest in Langkawi and Malaysia. Through his time at Penarak, he has learnt that limestone forest in Langkawi has its own uniqueness compared to other parts in Malaysia because it is closer to Thailand, but that not many people are aware of this fact. Promotion of ecotourism activities and programs are not sufficient to fully follow practices and principals of ecotourism. Campaigning to save the limestone forest in Langkawi has been limited.

The forestry expert interviewed also had similar views. He commented that "Langkawi is developing too fast, but I don't think the locals entirely understand the environmental damages from the rapid development of the island....". Nonetheless, he is not against tourism development and activities; he wants sustainable development or responsible tourism practices such as; ecotourism to be imposed on the island.

The expert from the biological field commented that "The awareness and conservation activities and programs organized for the students are really great. Coming from a pure science background we didn't realize that ecotourism can actually help to promote conservation and for this case it is the limestone forest conservation and plus it is fun..."

A report by WWF Malaysia (2016) stated that the limestone forest in Langkawi is facing extinction due to tourism development on the island. In addition, the construction of new buildings and development of areas, such as commercial accommodation, duty free shops and food and beverages outlets, have been a normal scenario in Langkawi for the last few years. Local and international companies are competing to invest billions of ringgit in Langkawi mostly for tourism-related businesses. While massive development creates job opportunities for the locals, longer-term the environmental impact may contribute significant damage to livelihoods on the island. For example, a private company has signed a



Memorandum of Understanding (MoU) with LADA to develop an ecotourism theme park and high-end resort in Langkawi (The Star 2013). The whole island is an ecotourism destination hence to develop an ecotourism theme park is not welcome by many environmental activists in Malaysia.

LADA as the main government agency that look after the development on the island are well placed to make environmental law clear to all tourism operators and local residents who want to work closely with them. They can make sure all tourism players abide by the rules and regulations imposed on them, particularly relating to violation of environmental law. Although, LADA has no authority to stop land owners and tourism operators from violating the environment because LADA is not the enforcement agency and is only responsible for the development of the island, many local residents in Langkawi believe LADA can play a major role in protecting the environment in Langkawi.



Figure 2. Limestone River Formation at PNC Sdn. Bhd. Area in Penarak, Langkawi. Source: Personal photo

From informal conversations conducted with twelve local residents in Langkawi, they had no clue why PNC Sdn. Bhd. is interested in the limestone hill and forest, if not for mining for marble (Figure 2). To them there is nothing interesting about the area and what PNC Sdn. Bhd, is doing now is useless, wasting money and time if the area is not to be developed for mining or other mass tourism activities. In addition, staff of PNC were interviewed, and they were aware of illegal trespassing and poaching of wildlife on their land and reported it to the Department of Wildlife and National Park (DWNP) Malaysia, Kedah branch. However, due to their staffing levels, it makes this problem difficult to prevent. Based from our phone interview with DWP staff at its Kedah branch, it was stated that they fully support any awareness and conservation program relating to wildlife and national park. Due to that, they have a few units looking after education, environmental recreation, training and wildlife because they feel that once the locals are aware of the importance of taking care of the environment, and rules and regulations, they will become more responsible in their behavior towards the environment.

RQ2: What types of ecotourism activities provide the highest impact on limestone forest conservation program in Langkawi?

The research team has organized eight ecotourism activities and programs for limestone forest awareness and conservation for different groups of tourists from Malaysia and Australia while LADA had sponsored free tour packages to the UNESCO Geopark in Kilim for the participants. After



participating in the activities and programs, ten participants were interviewed randomly in Langkawi to get their comments and opinion. The top three highest impact activities and programs chosen by the participants are as follows:

a. Guided Tour at Limestone Forest Areas with Experienced Tour Guide

Ten respondents interviewed agreed that a guided tour with an experienced tour guide helped them to have better understanding about limestone forests, particularly in Langkawi. Before the tour they had watched a video and lecture about the limestone forest in Langkawi, but felt that the guided tour with an experienced tour guide at the limestone forest area provided the highest impact. They felt closer to the limestone forest after the guided tour because they were able to have interactive sessions with the tour guide and firsthand experience of the areas. All respondents had more interest in learning about limestone forests after participating and want to join efforts in protecting them in the future. After the visit, they can see clearly the uniqueness of limestone forest and the importance of limestone forest for the environment and society. As one of the respondents commented "Now whenever I come across limestone forest articles or passed by limestone forest formations, I tend to read them with interest or try to find out more about the formation compared to before this". The experienced tour guide added more knowledge value for the respondents by using simple language that everyone can understand and relate to. All respondents agree that the uniqueness of limestone forest in Langkawi should be highlighted as an ecotourism product that needs to be protected through conservation activities and programs. They also suggested that the study area should be open to the public, especially for awareness, education, and research purposes in order to learn more about limestone forest formation, with stricter rules and regulations imposed to all visitors.

b. Limestone Awareness and Conservation Program

Awareness and conservation activities and programs which involved many agencies, students and staffs were the second highest impact conservation program chosen by the respondents. The respondents worked closely together in groups during the program, enabling them to engage with each other's cultures and overcoming cultural barriers as well as learning about the limestone forest. One of the Australian respondents said that "I have better understanding about Malaysians and Islam than when I joined this program. It changed my views about Islam and I am embarrassed how wrong I was about your religion before this......". Through their combined efforts, awareness of conservation and protection of limestone forests has been increased not only for Malaysian participants, but also for Australian participants.

c. Knowledge Sharing among Participants

The majority of the respondents felt that knowledge sharing among participants was useful, particularly if it was done using creative and innovative methods such as; sketches, building mockup models, role play and video presentations. They also responded positively to the organizer facilitating competitions during the activities and programs, as they developed their relationships to each other during competitions. The competition jury commented that "All of the participants were so creative and competitive with each other. We can see they put a lot of efforts in their work and want to win the competition....". Participants became more aware of other people's perspectives of limestone forests through such knowledge sharing. All these activities are considered as Edu tourism activities, an ecotourism subsector. Before the participants engaged in sketches, building mockup models, role play and video presentations they had to conduct research on limestone forests. As a result, they became more aware of limestone forests and their importance for the environment.



4. CONCLUSION

This study found that through ecotourism activities and programs help to promote conservation at tourism destinations. Participants have higher awareness and knowledge after taking part in ecotourism activities and programs. They also realized the importance of conservation and support the conservation and protection program to save limestone forest in Langkawi and should be expand to other parts of Malaysia. While participants from Australia want the program to be organized in Australia. Hence, this result has answered the first research question of this study. As for the second research question, this study found that the participants enjoyed a multidisciplinary activities and programs rather than single discipline activities and programs. Multidisciplinary studies should be promoted to get a better result which can bring greater benefits and understanding to everyone. Importantly, each participant gained significant experience from ecotourism activities for limestone forest conservation program which covered art, culture, science, and social science disciplines. This is the evidence shown from the top three highest impact of limestone forest conservation and protection activities chose by the respondents. Future researchers and tourism stakeholders should take this into consideration when they want to conduct studies or organize ecotourism activities and programs.

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COMMUNITY LEVEL OF KNOWLEDGE, ATTITUDE, AND PRACTICES TOWARDS ENVIRONMENTAL CONSERVATION AND PRESERVATION IN PENARAK, LANGKAWI

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ABSTRACT

Ecotourism is tourism based on nature and has great value for human consumption without sacrificing its original source. In general, ecotourism can increase awareness and protect natural resources from minimal or maximum damage. Ecotourism should have a low impact on the environment and should contribute to the well-being of the locals, with the hope that tourism will contribute to the preservation and conservation of nature. One of the important features of ecotourism is the involvement of the local community. Involvement of local communities is important because they are part of the definition of ecotourism. Local community must be part of the decision-making body through consultations by selecting and appointing local government agencies or by committees selected by the people. Without the support of the local community, success rates for any tourism product may be difficult to achieve. The main purpose of the study was to determine the level of knowledge, attitudes, and practices of the community in Penarak, Langkawi towards environmental conservation and preservation. Data was obtained using survey questionnaire. The results show that the level of community knowledge on environmental issues is high while attitudes towards conservation and preservation is moderate. Likewise, community's practices on environmental conservation and preservation is moderate. Through this study, it was found that community attitudes and practices towards environmental preservation and conservation still need to be improved to achieve better environmental cleanliness.

Keywords: Community, environmental conservation and preservation, Penarak, Langkawi.

1. INTRODUCTION

More than a decade ago, Langkawi was a remote island inhabited by mainly Malays, carrying out agriculture activities such as rice and rubber, and fishing. With the untapped natural resources in Langkawi, the Malaysian government realized the great potential the island has in the tourism industry. Rapid tourism development in the Langkawi Island began in 1987 when the island acquired the duty-free status. Today, Langkawi's image as a tourism destination is gaining popularity globally as the island has hosted many international events such as the Langkawi International Maritime and Aerospace Exhibition (LIMA), Le Tour de Langkawi bike race and Ironman Triathlon (Nur Idientee & Er 2019).

Since then, the Langkawi Island has also become one of the popular island destination for ecotourism as the number of travelers around the world have been increasing every year. With Langkawi having the first UNESCO Global Geopark in the Southeast Asia region, Tourism Malaysia has been actively promoting the island as an ecotourism destination. Ecotourism is a product that is expanding not only in Malaysia but also around the world in the past 30 years (Nur Idientee & Er 2019). Ross and Wall (1999) explained that ecotourism is an activity that protects the natural areas while providing economic development, nature education, and involvement of the local community. Ross and Wall (1999) also stated that ecotourism is a responsibility human has towards the environment; to enjoy and

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appreciate the experiences nature has to offer through fun experiences. Ecotourism activities has the basic function of having a low impact on the environment, provides education, and participation of the local community.

The International Ecotourism Society (TIES) (2006), stated that ecotourism is a collaboration of conservation, local communities, and sustainable tourism. So, anyone who is involved in ecotourism activities must adhere to the principles of ecotourism that has been set. The principles of ecotourism are as follows:

- a. it involves traveling to natural destinations. These destinations are usually located in rural areas and are generally domestic, overseas or private under some type of environmental protection;
- ecotourism seeks to minimize the adverse impacts of infrastructure development by using recycled materials, renewable energy, and architectural design that do not harm the environment;
- ecotourism means the education of nature that brings awareness to tourists and people
 of the surrounding community. Ecological reading materials such as nature conservation
 help educate the surrounding community, school children, and the general public;
- d. income generation through services, entrance fees, and voluntary donations help economic growth for nature protection;
- e. with the existence of conservation areas and tourism areas, the local community can generate income and gain benefits such as the building of roads, health clinics, waterways, among others.
- f. respect local culture. Ecotourism not only refers to greenery but also preserves the cultural and customary privacy of the local community;
- g. support human rights and democratic movements.

Community involvement plays an important part in the development of ecotourism sector because they are part of the ecotourism component. According to Anup (2016), there are three important areas in ecotourism: protection, economy, and community involvement. Local community must play an active role in these three areas for ecotourism development to become successful, gain long term economic and social benefits (Kiper 2013). On the other hand, protection means preserving and managing the natural and cultural resources in ecotourism destinations (Wang et al. 2014) and tourism economy in terms of the development of the economy of the people towards the destination of tourism (Anup 2016). Another study by Kiss (2004) stated that, ecotourism operators are in a way practicing cost savings measures to anyone investing in the protection of nature and resources. Besides, ecotourism operations provide opportunities for communities that are actively involved in ecotourism activities to ensure that they will gain the benefits in ecotourism-related ecotourism economics.

The development of an ecotourism area or destination should be supported from various parties, especially the local community. This is because ecotourism sector will not be able to stand alone without the support of others. The involvement of the community in the development is "a voluntary act of an individual to take on and assume social responsibility" (Tosun 2000). Unfortunately, the level of community involvement on the conservation and preservation of the environment is still minimal due to lack of knowledge, understanding and vulnerability to the issue (Atiqah et al. 2014). Although, one of Langkawi's main attraction is ecotourism but the local community still has low awareness on conservation and preservation issues (Azman et al. 2011). This includes the simple environmental issue of keeping one's place clean, especially in the coastal areas. In the tourism industry, cleanliness is a major issue and failing to address will decrease the number of visitors to the tourism area.



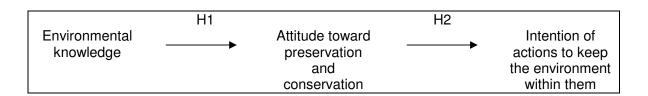


Figure 1. Theory of Environmentally Responsible Behavior (ERB)

Using the Theory of Environmentally Responsible Behavior (ERB) by Hines, Hungerford and Tomera (1987) as shown in Figure 1, the study seeks to answer the following research questions (RQ):

RQ1: Does the local community has positive attitude towards the conservation and preservation of the environment?

RQ2: Does positive attitudes towards conservation influence the community's practice to take care of the environment?

This model argues that the major factor affecting the ERB is the intention to start the action (Akintunde 2017).

2. METHODOLOGY

2.1. Study Site

The study uses the quantitative method to study the involvement of local community in the conservation and preservation of the environment at Penarak, Langkawi. It is located near the Kuah town. Penarak was chosen as the study site because of its proximity to Kuah Town which is the main entrance for visitors to the island by ferry and it is also a popular tourist spot.



Figure 2. The Location of Study Area at Penarak, Langkawi



2.2 Sample

Questionnaire was distributed to the local community who were purposively sampled since this is the best technique for the quantitative study. One of the advantages of this technique is that its effectiveness to study a certain cultural domain with knowledgeable experts within (Tangco 2007). Since this study involved local community from different backgrounds, including experts in many fields, the sampling technique is deemed suitable for the study.

2.3 Instrument

Questionnaires were distributed to the local community in the study area. The questionnaire was developed based on the guideline from the ERB model by Hines et al. (1987) and Akintunde (2017). The questionnaire were divided into four sections:

Section 1: Respondent's environmental knowledge,

Section 2: Respondent's environmental attitude,

Section 3: Respondent's intention to act

Section 4: Respondent's demographic information

The study uses a 5-point Likert scale to get the best and honest answer from the respondents. One of the advantages of Likert scale is that people are not forced to express an either-or opinion but rather it allows them to be neutral should they choose the option and this type of question is also easy to analyze (Cleave 2017). Both Bahasa Malaysia and English were used in the questionnaire as an option for respondents to choose which language they are most comfortable to answer. The Statistical Package for Social Science (SPSS) was used for the data analysis.

3. RESULTS AND DISCUSSION

This section presents the results and discussion of the data gathered. It is presented according to the four sections in the questionnaire.

3.1. Community Environment Knowledge

Table 1 shows local community's environmental knowledge. Three test items were used to measure the community's general knowledge on the environment, pollution and waste management, and recycling. Based on the results, the level of knowledge about the environment among respondents were high with a mean score of 4.16. Similarly, results on community's level of knowledge on pollution and waste management such as solid, liquid, and toxic waste was also high with a mean score of 4.20.

Table 1. Level of Environmental Knowledge

Environmental Knowledge	N	SD	Mean	Level
General Knowledge	40	0.47	4.16	High
Pollution and Waste Disposal Management	40	0.55	4.20	High
Recycle	40	0.56	3.88	Moderate
Average Mean			4.03	High



To test the community's knowledge of recycling, nine questions on the importance of recycling, the concept of recycling, and the types of recycling bins were asked. Results in Table 1 showed that the knowledge level of recycling was at a moderate level with a mean score of 3.88. Overall, the average mean for the community's level of knowledge is high at 4.03.

In summary, the local community has high knowledge on the environment, pollution, and waste management. This is a good sign since the location of Penarak is in Langkawi which is a popular ecotourism destination in the world. A study by Kollmuss and Agyeman (2002) of pro-environmental behavior showed that knowledge of the environment and its conservation plays an important role in determining patterns of behavior and attitudes toward the environment. The community in the area were also aware of pollution and waste management issues such as solid waste, liquid waste, and toxic waste. Majority of them were convinced that the source of the pollution was due to the failure of waste management and they believed that environmental pollution is increasingly critical. Briggs (2003) stated that, pollution is more serious when it affects the water drainage system which makes water quality unsafe and poor environmental cleanliness.

However, the results for recycling showed that the local community has moderate understanding on recycling. Recycling is the most basic and first step to any environmental conservation and preservation activities and programs. It plays a significant part in conservation and preservation of the environment. Recycling not only saves energy and it also reduces greenhouse gas emissions, which helps to tackle climate change (States of Jersey, 2010). Hence, although local community showed they have high general knowledge about the environment, pollution, and waste management but their understanding on recycling practices were still low. Perhaps long-term extensive campaign on recycling should be conducted in Langkawi because this practice has direct relationship towards environmental conservation and preservation.

3.2 Attitude towards Environmental Conservation and Preservation

Results in Table 2 showed that the level of community's attitude towards preservation and conservation was moderate at 3.51. This is worrying since the community's attitude on environment conservation and preservation was considered at a low level. The higher attitude is for statement "I really love my environment" with a mean score of 4.45. However, majority disagreed with the statement of "Taking care of the environment is very frustrating for me" with a mean score of 2.25.



Table 2. Level of Attitude toward Environmental Conservation and Preservation

Attitude	N	SD	Mean	Level
Taking care of the environment is very important to me.	40	0.69	4.30	High
I really love my environment.	40	0.64	4.45	High
I'm so willing to spend my time taking care of the environment.	40	0.75	4.05	High
I'm very willing to contribute my energy to the environment.	40	0.73	4.08	High
I'm very willing to contribute a little of my income to the environment.	40	0.85	3.72	Moderate
I truly believe I can contribute to a better environment.	40	0.68	4.05	High
I'm really willing to pay more to buy environmentally friendly products.	40	0.92	3.65	Moderate
I will notify very quickly to the nearest environmental organization or government agency in the event of environmental problems.	40	0.88	3.95	Moderate
I'm pretty sure the problem with taking care of the environment is the government's responsibility, not mine.	40	1.32	3.00	Moderate
Taking care of the environment is very frustrating for me.	40	1.13	2.25	Low
Taking care of the environment is not very important to me.	40	1.08	2.65	Low
I am very confident that what I do will not have a significant impact on the environment.	40	1.15	2.95	Low
I love the environment but I'm sure there is no time to practice related activities (like recycling, compost).	40	1.24	3.18	Moderate
I often wait for others to take action in the event of environmental pollution.	40	1.11	2.87	Low
Average mean			3.51	Moderate



The results showed that government agencies should take the lead to do environmental conservation and preservation in Langkawi. They can work closely with NGOs, private agencies and importantly get local community's involvement in the campaign. At this stage perhaps environmental awareness campaign is the best tool to be used for the local community to have good knowledge and understanding about taking care of the environment. The local community should know their role as a part of the tourism stakeholders in Langkawi and that they have a significant role to play in environmental conservation and protection too.

3.3. Community Practice in Environmental Preservation and Conservation

Results in Table 3 showed that the general practice among the community in Penarak, Langkawi was at moderate level with an average mean of 3.36. The most common practice among them was they never dumped their trash in the drain. This item recorded a mean score of 4.08. The environmental practice that has the lowest mean among the community in Penarak was bringing their own container when buying outside food, with a mean score of 2.83.

The results of this study showed that the local community needed more exposure and knowledge in enhancing their understanding as well as improving their environmental practices. Majority of respondents were still confused about the different types of recycling bins which are bins for paper, glass, plastic, and aluminum. Nonetheless, this result is not only happening in Penarak but in Malaysia as a whole. North and Halden (2013) highlighted that, the culture of recycling among Malaysians are still at an unsatisfactory level. The use of non-environmentally friendly materials such as plastic bottle and wrap is common. Hence, this is a national level problem rather than a district level problem.



Table 3. Level of Community Practice in Environmental Preservation and Conservation

Communitive Practice	N	SD	Mean	Level
I often practice the recycling process.	40	.816	3.50	Moderate
I often avoid getting plastic bags when shopping.	40	.853	3.13	Moderate
I always process the excess food for fertilizer.	40	.883	3.13	Moderate
I often avoid packing a lot when shopping.	40	.877	3.48	Moderate
I often choose home appliances that benefit the environment.	40	.810	3.60	Moderate
I will not throw oil, paint or chemicals into the sink or toilet.	40	.931	3.82	Moderate
I've never dumped trash in the drain.	40	.797	4.08	High
I often ride my bike or walk to minimize the use of motor vehicles.	40	1.000	2.98	Low
I find information on a number of topics particularly relevant to protecting the environment.	40	.864	3.15	Moderate
I regularly participate in programs related to the development of environmental issues (writing letters, attending meetings, etc.).	40	1.728	3.30	Moderate
I always bring my own container when buying food.	40	1.083	2.83	Low
Average mean			3.36	Moderate

3.4. Relationship between Level of Attitude Towards Environmental Preservation and Conservation and Level of Environmental Knowledge

According to results in Table 4, there was a significant relationship between the level of community environmental knowledge and the level of community attitude towards preservation and conservation of the environment with a p-value <0.05. This means that having environmental knowledge influences the community's attitude towards preservation and conservation of the environment to be positive. This positive attitude towards the preservation and conservation of the environment will determine the relationship between the practices and attitudes towards preservation and conservation of the environment that will be shown in Table 5. In a study by Kim et al. (2018), it states that the level of environmental knowledge tends to be more concerned with nature.



Table 4. Relationship between the Level of Attitude and Level of Environmental Knowledge towards Environmental Preservation and Conservation

		Unstandardiz	ed Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
	(Constant)	1.900	.562		3.382	.002
1	Knowledge	.399	.138	.424	2.885	.006

a. Dependent Variable: Level of Attitude toward Environmental Preservation and Conservation

3.5 Relationship between Level of Practice in Environmental Preservation and Conservation and Level of Community Attitude towards Environmental Preservation and Conservation

According to Table 5, the *p*-value is below 0.05. This indicates that there is a significant relationship between the level of community attitude towards preservation and conservation and the level of community practice on preservation and conservation. This demonstrates that community attitudes toward preservation and conservation of the environment influence the community's practice to continue practices in preserve and conserve the environment.

Table 5. Relationship between Level of Practice and Level of Attitude towards Environmental Preservation and Conservation

		Unstandardiz	zed Coefficients	Standardized Coefficients		
Mod	del	В	Std. Error	Beta	t	Sig.
1	(Constant)	.888	.655		1.355	.183
	Attitude	.705	.185	.525	3.802	.001

a. Dependent Variable: Level of Community Practice t in Environmental Preservation and Conservation

Results in Table 4 show that the community attitudes toward environmental knowledge issues are in positive but in moderate level. In this study, it shows that most communities feel that caring for the environment does not have any effect on the environment. This shows that community awareness on environmental conservation, particularly in Penarak, Langkawi, is still lacking despite various efforts have been made by the local authorities.

The results of this study also indicated that the local community is still relying on others, or programs involving the environment to take care of the environment. This is evident by the existence of volunteer programs like Trash Hero which act to collect all waste throughout Malaysia including Langkawi. During the Trash Hero program, volunteers carrying out garbage collection activities around Langkawi Island, especially around Kuah jetty area (Astro Awani 2019). The program received great respond from the public including local community.

However, based on research findings the community in this area is trying to help the environment by their willingness to spend their income and energy to the environment for preservation and conservation purpose. A few small interviews with one of the communities in the area were conducted. She expressed her desire to donate her income to buy recycling bins because there was no recycling bin provided by the government or district council. There are also communities that make their own recycling bins by separating bottles, glass, plastic, and paper. Also, there are efforts made by the



community to protect the environment by not dumping solid waste into drainage systems such as; rivers and drains. This indicates that they support the effort to conserve and preserve the environment of that area.

Overall results showed that, the level of public practice is still positive but at a moderate level. Results of this study shows that many respondents have never practiced recycling, process excess food for fertilizers, refrain from picking up plastic bags while shopping, reducing the use of motor vehicles such as motorcycles and cars, and bringing their own lunchbox when buying outside food. This may be because they are not exposed to practices of eco-friendly living to take care of the environment.

4. CONCLUSION

In conclusion, the attitudes, and practices of the community at Penarak, Langkawi towards conservation and preservation for the environment are still modest. It shows, high environmental knowledge cannot influence people's attitude towards conservation and preservation towards the environment. Good knowledge of the environment is not enough to influence community to take care of the environment. Hence, on-going education on environmental science is significantly important to create positive attitude and educate the public on practices in caring of the environment. Environmental programs help to disseminate environmental awareness and knowledge among the community especially in rural areas. Government agencies, public sector and NGOs must work together to help Malaysians to have a better understanding and adopt environmentally friendly lifestyle. In order to meet the demands of development, often the ecological destruction of natural resources was ignored including in the tourism industry. It is high time for tourism stakeholders to practice sustainable development and take part in promoting environment conservation and preservation at their destination. Because most of tourism products involved with nature, hence it is the responsibility of tourism players to instill good attitudes towards environmental conservation and preservation. Local community should also be encouraged to play their role in conservation and preservation of the environment. As one scholar said "Nature (and the environment) do not need us to survive but we need nature (and the environment) to survive..." (Karkim 2019).

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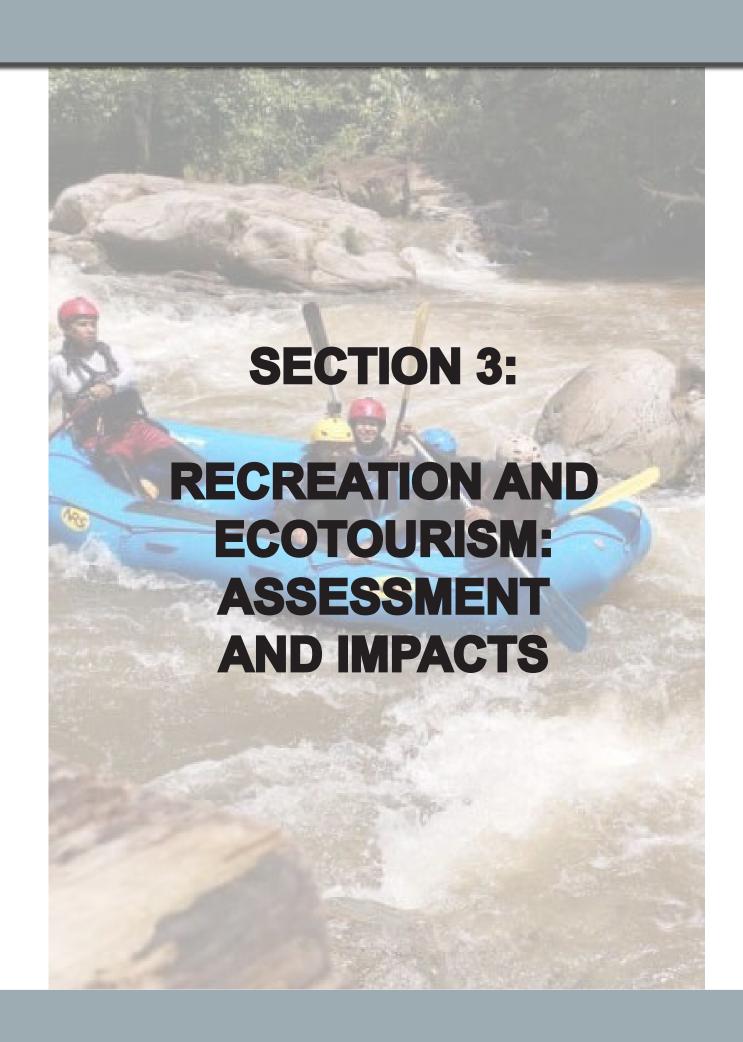
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SECTION 2: CONSERVATION, EDUCATION AND LOCAL COMMUNITY



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DIGITAL ELEVATION PROFILE AND CHARACTERIZATION OF MOUNTAIN TRAIL USING ONLINE APPLICATION

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ABSTRACT

Terrain analysis and elevation profiling is widely used in geomographical studies where spatial information system is one of the foremost tools in assessing characteristic patterns of hiking trails. This study highlights the application of spatial analysis using multiple online application to produce a digital elevation profile map of Mount Irau hiking trails. Seven online applications were tested in order to identify the most suitable application that can provide useful data in outdoor recreation and tourism-related activities. The main parameters were terrain characteristics which are elevation, slope, aspects, trail distance and time of ascent/descent which are important criteria for site suitability analysis and trail routes planning. The result suggested that Garmin BaseCamp and TopoFusion are the most effective applications to create digital terrain profile for the selected mountain trail. The interactive graph produced help researchers, trekkers, or trail planners to better visualize the trail condition.

Keywords: Digital elevation model, mountain trails; recreation planning, terrain analysis

1. INTRODUCTION

1.1 GIS-Based Terrain Analysis in Recreation

Parks and recreation managers rely on many tools to monitor and evaluate amenities provided on their lands. One of the relatively recent tools is the Geographic Information Systems (GIS), which allows manager to do inventory, monitor, analyze, plan, and communicate efficiently while saving time and resource. Parallel with the advance development of GIS system, developing countries still facing a conflict in ecosystem monitoring due to lack of fully developed infrastructure, as well as high costs of engineering work and major land use planning (Cardinali et al. 2002).

Consequently, the role of digital elevation data capture has been enhanced, reflecting recent developments in GIS Technology and the development of the Global Positioning System (GPS) for ground data survey. Terrain analysis and representations have built fundamental applications in environmental modelling, which have stimulated directly the development of new methods for obtaining digital environmental data (Hutchinson & Gallant 2000; Hill 2015).

Terrain characteristics and elevation profile provides important information about trail condition. The analysis on terrain suitability and accessibility in forested landscape were studied by many researchers focusing on different macro aspects (Giles 1998; Gessler 2000; Kraak 2005; Smith et al. 2011; Clius et al. 2012; Azita et al. 2014; Ming et al. 2020). Reasonable management of activities in mountainous forest area such as recreation and forest production are necessary for sustainable development of the sensitive mountain environment (Azita et al. 2019). There are two main tasks of park managers in the context of recreational use; (i) effectively manage existing recreational resources such as changing trails use according to demand, changing trails routes, rehabilitation of trails and facilities and (ii) develop alternative trails (Tomczyk 2011).



1.2 Spatial Analysis in Digital Elevation Profiling: Trending Software

Presently, there are various software introduced to derive a digital elevation profile. Among the most commonly used software for data transfer are MapSource (Garmin 1998), Easy GPS (TopoGrafix 1998) and Garmin Base Camp, (Garmin 2008). For data visualization, the most popular software is Google Earth (Keyhole.Inc. 2011), TopoFusion (Morris & Morris 2002), TrackReport (Track Report 2012), and GPS Visualizer (Schneider 2003).

The present study aims to provide a review of selected application to derive digital elevation profile as well as to delineate the important trail features. Seven online applications were tested in order to identify the most suitable application that can provide useful data in outdoor recreation and tourism-related activities. All selected application could be retrieved online. Detail information on distance, time/duration, slope, and elevation were considered

2. MATERIALS AND METHOD

2.1 Study Area

The study was conducted in Mount Irau, Cameron Highland. The study covers an area of 3km2 and is characterized by undulating terrain and geographically located on of Peninsular Malaysia. The elevation ranges between 1400m to 2100m above the sea level (Figure 1). There is currently one official hiking trail in Mount Irau which was develop by Cameron Highland Forestry Department. The trail with 2.35km distance is known as a popular hiking ground for visitors where the climb takes between three to four hours ascent to the summit. The trail starting point has elevation of 1975m up and ends at 2110m above the sea level (Figure 2).

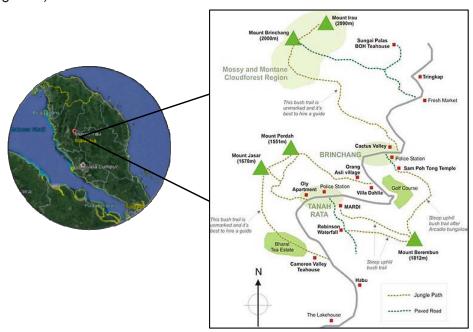


Figure 1. Location of the Hiking Trails Located in Cameron Highland, Malaysia (Map adapted from Cameron service 2015)



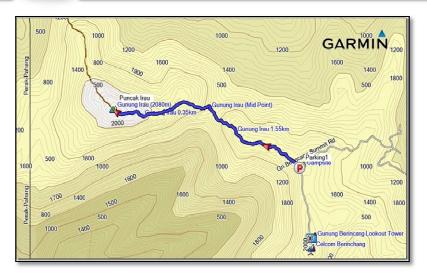


Figure 2. Layout of Mount Irau trail with the Distance of 2.35km

2.2 Research Framework and Data Acquirement

The figure shows the flowchart of research methodology that involves four phases (Figure 3). Further explanation on each phase will be described in the next section.

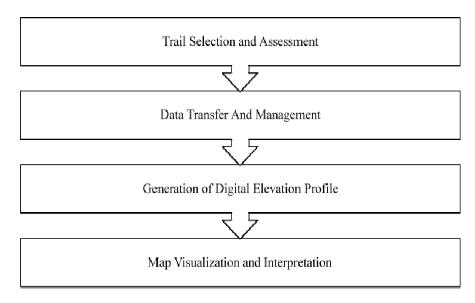


Figure 3. Flowchart of research methodology

2.3 Trail Selection and Assessment

Coordinates were recorded from the trailhead to Mount Irau Peak (Table 1). It is known as a popular hiking ground for visitors, the trail to conquer its summit begins where the Mossy Forest boardwalk ends, taking between three to four hours to complete a 2.35km climb. Points of coordinates were collected using a hand-held GPS during an expedition conducted on 4th to 7th February 2019. The handheld Garmin GPS 64S are capable to process and record the track on the GPS device. Topographic map and DEM at 10m resolution were derived from the Department of Survey and Mapping Malaysia (JUPEM).:



Table 1: Recorded Checkpoints in Mount Irau Trail

Checkpoints	Coordinate	Altitude (m)
1 (Start)	N 4°31.267' E 101°22.554'	1975 m
2	N 4°31.549' E 101°22.783'	1989 m
3	N 4°31.647' E 101°22.563'	1980 m
4	N 4°31.665' E 101°22.519'	1949 m
5	N 4°31.752' E 101°22.427'	1973 m
6	N 4°31.747' E 101°22.368'	1947 m
7	N 4°31.775' E 101°22.289'	2024 m
8	N 4°31.714' E 101°22.138'	2028 m
9	N 4°31.710' E 101°22.110'	2043 m
10	N 4°31.705' E 101°22.088'	2048 m
11	N 4°31.723' E 101°22.035'	2089 m
12 (Summit)	N 4°31.730' E 101°22.224'	2110 m
13	N 4°31.794' E 101°22.488'	1819 m
14	N 4°32.436' E 101°22.716'	1650 m
15	N 4°32.789' E 101°22.708'	1471 m
16	N 4°32.976' E 101°22.968'	1419 m
17 (End)	N 4°33.032' E 101°23.183'	1388 m

2.4 Data Transfer and Management

Seven online applications were selected for data transfer and management (Table 2). A suitable algorithm is required to capture, transfer and read data from mountainous and densely vegetated areas. The selection criteria include its effectiveness as revised by fellow mountaineers, trail managers, and researchers. Data transfer and database were built within the selected applications. Each waypoint on the track is defined by two geographical coordinates (latitude and longitude). Trail features and elevation profile were automatically generated.

Table 2: Software Tested in the Study

Application	Developer	Year published
BaseCamp	Garmin Ltd.	2008
Mapsource	Garmin Ltd.	1998
EasyGPS	TopoGrafix	1998
Google Earth	Keyhole, Inc.	2011
GPS Visualizer	Adam Schneider	2003
TrackReport	Gransy, S.R.0	2012
TopoFusion	Scott Morris, Alan Morris	2002



2.5 Generation of Digital Elevation Profile

Information on the trail features were generated by the seven applications. For comparison purpose, digital trail profile was created based on selected trail route. The checkpoint name for the trail route selected is as follows: CP SAR (Checkpoint Search and Rescue) – Peak 1640 – Permatang Camp – Sungai Icat (River) – Farm (Figure 4).



Figure 4. An Integration with Google Earth Contributes to the Generation of Interactive Elevation

Profile of Mount Irau

3. RESULTS AND DISCUSSIONS

3.1 Map Visualization and Interpretation

Table 3: Detail Information Derived from Each Application *Log data from Garmin BaseCamp were recorded as reference dataset

Application	Distance (km)	Total Ascent (m)	Total Descent (m)	Average Slope (%)	Elevation Min (m)	Elevation Max (m)	Elapsed Time
*BaseCamp	7.2	138	722	-8.1	1386	1995	10:32:19
MapSource	7.2	-	-	-	1385	1993	10:32:19
EasyGPS	7.28	165.5	748.1	-	1386	1994	10:32:19
Google Earth	6.02	125	702	5.6, -12.6	1392	1970	10:32:19
GPS Visualizer	7.14	127	709	-	1386	1995	10:32:19
TrackReport	7.17	316	899	-	-	-	10:32:19
TopoFusion	7.11	137	657	-5.8	1392	1994	10:32:19



Table 3 indicates the digital trail profile of Mount Irau, Cameron Highland generated by the seven applications used in this study. All stated information (elevation, distance, slope) are very useful for mountaineers, mountain guides or park manager for expedition arrangement or trail maintenance. TopoFusion is proven as an effective tool for trail profile generation and would be beneficial for hiking trail analysis. The elevation profiles displayed by TopoFusion assemble wide combination possibilities. For visual presentation of trail profile, six of the seven application tested show applicability to generate elevation or trail profile graph (Figure 5–10).



Figure 5. Elevation Profiles of Trail Displayed by Garmin BaseCamp

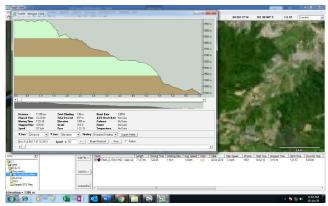


Figure 6. Elevation Profiles of Trail Displayed in TopoFusion

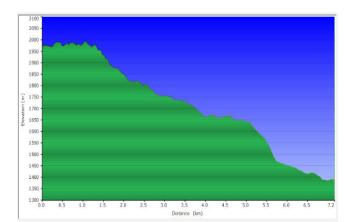
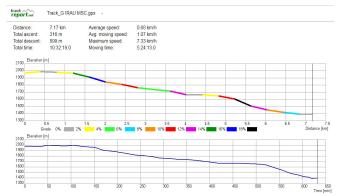


Figure 7. Elevation Profiles of Trail Displayed by MapSource



Figure 8. Elevation Profiles of Trail Displayed by Google Earth





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Figure 9. Elevation Profiles of Trail Displayed in TrackReport

Figure 10. Elevation Profiles of Trail Displayed by GPS Visualizer

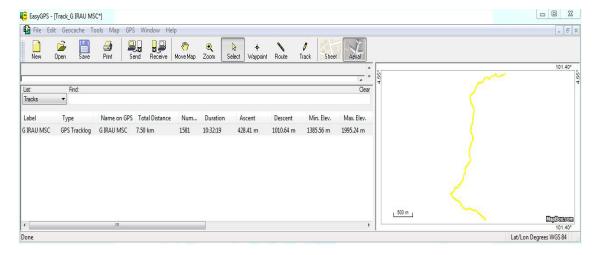


Figure 11. Elevation Profiles of Trails Displayed by EasyGPS

EasyGPS application shows limitation in providing information for elevation, which is the most important variable needed in trail assessment, but has the ability to record trail length, coordinate and time (Figure 11). Convergence of findings suggest that the applications can be categorized into four groups (Table 4).

Table 4: Information about Application Profile and Raw Data Generation

Resulted Profile	Application	Suitability
Simple profiles and summary data	MapSource	Beginner (Students, Mountain Hikers)
Simple profiles and complex raw data	Google Earth, EasyGPS	Beginner (Mountain Hikers Entrepreneurs)
Medium profile	GPS Visualizer TrackReport	Intermediate (Park Manager, Expedition Leaders)
Complex profiles and data	Garmin BaseCamp Topo Fusion	Advanced (Researcher, Rescue Team)



In this study, elements of both outdoor recreation and geo information sciences are integrated to set out a new GIS-supported recreation planning approach. Elevation profile provides important information about trail condition (Tirla et al. 2014). Analysis of data is based on the total of 113 coordinates obtained during the field works. The study showed that BaseCamp and TopoFusion successfully provide all information such as distance, total ascent, total descent, average slope, elevation, and hiking duration.

Both applications can effectively generate important information for further analysis of trail route planning (coordinate, elevation, slope, distance) and are most suitable for complex trail profiling by researcher or recreation practitioner. On the other hand, MapSource does not have the capability to generate total ascent, total descent, and slope, and TrackReport has limitation to provide information on slope and elevation.

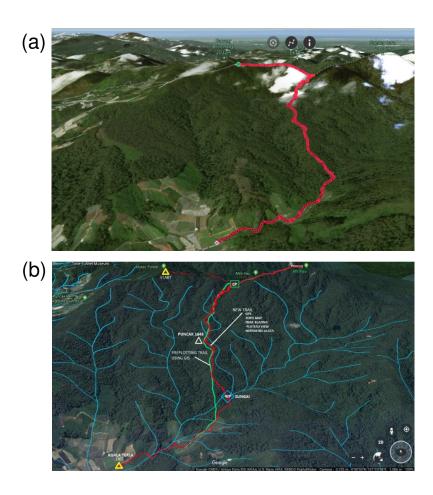


Figure 12. 3D Visualization of Elevation Profiles and Trail Displayed in Supporting Tools i.e. (a) Fat Map and (b) Google Earth

3.2 Precision of Results by Different Tools

The model constructed represent selected attributes of the real world (Aalders 1996). The precision of trail profile and terrain characteristics generated in this study might be influenced by different generation techniques and algorithms provided by various applications. Previous study stated that the quality of spatial analysis was influenced by model relevance, method of interactions (Burrough



& McDonnell 1998), as well as quality of data sources, interpolation algorithms, and the operator experience (Podobnikar 2009).

In this study, it is suggested that BaseCamp and TopoFusion showed higher precision than the other applications. Both BaseCamp and TopoFusion are able to produce elevation graph, store and visualize distance, total ascent, total descent, slope, as well as hiking duration. The tools are user friendly and have clear framework that will be useful not just for experience users but also to beginners and non-technology users. Both applications can effectively generate important information for further analysis of trail route planning and are most suitable for complex trail profiling by researcher or recreation practitioner.

The integration of generated interactive elevation profile and various satellite images (e.g., Google Earth) will be beneficial for mountaineers, researchers, and park managers, respectively (Figure 12). The graph produced help researchers, trekkers, or trail planners to better visualize the trail condition.

4. CONCLUSION

The study suggested that BaseCamp and TopoFusion are the most suitable software to produce digital elevation profile for Mount Irau trail. Integration of selected software and other environmental attributes offer a wide range of capabilities in delineating terrain features and mapping recreational trail. With regard to trail complexity, the method described above could be a basis for further comprehensive study especially in trail monitoring and assessment.

ACKNOWLEDGEMENTS

We would like to express our gratitude to *Jabatan Perhutanan Semenanjung Malaysia* (JPSM) for their cooperation during field assessment and *Jabatan Ukur dan Pemetaan Malaysia* (JUPEM) for the contribution of spatial data. Our gratitude also is extended to UPM Grant Scheme GP-IPS/2018/9663400 and GP-IPM/2017/9555200 for the financial support.

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ECOTOURISM IN MALAYSIA: CURRENT SCENARIO



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SECTION 3: RECREATION AND ECOTOURISM: ASSESSMENT AND IMPACTS



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SOIL MORPHOLOGY AND CLASSIFICATION IN AYER HITAM FOREST RESERVE

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ABSTRACT

Soil is the outermost layer of the earth's crust that has undergone weathering, it has a life of microorganisms and supports plant life. This study was held in the experimental forest of University Putra Malaysia, the Ayer Hitam Forest Reserve, Puchong, Selangor Darul Ehsan, Peninsular Malaysia. This objective the research is for investigate soil morphology and classification in Ayer Hitam Forest. Mapping of the area under investigation was carried out using conventional soil survey techniques with physiographic approach using maps with a scale of 1: 30,000. The results show that Ayer Hitam Forest Reserve have different soil morphologic between the 5 study sites and have similar soil order, the Ultisols soil. The soil in Ayer Hitam Forest Reserve is formed from highly weathered soil due to high rainfall in this location.

Keywords: Soil classification, soil morphology, pedology, forest soil

1. INTRODUCTION

Soil is one of the natural resources that has an important role in the ecosystem, including for plant growth, habitat for animals living in the soil, recycling systems for nutrients. water supply and filtering or purifying systems. According to Anda et al. (2008), in general, Malaysia is dominated by Ultisol and Oxisol soils. This study is undertaken in the experimental forest of University Putra Malaysia, the Ayer Hitam Forest Reserve, Puchong, Selangor Darul Ehsan, Peninsular Malaysia. However, it is undeniable that differences in topographic positions in the Ayer Hitam Forest would suggest different types of soil characteristics. Knowing soil characteristic and classification in the forest would be useful to identify management and land use priorities. The morphology in forest soils have been developed over a long time due to non-intensive management of forest soils. Damage to forest soil occurs when there is logging activity, fire or land use change. Some forest was used as productive land for example agro forestry and forest production. As with land-use in agriculture, intensive management on forest can also reduce soil productivity. Improper use of forest land would cause environmental or economic damage, so basic soil management data in forest areas is needed. However, soil at Ayer Hitam Forest Malaysia has never been observed. Moreover, the results of this study can provide information of the soil development and classification. This finding may provide a clue to help develop sustainable and ecofriendly systems for forest management in Ayer Hitam Forest Reserve.



2. MATERIAL AND METHOD

2.1 Study Area and Soil Sampling

The study was conducted in Ayer Hitam Forest Reserve, Puchong, Selangor. Mapping of the area under investigation was carried out by conventional soil survey techniques with physiographic approach using maps with a scale of 1: 30,000 (Figure 1), digging soil pit was excavated measuring 1m x 1m, with a profile depth of 180-200 cm. Soil color, texture, consistency, and structure (using finger) were immediately determined. Selected soil samples were subjected to mechanical analysis in the laboratory at Universiti Putra Malaysia, Serdang, for the determination of particle-size distribution.

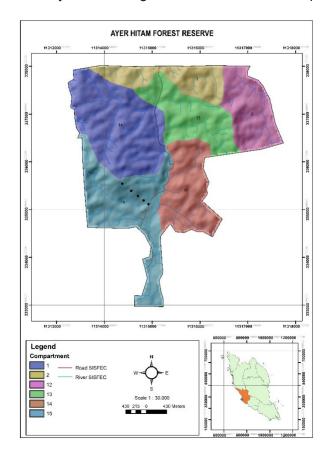


Figure 1. Research Location in Ayer Hitam Forest Reserve, Selangor Darul Ehsan, Malaysia

Based on the color, texture, structure and consistency it was concluded that the area under investigation has only one soil type. The pedogenetic horizons in the soil profile were identified and subsequently described, followed by collecting soil samples according to the genetic horizons as identified. Rayes (2006) suggested to observe the soil profile according to horizon boundary, horizon thickness, texture, structure, consistency, effective depth, type and number of pores, and other characteristics. On the other hand, physiographic criteria observed were a relief, slope, drainage, permeability, erosion rate and flooding, rocks, surface, irrigation system, natural vegetation, and other environmental conditions. Disturbed and undisturbed samples are brought to the laboratory in Universiti Putra Malaysia for preparation detailed soil analysis.



3. RESULTS AND DISCUSSION

3.1 Soil Morphological and Classification in Ayer Hitam Forest Reserve

The soils profile composed of 4 to 5 horizons with a depth of 150cm from the ground. The soil morphological and classification analyze are compiled below:

Pedon No. : P1

Classification : Typic Fragiudults

Location : Ayer Hitam, Selangor Darul Ehsan, Malaysia

Coordinate : E101° 39' 10,892" 3° 0' 42,632" N

Physiography: Top Elevation: 233 mdpl

Topography : hilly area with a slope rate of 45% Drainage : Very fast-good, *run off* medium

Erosion : Surface-Medium

Vegetation : Dipterocarp Forest

Note : Fragipan <100 cm

Parent Material : Methamorphic Granit

Soil Moisture Regime: Udic Epipedon : Umbric

Endopedon : Argilic & Fragipan Subgroups : Typic Fragiudults



(A) 0-10 cm Moist; brownish dark (10 YR 3/3) dry; (10 YR 6/2); sandy clay loam (Pipet

method); subangular blocky; medium, medium; friable, non plastic, non sticky;

roots less, medium; clear, wavy boundary.

(Bt1) 10-15 cm Moist; yellowish brown (10 YR 8/4), dry; yellowish brown (10 YR 8/2); sandy

clay; subangular blocky; medium, medium; firm, non plastic, non sticky; roots

less, medium; clear, wavy boundary.

(Bt2) 15-50 cm Moist; brownish brown (7,5 YR 7/6), dry; yellowish brown (10 YR 8/3); clay;

angular blocky; medium, strong; very firm, slighty plastic, sligthy sticky; roots

less, medium; diffuse, smooth boundary.

(2Btx2) 50 -110cm Moist; brownish brown (7,5 YR 6/6) Dry; yellowish brown (10 YR 8/2); clay;

angular blocky; medium, strong; extremely firm, plastic, sticky; diffuse, smooth

boundary





Pedon No. : P2

Classification : Typic Hapludults

Location : Ayer Hitam, Selangor Darul Ehsan, Malaysia

Coordinate : E101° 38' 50,870" 3° 0' 36,070" N

Physiography: Middle Upper slope

Elevation : 180 masl

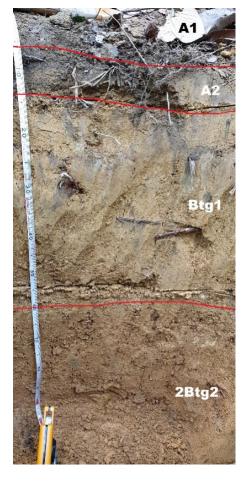
Topography : wavy plain with slope rate of 35% Drainage : Very fast-good, *run off* medium

Erosion : -

Vegetation : Dipterocarp forest
Note : RMF (Redoxion Morfic)
Parent Material : Methamorphic Granit

Soil Moisture Regime: Udic Epipedon : Umbric Endopedon : Argilic

Sub Grup : Typic Hapludults



(A1) 0-5cm Moist; dark brown (10 YR 5/2) dry; yellowish brown (10 YR 6/3);

silt clay loam; subangular blocky; fine, weak; friable, non-plasticnon sticky, loose; roots many, fine, medium, coarse; clear, diffuse

boundary

(A2) 5–15 cm Moist; brown yellowish (10 YR 6/2), dry; yellowish light brown (10

YR 8/4); silty loam; angular blocky; medium, medium; friable, non-plastic-non sticky, slightly hard; roots many-fines; gradual, smooth

boundary

(Btg1) 15-60cm Moist; yellowish brown (7,5 YR 7/8), dry; yellowish brown (10 YR

7/6); clay loam; angular blocky; medium, strong; firm, slightly plastic-

slightly sticky, slightly hard; roots less, coarse; diffuse, smooth

boundary.

(2Btg2) 60-150cm Moist; brownish brown (7,5 YR 4/6) Dry; yellowish light brown (10 YR

7/6); clay loam; angular blocky; medium, strong; firm, slightly plastic-

sticky, very hard; diffuse, smooth boundary

ECOTOURISM IN MALAYSIA: CURRENT SCENARIO



Pedon: P3

Classification : Plintic Fragiudults

Location : Ayer Hitam, Selangor Darul Ehsan, Malaysia

Coordinate : E101° 38' 21,949" 3° 0' 49,058" N

Physiography : Lower Middle Slope

Elevation : 125 mdpl

Topography : wavy plain with slope rate of 35%

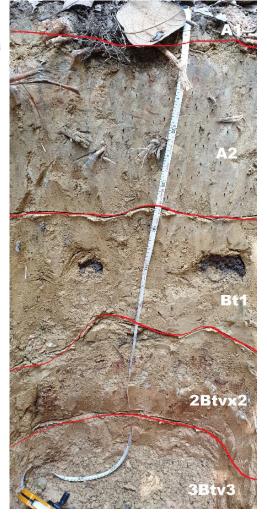
Drainage : very fast-good, run off fast

Erosion : -

Vegetation : Dipterocarp Forest
Note : Fragic & Plintite
Parent Material : Methamorphic Granit

Soil Moisture Regime: Udic Epipedon : Umbric

Endopedon : Fragipan & Plintite Sub Grup : Plintic Fragiudults



(A1) 0-5cm Moist; grayish brown (10 YR 5/4) dry; brown (10 YR 6/3); silty clay loam;

single grains; coarse, weak; very friable, non-plastic-non sticky, loose; roots

many, fine, medium, coarse; clear, smooth boundary

(A2) 5 – 35cm Moist; brown (10 YR 6/8), dry; light brown (10 YR 6/2); silty loam; subangular

blocky; medium, medium; friable, slightly plastic-slightly sticky, slightly hard;

roots medium-coarse; gradual, smooth boundary

(Bt1) 35-70cm Moist; yellowish brown (10 YR 8/6), dry; yellowish light brown (10 YR 8/4);

clay; angular blocky; medium, strong; friable, plastic- sticky, hard; roots less,

coarse; roots less-coarse; diffuse, smooth boundary.

(2Btvx2) 70-100cm Moist; brownish brown (7,5 YR 5/8) Dry; yellowish brown (10 YR 8/6); clay;

angular blocky; coarse, strong; firm, slightly plastic-sticky, very hard; diffuse, wavy boundary; plinthite redder (2.5 YR 4/4); Fragipan; yellow white (7.5 YR

7/0); firm, extremely hard; diffuse, wavy boundary

(3Btv3) 100-150cm Moist; brown redder (5 Y 5/6) dry; yellowish brown (10 YR 8/6); clay; angular

blocky; coarse, strong; firm, sticky-plastic, very hard; diffuse, wavy boundary;

plinthite; redder (2.5 4/4)





Pedon No. : P4

Classification : Typic Hapludults

Location : Ayer Hitam, Selangor Darul Ehsan, Malaysia

Coordinate : E101° 39' 10,892" 3° 0' 42,632" N

Physiography : Lower slope Elevation : 100 masl

Topography : Wavy plain area with a slope rate of 12%

Drainage : Very fast-good, run off fast

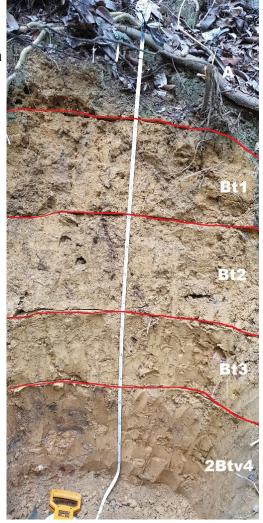
Erosion : Surface - light Vegetation : Dipterocarp forest

Note : -

Parent Material : Methamorphic Granit

Soil Moisture Regime: Udic Epipedon : Umbric Endopedon : Argilic

Subgroup : Typic Hapluduts



(A) 0-27 cm Moist; brown (10YR 5/4) dry; yellowish brown (10 YR 6/8); clay loam;

subangular blocky, fine, weak; moist; friable, non-plastic-non plastic, soft; roots

many-fines; gradual, wavy boundary.

(Bt1) 27-60 cm Moist; brown (10 YR 6/6) dry; yellowish brown (10 YR 7/6), sandy clay;

subangular blocky, fines, weak; moist; friable, slightly plastic-slightly sticky,

hard; roots medium, fines; diffuse, smooth boundary.

(Bt2) 60-95 cm Moist; light brown (10 YR 6/6) dry; yellowish brown (10 YR 8/6); sandy clay;

angular blocky, medium, medium; moist; firm, slightly plastic-slighty sticky,

hard; roots medium, medium; diffuse, smooth boundary.

(Bt3) 95-125cm Moist; brown (10 YR 6/8) dry; yellowish brown (10 YR 8/6), sandy clay; angular

blocky, medium, strong; moist; firm; slightly plastic-slightly sticky, hard; roots

medium, medium; diffuse, smooth boundary.

(2Btv4) 125-170cm Moist: brownish brown (7,5 YR 4/6) dry; yellowish brown (10 YR 8/6); clay;

angular blocky, fine, strong; moist; very firm, sticky-plastic, hard; diffuse, wavy

boundary; plinthite; redder (2.5 YR 4/4).

ECOTOURISM IN MALAYSIA: CURRENT SCENARIO



Pedon No. : P5

Classification : Typic Hapludults

Location : Ayer Hitam, Selangor Darul Ehsan, Malaysia

Coordinate : E101° 38' 45,325" 3° 1' 9,189" N

Physiography : Foot slope Elevation : 50 mdpl

Topography : wavy plain with slope rate of 9 %

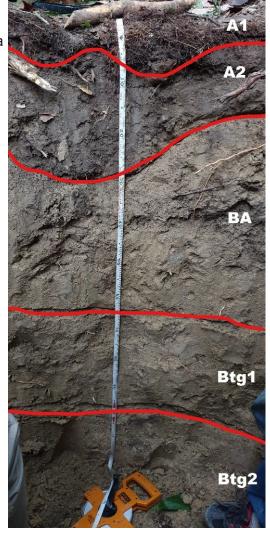
Drainage : very fast-good, run off fast

Erosion : -

Vegetation : Dipterocarp forest
Note : "g" (RMF: Redox Morfic)
Parent Material : Metamorphic Granit

Soil moisture regim: Udic Epipedon : Umbric Endopedon : Argillic

Subgroup : Typic Hapludults



(A1) 0-10 cm Moist; grayish black (10 YR 3/1) dry; greyish brown (10 YR 6/2); sandy loam;

single grains, coarse, weak; moist; very friable, non-sticky-non plastic, loose;

roots many, medium, fines, coarse; gradual, smooth boundary.

(A2) 10-30 cm Moist; brownish black (10 YR 3/2) dry; light brown (10 YR 7/3); sandy loam;

angular blocky; medium, weak; moist friable, non-sticky-non plastic, soft;

diffuse, smooth boundary.

(BA) 30-70 cm Moist; brown (10 YR 3/3) dry; yellowish light brown (10 YR 8/3); clay loam;

angular blocky, medium, strong; moist; firm, slightly sticky-slightly plastic,

slightly hard; roots many

(Btg1) 70-100cm Moist; yellowish brown (10 YR 7/6) dry; yellowish (10 YR 8/2), silty clay loam;

angular blocky, medium, strong; very firm, slightly sticky-slightly plastic, hard;

roots medium, medium; diffuse, smooth boundary. RMF (Redox Morfic)

(Btg2) 100-130cm Moist; pale yellow (10 YR 8/8) dry; yellowish (10 YR 8/2) clay; sub angular

blocky, medium, strong; very firm, sticky-plastic, hard; diffuse, smooth

boundary. RMF (Redox Morfic)



3.2 Comparison of Soil Morphological and Classification

The soil classification was identified using the Key Soil Taxonomy 2014. It showed differences between the 5 study sites. The soil in the Ayer Hitam Forest Reserve is formed from highly weathered soil due to high rainfall at this location. From the five soil profiles, clay content was identified by the Bt symbol. Clay content in the subsoil is obtained through the clay illuviation process. The symbol "t" indicates the presence of silicate clay in the soil, silicate clay soil formed due to the process of illuviation (Key Soil Taxonomy 2014) and defined as Argillic horizon. The illuvial horizon is presented in all sites. Generally, soil in the Ayer Hitam Forest Reserve is formed from granite metamorphic rock which is characterized by high sand content in the horizon A. This might be caused by the forest vegetation at the study site producing a lot of organic waste in horizon A. From the illuviation process, clay which is on the surface will move and accumulate to horizon B, that is influenced by high rainfall (Tessens & Shamsuddin 1983; Shamsuddin & Fauziah 2010). Criteria of argillic horizon and its illuviation process presented the major criteria of Ultisols order.

Morphological characteristics (color, texture, structure and consistency) of the soil at the 5 study sites at Ayer Hitam Forest Reserve have almost similar characteristics. According to the soil survey, the soil structure has developed, soil color occurs braunification (yellowish-brown to red-brownish) and soil has very sticky and plastic consistency. Several authors (Rachim et al. 1997; Isa et al. 2004; Prasetyo et al. 2006) have stated that Ultisol soils generally have a strongly developed soil structure that is medium to strong with angular block. According to Shamshuddin and Tessens (1983), the yellowish color in Ultisol soil contains the mineral Kaolinite. The morphology characteristic that is compiled with high soil consistency is in line with Tan et al (2014) research in Central Pahang and shows key characteristic of Ultisols.

On the other hand, each site has different characteristic depending on the slope. At P3 and P4, plintite were found at 100cm in depth. In the Table 3 and 4above, it is marked by the symbol "v" which means plinthite. Researchers (Eswaran et al., 1990; Beinroth et al., 1996; Soil Survey Staff, 2006; Eze et al., 2014) have stated that plinthite containing high Fe, in the form of minerals hematite and goethite, poorly crystallize oxide compounds and aluminum associated with other components. At P5 there were concretions of redox morphic feature (RMF) at 50cm to the lower depth. According to Soil Taxonomy (2014), the symbol "g" in naming the genetic horizon was added after B symbols. Concretions can occur in Podzolic soils where there are alternating dry and moist periods, favouring oxidation-reduction processes, and hydration and dehydration (Sanborn, 2011). Those special characteristics were showing major key criteria of Ultisols. As noted above, the efficient depth of this sites ranged up to 150cm, and suitable for forest reserve land use regionally.

Ultisol soils found in the five soil profiles of the Ayer Hitam Forest Reserve belongs to different subgroups of soil, where P1 has the Fragic Hapludults subgroup because it is found that there is fragipan in B horizon, fragipan and plinthite are also found in P3 so it is classified as Plinthic Fragiudults. Soil in locations P2, P4 and P5 are classified as Typic Hapludults because they do not have other identifiers such as P1 and P.

4. CONCLUSION

There are differences in the soil morphological characteristics and classification at the Ayer Hitam Forest Reserve in each soil profile, found at the different slope position. High clay content was found in all sub-soils due to the illuviation process. This was caused by the soil at the study site was formed by highly weathered process due to high rainfall and is classified as Ultisols.



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DEVELOPMENT OF HIKING PREPAREDNESS MODEL FOR MOUNTAINEERING ACTIVITIES IN MALAYSIA: AN OVERVIEW

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ABSTRACT

Over decades, the popularity of mountaineering activity in Malaysia has climb rapidly. This is because the activity attracts many people to get involve due to its benefits such as stress release, physical healthand mental toughness. However, despite the popularity there are negative implication such as the increasing number of incidents and accidents among hikers occurred on the popular hiking spots. According to the statistic of Fire and Rescue Department of Malaysia (JBPM), there were 105 accidents recorded in 2018. Surprisingly, this figure equals to 78% of the number of reported cases since 1996 to 2014. The main purpose of this concept paper is to show an overview of an idea to enhancing the preparedness among hikers in order to reduce the number of mountaineering incidents and accidents in Malaysia by developing a hiking preparedness model. The components and elements of this model was developed based on Malaysia's setting such as the hiking climate, weather condition, mountain terrain and literature reviews as well as panel of expert's discussion. The development of hiking preparedness model will assist outdoor community such as enthusiast, instructors, and hikers in minimizing incidents and accidents in mountaineering activity in Malaysia.

Keywords: Design and development research, hiking incident, hiking accident, hiking preparedness, model development.

1. INTRODUCTION

Recently, the popularity of mountaineering activity among the Malaysian community is increasing and it is known as one of the fastest growing extreme sports locally and internationally. This is because the activities are very beneficial and can attract the entire community which are capable to fill their free time (Monasterio et al. 2014; Souleet al. 2017). The intended benefits are people can increase their potential from the aspects of physical fitness, mental toughness, self-confidence, group cohesion development (Mazuki 2016; Mazuki et al. 2017), self-satisfaction and a good health (Siti Hajar et al. 2015).

SECTION 3: RECREATION AND ECOTOURISM: ASSESSMENT AND IMPACTS



However, in line with the positive climate of mountaineering industry in Malaysia, there is an increasing number of accident and incident among mountaineers, which occur especially at the easy access hiking spots. Based on statistic issued by the Fire and Rescue Department of Malaysia, there are 105 cases recorded in 2018. Surprisingly, this figure is equivalent to 78% of the numbers of reported cases since 1996 to 2014 (Nik Jazwiri 2016). This shows a drastic increase of high-risk circumstance of mountaineering in Malaysia. In fact, mountaineering incident involves many bad implication to the physical, mental and emotion of mountaineer (Richardson & Spano 2018; Schöffl et al.2011; Schöffl et al. 2012). There are very minimal of scientific research in Malaysia to counter this issue (Sofian 2017).

Fortunately, a Handbook of Outdoor Recreation Standard Operation Procedure (SOP):Higher Learning Institution has been developed in 2018 by the Ministry of Higher Learning of Malaysia during that time as part of an effort to minimize the risk of incidents during outdoor activities. The handbook included hiking and jungle tracking activities. However, the SOP has been copyrighted to enhance the safety of outdoor recreation activities among universities (Md Amin 2018). Apparently, the scenario worsens when there is no local model which can be used as a public reference by Malaysians including hikers (Vivi 2018). This is because a specific model or standard guideline as an educating medium can be part of incidents preventive measures (Kortenkampet al. 2017;Richardson & Spano 2018; Scheunemann 2011; Soulé et al. 2017).

Nevertheless, tips or steps created related to hiking preparedness were based on individual or particular group's experienced, which were not designed and developed properly with consensus among panel of experts in terms of developing a standard guide material (Esfahani, 2014; M. Adli et al. 2018). Hence, this issue can be solved by carrying out a scientific research which involves the panel of experts in the field. For examples like specific model, module, or guidelines. This method is recommended by Mohd Ridhuan et al. (2015) that expressed the importance of experts' opinion and consensus in developmental research.

In addition, the level of usability of those tips are indispensable because it has not been through a scientific evaluation process. This is a gap as well. According to DeWitt et al.(2014) in design and development research, usability of model, module or guideline must be evaluated before it can be implemented by the user.

Furthermore, outdoor community often refer to the external model because there is lack of local reference in terms of hiking preparedness. Respectively, those models which related to hiking preparedness such as from western country are good. But, when it comes to the accuracy and the usability of the model, it is doubtful. This is because, certain factors like natural setting, culture, geographical layout, type of forest and weather between Malaysia and western country is different (Bidder et al 2016; Chen et al. 2009; Pakhriazad et al. 2009). Some of the items that have been recommended by the western may not be suitable for the Malaysian mountain trails (Sam Shor Nahar et al 2011; Siti Hajar et al. 2015).

Hence, a local model of hiking preparedness is truly relevant to be created. The design and development process of this model is based on current field requirements and the construction will go through the experts' opinion and consensus. Thus, the model will enhance a positive impact in terms of safety in mountaineering in Malaysia and contribute to the body of knowledge on the research methodology.

Thus, the main purpose of this concept paper is to present an overview of the idea in developing a hiking preparedness model for mountaineering activity in Malaysia. This consists a scientific method that can be used in terms of developing a scientific model.



2. MATERIALS AND METHODS

There are several common approaches used to develop a model scientifically. For example, model can be develop using a grounded theory method, developmental research using ADDIE model, and in-depth interview of experts. In this study, it highlights the design and developmental research (DDR) approach (DeWitt & Siraj, 2010), which was expanded from Richey and Klien (2007). Based on this approach, there are 3 phases that will be used, which are the

- I. Need analysis of hiking preparedness model (aim to know the level of need of this model among Malaysian mountaineers)
- II. Design and development of hiking preparedness model (aim to design and develop a model accordingly to the scientific process which will meet the requirements of mountaineering activity in Malaysia)
- III. Evaluation of usability of hiking preparedness model (aim to evaluate the usability of the model that will be developed before it can be widely use)

2.1 DDR's Process

Richey and Klien (2007) stated that a developmental research is a systematic hybrid approach which covers a process of need analysis, design, development, and evaluation. Besides, this approach can be used to develop a model, module or assessment tool (Ramlan, 2017). Table 1 shows the suggested research methods which can be implemented in the three phases of DDR (DeWitt & Siraj, 2010).

Table 1: Phases in the Design and Development Research (DDR)

Phase	Research Method
Phase I: Need analysis	Survey, Interview, Content Analysis
Phase II: Design and development	Literature study, Nominal Group Technique (NGT) and Interpretive Structural Modelling (ISM)
Phase III: Usability evaluation	Fuzzy Delphi Method (FDM), Structural Equation Modelling (SEM)

2.2 Rational of the Approach Selection

The researchers are suggesting the DDR as an approach to develop a hiking preparedness model because

- a. it is an established approach in designing a new model.
- b. it contains the specific and systematic process to reach the goal of this study.
- c. the strength is supported by the future users which involve the analysis of the need of the model development.



- d. the model design and development will go through a scientific process with involvement of experts.
- e. the new model will go through an evaluation process to define its usability.

The approach has been applied by several local researchers such as Mohd Paris & Saedah (2016), Mohd Ridhuan (2016), Ramlan (2017), Mazlina Zaira & Hadikusumo (2017) and Abdul Muqsith (2018) which has proven its strong establishment.

3. RESULTS AND DISCUSSION

This paper explained methods to build a hiking preparedness model in Malaysia, which consist of the recommendation of the approach of Design and Development Research (DDR). The methods were presented following three phases as mentioned earlier which were the need analysis phase, design and development phase and evaluation of usability phase. The strength and rationale of the selected approach was stated, as reference to previous studies.

Sofian (2017) and Md Amin (2018) suggested that scientific study could close the gap in design and development of guideline in outdoor recreation. This includes methods and techniques discussed in terms of mountaineering activity, with regard that the development of products (e.g.model, module or handbook) require expert evaluation prior to its establishment. This approach were also applied by others (Brandenburg & Davis 2016; Hung et al. 2010).

Hence, it is recommended to potential researchers who are interested to develop and design a model in similar study to look forward for this practical approach (Richey & Klien, 2007). It is hope that this paper can contribute to the body of knowledge especially in outdoor recreation industry and outdoor education, including mountaineers, organisers, academics and instructors to reduce the number of accidents and incidents. This will also improve risk management strategy in mountaineering activities in Malaysia.

4. CONCLUSION

Apparently, tips and guideline towards preparedness in mountain hiking activity in Malaysia were developed without scientific method. Respectively, those tips and guideline carried the good points to educate people. Somehow, without scientific approaches and methods, regard to be cited as a main reference, its validity and reliability is doubted. As a result, many people tend to follow invalid and unevaluated guidelines which likely confusing and lack of clarity.

Thus, a study is needed with regards to the development of a standard and valid guideline to provide a better information and education content for hiking preparedness to its users. This information would also allow the application of expert consensus-based elements such as essential items to be carried. Research in developing scientific model of hiking preparedness will continue to be especially important in the field of outdoor recreation and education. Studies aimed at improving the learning and retention for both students and public would likely improve preparedness knowledge of mountain hiker if appropriately implemented into such courses.

Malaysian hiker involved in incident during a hike showed poor preparedness knowledge. This trend is consistent with previous study (Nik Jazwiri 2016). Low knowledge of preparedness can be explained by the lack of basic gears, planning and physical conditions in these victims which led SAR



events. Poor information retention is likely responsible as well, illustrating the need to continuously review and refer scientific-developed guideline. Proper preparedness and reasonable knowledge are paramount for both the prevention and reduction of incident in hiking environment.

Therefore, the suggested approach and methods to develop the hiking preparedness model should be sought. This would provide the researcher in the same field greater understanding of developmental research and add a new option of the approach. This would help them to implement a future research such as model, manual or module development. This would likely lead to the emergent of relevant and established developmental research outcomes.

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PHYSICAL IMPACTS ALONG THE MERAPOH TRAIL AT GUNUNG TAHAN, MALAYSIA

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ABSTRACT

Gunung Tahan (2187m a.s.l.) is located at Taman Negara National Park and is considered one of the premier destinations for mountain trekking in Malaysia. Its mountain top can be accessed via two main trails: Kuala Tahan Trail and Merapoh Trail. Based on the record obtained from the park authority, this mountain has been visited by 48,240 visitors over for 23 years (1995 to 2018) with Merapoh Trail as the favourite trail where more than 70% of visitors have been recorded to trek to Gunung Tahan. Since its establishment in 1995, Merapoh Trail has been profoundly impacted by the massive and repeated visitation over for the years. As recreation impacts pose threats to recreation resources and visitors experience and safety, this recreation ecological study was conducted to determine the current condition of the Merapoh Trail. The Rapid Survey Technique and Cross-sectional Measurement were used to determine the changes in trail depth, width and the relationship between both parameters along the pre-determined Sampling Zones. Key findings pointed to the increasing severity of trail impacts with an increase in elevation, potentially due to the fragility of the resources and some environmental factors. Several implications for better management purposes were also highlighted in this paper.

Keywords: Trail Impact, mountain trail, Gunung Tahan, recreation ecology, physical impact and Taman Negara National Park.

1. INTRODUCTION

Gunung Tahan, the highest mountain in Peninsular Malaysia towering up to 2187 meters above the sea level is the sixth highest mountain in the country. It is considered as the most popular destination among local trekkers. Gunung Tahan is a flat-topped mountain at the top end of a plateau. The climbing route from Kuala Tahan to the mountain top is much further and requires more days to complete. The focused trail is now from Sungai Relau in Merapoh in the West side of the mountain range. Both the Merapoh and Kuala Tahan Trails are located within the boundary of Taman Negara, the country's oldest national park.

Recreational trail use has been increasing for decades (Cole & Landres 1996). In 1995, the National Survey on Recreation and the Environment in the United States reported that outdoor recreation participation was growing faster than the population (Cordell et al. 1995) This trend continues to this day (Outdoor Foundation 2014). Mountaineering is one of the activities that gain attention among youngsters; people also stated that visitors tend to hike because of the breathtaking landscape along the trail, while trekking until the summit (Atauri et al. 2000). In Malaysia, based on the record obtained from the national park authority, Gunung Tahan has been visited by 48,240 visitors (Figure 1) over 23 years (1995 to 2018) with Merapoh Trail being the favourite trail where 70% of the visitors have been recorded to access the summit. Since its establishment in 1995, Merapoh Trail has been profoundly impacted by the massive and repeated visitation over 23 years.





Figure 1. High visitation at Gunung Tahan Trail had Caused Pressure on Trial Resources.

Source: DWNP 2019.

Due to the increasing number of visitations, the condition of the mountain ecosystem is exposed to degradation. "Disturbance to natural areas as a result of recreation use" has typically been defined as resources or ecological impact and all wildland recreation activities disturbing the natural environment (Hammitt et al. 2015). The importance of sustainable trails with desirable trail conditions extends beyond user satisfaction (Dorwart 2009). Quality trail conditions contribute to the appreciation of nature, support for outdoor environments, and societal enjoyment (Manning 2001). More specifically, trail users who encounter desirable conditions may adopt low impact practices and act as stewards of the resource (Mc Farlane et al. 1998). Therefore, providing opportunities for high-quality experiences based on desirable trail conditions is essential to most trail managers (Driver & Tocher 1970; Manfredo et al. 1983). They are also responsible for ensuring that the quality of user experience is unaffected.

The recreational ecological impact can cause soil, vegetation, water and wildlife habitat deterioration (Leung & Marion 1996) as well as visitors experience and safety. Impacts do not occur in single activities, and it tends to compensate for other changes (Hammitt & Cole 1987). The study has been conducted with the primary objective to determine the current condition of Merapoh Trail by accessing the trail width, trail depth and the relationship of both parameters from Kuala Juram to the summit of Gunung Tahan in Taman Negara National Park. By understanding to the impact parameter and distribution of problematic area will help recreation resources managers and administrators for planning and design strategies for mitigations in the future.

2. MATERIALS AND METHODS

2.1 An Overview of Taman Negara National Park and Gunung Tahan

Taman Negara was the first national park to be established in Peninsular Malaysia in 1938 when the country was still under the administration of the British. Initially, the park was proclaimed as the King George V National Park, to commemorate the Silver Jubilee of King George V of England (Sam Shor & Saidon 2012). The park was and still the largest in the country, covering an area of more than 34,340 km2 situated along the border of 3 states – Pahang, Kelantan and Terengganu. Only after the country gained independence in 1957, the park was renamed as Taman Negara.



Taman Negara is considered one of the richest areas in terms of plant species and genetic diversity and hosts more than 3,000 species of plants. The fern flora is well endowed with more than 246 species in 26 families (UNESCO 2020) and for Gunung Tahan itself is home to 39 species at its summit plateau, 12 of these are hyperendemic and confined to Gunung Tahan (Lim et al. 2012). Combination of the diversity of natural resources, coupled with the intrigue of the local community (including the Aborigines) in the park, has increased the appeal of the national park especially for ecotourism activities (Azlizam et al. 2018). The development of ecotourism in the park has further benefitted the local communities; most of them directly involve in ecotourism and work as boat operators, restaurant operators, nature guides, lodge providers and mountain guides (Azlizam et al. 2012). Suffice to say, it quickly turned into one of the primary ecotourism destinations in Malaysia. There are previous studies which pointed to some evidence that ecotourism activities help to educate visitors and the locals in nature conservation while providing opportunities for enjoyment and increase the locals' income (Azlizam et al. 2012).

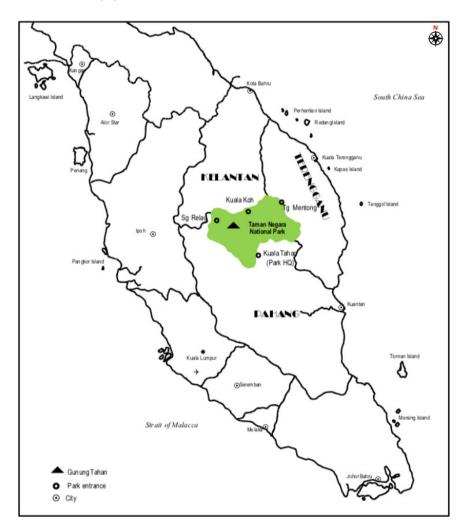


Figure 2. Location of Taman Negara National Park

The main attraction in the park – Gunung Tahan itself is sitting on a sandstone plateau while the ridge of Tahan is a watershed sandwiched between two major rivers Sungai Pahang to the South and Sungai Kelantan in the North. Historically, the original mountain trails at Gunung Tahan was established about 100 years ago (Sam Shor 2009) .The Merapoh Trail was relatively young, developed around 1995 (Sam Shor 2019)and quickly become popular among the trekkers since it allows shorter trekking time (4



days instead of 7 to 8 days using the Kuala Tahan Trail). Mountain trekking activity is currently managed by the park authority which is under the jurisdiction of the Department of Wildlife and National Park (or its Malay acronym PERHILITAN). In early 2008, a more systematic visitor management procedure was implemented in Merapoh and Kuala Tahan in which requires visitors or mountain trekkers to register at the office of Park Ranger in Sungai Relau and Kuala Tahan. Both entries will need trekkers to employ a local mountain guide before embarking their journey to the mountain top (Sam Shor & Shukri 2011). Besides, the DWNP has also used some form of carrying capacity approach, which will dictate the total number of people alloweddaily on the trail. Currently, the number was set to 48 trekkers per day and designated 12 people per guide (DWNP 2020). Furthermore, the trails are also closed during the wet session (November until January) to allow natural rehabilitation of the resources and physical trail maintenance.

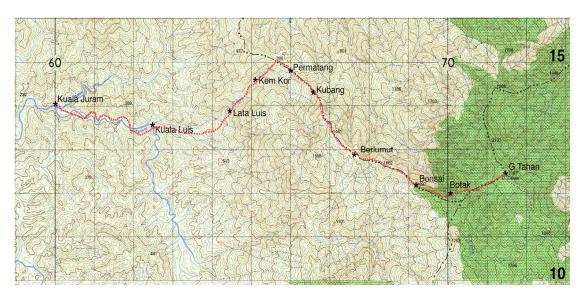


Figure 3. Map of Marapoh Trail to GunungTahan Trail shown with the red dotted line.

2.2 Trail Impacts

The potential trail impacts from recreation activities include the trampling and loss of vegetation, including endemics plants, alteration in vegetation composition, possible introduction and spread of non-native plants, compaction and loss of soil, and disturbance or displacement of wildlife.

Resources impacts from the trail can be severe, partially because of the absence of professional design, construction, and maintenance practices. Many trails are properly unallocated or maintained to sustain their intended uses. Many formal trails were developed by visitors or individuals who lacked a trail design expertise or were directed by objectives that resulted in less sustainable designs (Marion & Leung 2004). Even well designed and managed trails are susceptible to the various forms of degradation.

Trail impacts are influenced by a diverse array of use related and environmental factors. Many studies identified ecologicalconsiderations to be more critical in determining the levels and rates of trail incision and associated soil erosion than use related factors (Leung & Marion 1996). Environmental information may be unusual to predict trail impact problems in some cases (Burde & Renfro 1986). For example, trail widening is frequently associated with the amount of use than site attributes (Cole 1991). Trail impact assessments in the Great Smoky Mountains National Park found that heavily used trails had significantly more soil erosion and tree root exposure, while trails receiving a high proportion of horse use were substantially wider, muddier and had more multiple trails (Leung & Marion 1999). Trails located on the ridge tops and upper slopes exhibited the most significant erosion, probably due to higher

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precipitation rates, more open forest canopies and reduced root mass from woody vegetation. Ridgeline trails also often directly ascend slopes, hindering the removal of water from trails of embedded trails. Problems with trail muddiness were most common in valley bottom positions, where trails commonly become embedded in moist organic soils. The number of trail drainage features (for example, water bars or drainage dips) was uncorrelated with these impacts, suggesting that increased trail maintenance provide not a substitute for proper trail positioning and layout. A recommended solution to both problems was trail relocation to valley walls with side-hill construction methods.

Resource impacts associated with trampling on trails include an array of direct and indirect effects (Table 1). Even light traffic can remove protective layers of vegetation cover and organic litter (Cole 2004; Leung & Marion 1996). Trampling disturbance can alter the appearance and composition of trailside vegetation by reducing vegetation height and favouring trampling resistant species. The loss of tree and shrub cover can increase sunlight exposure, which promotes further changes in composition by supporting shade-intolerant plant species (Hammitt & Cole 1987; Leung & Marion 2000).

Trail incision is the depth of the main trail in relation to the sides of the trail (Marion & Leung 2001). Researchers and managers generally measure incision by temporarily positioning a transect line that is perpendicular to the trail. The transect line is attached to stakes-placed at the trail borders and configured vertically to represent the post-construction, pre-use trail surface (Marion et al. 2006). Trail incision is the maximum measurement taken from the transect line to the lowest point of the trail (Marion et al. 2006). The incision correlates with soil loss caused by wind and water erosion, compaction, and soil displacement (Olive & Marion 2009). Significant soil loss can cause hikers to wander laterally, widening the trail and causing higher vegetation and soil loss over time (Bryan 1977; Wimpey & Marion 2010).

Trail width is the gap in vegetation growth where the trail resides and is central to supporting trail traffic (Wimpey & Marion 2010). Trail width can be measured (Figure 4) with a standard tape measure extended across the trail from boundaries defined by visually apparent trampling disturbance (Dale & Weaver 1974). Excessive trail width means there is a more significant areal extent of impact to vegetation, organic litter, and soil, possibly decreasing the aesthetics of the trail (Wimpey & Marion 2010).

2.3 Sampling Method

This study involved two methods of sampling techniques. First, Rapid Survey Technique was designed to collect data with 50 m distance from one station survey to another, and Cross-sectional Measurement (Marion 2016) was used to determine the changes in trail depth, width and the relationship between both. The data collection was based on researchers' visibility and began at sample point number one located at the Kuala Juram, then rapidly continued to the last point at Gunung Tahan summit.

2.4 Rapid Survey Technique

The Rapid Survey Technique (Hammitt & Cole 1987; Marion 2006) was used in the study to collect field data. This approach is practically practical on the trail system due to vast distances of the trails to be assessed. Most rapid surveys have utilized a systematic sampling design and collect data on both trail conditions and characteristics of the environment, trail design and the number of users. This type of survey in data collection used multiple parameters like width, incision, and other detracting features. The rope technique additionally was used to estimate the distance measure in the rapid survey. In this research, the sampling station was determined by handling a rope with 50 m length was chosen since it easy to handle during a trail assessment. The data at every 50 meters plot will be recorded. The procedure of field data collection described as:



- a. The 50 m rope pulled on the trail
- b. The sample station marked every 50 m distance with a plastic ribbon tape.
- c. To make a trail assessmenton the station (resources and impact parameter).
- d. Record all collected data in an inventory form.
- e. The 50 m rope pulled to the next sample station.
- f. A similar procedure continues from Kuala Juram to GunungTahan.

Table 1: Instrument Used and its Function

Function
To measure the distance from one station survey to another
A temporary maker at Rapid Survey Station
Measuring Trail Width and Trail Depth
Compass for trail direction Clinometer for slope gradient
To record all collected data on the field
To get elevation and coordination
To make a judgment on rating the impact condition and record collected data

2.5 Sampling-Based Approach (Cross-Sectional Method)

The cross-sectional method (Figure 4) was applied to measure the condition of the trail (Marion, 2016). At each sample station, the condition was assessed through measurements of its width and tread condition characteristic. The procedure involves the following.

- a. Set the centre of the point of the trail.
- b. Measure the trail width using a measuring tape. Trail width was measured from the last dominant vegetation bordering the tread-way.
- c. Measure the trail depth (D1: Left-hand side, D0: Centre, D2: Right-hand side facing to heading direction). D1 and D2 measured in-between the D0 and from last dominant vegetation bordering the tread-way.
- d. Define the slope, trail direction, elevation, coordination using the material stated in Table 1.
- e. Record all data in an inventory form.
- f. Repeat step a to step from Kuala Juram to Gunung Tahan.



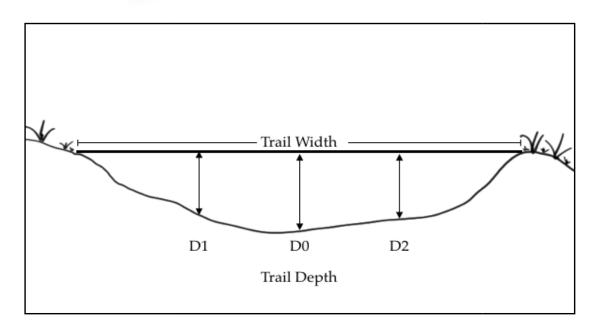


Figure 4. Illustration of the Variable Cross-Sectional Method for Assessing Soil Loss at Each Transect.

3. RESULTS AND DISCUSSION

3.1 Merapoh Trail at GunungTahan

A total of 321 stations (Table 2) were sampled from an entire length (15.975 km) of Merapoh Trail at Gunung Tahan. The survey started at station one with 0-m distance followed by Station 2 with a range of 50 m and continue until Station 320 and the last Station 321 with a distance of 25 m. The result was divided by vegetation zone (NRE 2008) and it showed that two-zones dominate the longest distance trail to reach the Gunung Tahan at 28 percent (Table 2) at a distance of 4,475 m on the Upper Montane Forest followed by Lowland Dipterocarp Forest at 25.9 percent, Hill Dipterocarp at 17.8 percent, Lower Montane Forest at 14.6 percent, and Upper Dipterocarp Forest at 13.7 percent, respectively.

Table 2: Altitudinal Zonation along the Trail.

Vegetation Zone	Station	Distance (m)	Percentage
Lowland Dipterocarp Forest (200 m - 300 m)	83	4,100	25.9
Hill Dipterocarp Forest (301 m - 750 m)	57	2,850	17.8
Upper Dipterocarp Forest (751 m - 1,200 m)	44	2,200	13.7
Lower Montane Forest - Oak (1,201 m - 1,500 m)	47	2,350	14.6
Upper Montane Forest - Ericaceous (1,501 m - 2,187 m)	90	4,475	28.0
Total	321	15,975	100.0



For campsite distribution along the trail (Figure 5), one campsite is (Kuala Luis) located at the Lowland Dipterocarp Forest, two campsites (Lata Luis & Kor) at the Hill Dipterocarp Forest, one campsite (Permatang) at the Upper Dipterocarp Forest, two campsites (Kubang & Berlumut) at the Lower Montane Forest, and three campsites (Bonsai, Botak, Gunung Tahan) at the Upper Montane Forest).

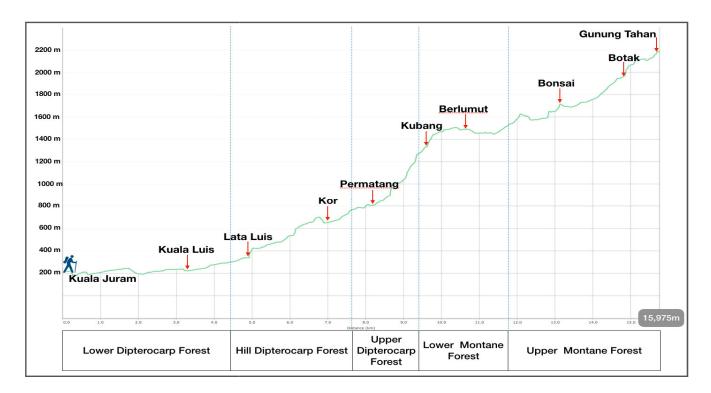


Figure 5. Distribution of Camping Sites along the Merapoh Trail by Altitudinal Zonation

3.2 Trail Widening

Trail widening at Merapoh Trail is presented in Table 3. The trend of impact gradually increased throughout the vegetation zone. The highest range for trail width is 420 cm Upper Dipterocarp followed by 354 cm for Upper Montane Forest, 257 cm for Lower Montane Forest, 155 cm for Hill Dipterocarp and 140 cm (lowest) for the Lowland Dipterocarp Forest. The highest range for trail width is the Upper Dipterocarp Forest (420 cm), Upper Montane Forest (354 cm), Lower Montane Forest (257 cm), Hill Dipterocarp Forest (155 cm) and Lowland Dipterocarp Forest (140 cm).



Table 3: Trail Width Condition of the Study Area

Vegetation Zone	N	Mean (cm)	Median (cm)	Minimum (cm)	Maximum (cm)
Lowland Dipterocarp Forest	77	108.69	110	50	190
Hill Dipterocarp Forest	50	126.30	119	75	230
Upper Dipterocarp Forest	43	153.88	145	80	500
Lower Montane Forest	47	145.09	134	70	327
Upper Montane Forest	87	155.11	136	46	400
TOTAL	304	136.89	122	46	500

Table 4 shows the significant differences between the vegetation zone for trail width from the lowland area (bellow than 750m, Lowland Dipterocarp Forest & Hill Dipterocarp Forest) and highland area (with elevation 750m to 2187m Upper Dipterocarp Forest, Upper Montane Forest & Lower Montane Forest).

Table 4: Trail Width Multiple Significant Comparisons between Vegetation Zones

Vegetation Zone	Lowland Dipterocarp Forest	Hill Dipterocarp Forest	Upper Dipterocarp Forest	Lower Montane Forest	Upper Montane Forest
Lowland Dipterocarp Forest		0.790	0.000	0.004	0.000
Hill Dipterocarp Forest	0.790		0.165	0.939	0.034
Upper Dipterocarp Forest	0.000	0.165		1.000	1.000
Lower Montane Forest	0.004	0.939	1.000		1.000
Upper Montane Forest	0.000	0.034	1.000	1.000	

^{*} The mean difference is significant at the 0.05 level.

Mean results show that the widening trail at Merapoh Trail had increase with every rising elevation to the Gunung Tahan mountain top.

The trail widening is the effect of trail degradation, where the trampling activity is the primary component (Cole 1991). The degradation of trail increasing along with the increasing of elevation toward the mountain top. This trail expansion is one of the horizon impacts that usually occur when the muddy area at the middle of the trail, muddy area at a high degree of slope and poor drainage area. This situation causes visitors to walk along the edge of the trail rather than on the treadway, to avoid the problematic tread surface (Cole 1989). This on-going behaviour will impact on the vegetation and soil.



3.3 Trail Depth

Results from Table 5 showed that trail depth was measured along the trail and divided into the vegetation zone in the centre of the treadway. It is evident from the results that mean (21.98 cm), minimum (1 cm) and maximum (138 cm). The difference from the minimum to maximum is 137 cm. If a median used as the benchmark for trail depth in the vegetation zone, this result may reflect that the trail is not in good condition and could be affected by recreation. The result also indicates that in the montane forest, the difference between mean and median is more significant than in the dipterocarp forest area.

Table 5 Trail Depth Condition of the Study Area

Vegetation Zone	N	Mean (cm)	Median (cm)	Min. (cm)	Max. (cm)
Lowland Dipterocarp Forest	77	16.21	15	7	37
Hill Dipterocarp Forest	50	16.36	15	5	50
Upper Dipterocarp Forest	43	18.05	15	3	87
Lower Montane Forest	47	25.81	20	6	138
Upper Montane Forest	87	30.18	25	1	120
TOTAL	304	21.98	17	1	138

Table 6 shows that the difference between Upper Dipterocarp Forest and Lower Montane Forest is significantly not relevant. It is evident from the results that this represents a significant difference between the lowland area (Lowland Dipterocarp & Hill Dipterocarp) with high altitude area (Upper Dipterocarp Forest, Lower Montane Forest & Upper Montane Forest).

Table 6 Trail depth multiple significant comparisons between vegetation zone

	Lowland Dipterocarp Forest	Hill Dipterocarp Forest	Upper Dipterocarp Forest	Lower Montane Forest	Upper Montane Forest
Lowland Dipterocarp Forest		1.000	1.000	0.012	0.000
Hill Dipterocarp Forest	1.000		1.000	0.036	0.000
Upper Dipterocarp Forest	1.000	1.000		0.211	0.001
Lower Montane Forest	0.012	0.036	0.211		1.000
Upper Montane Forest	0.000	0.000	0.001	1.000	

^{*} The mean difference is significant at the 0.05 level.



These findings indicate that the depth of the trail has been profoundly affected in the montane forest area due to soil conditions (i.e. soil profile, trail surface characteristics, a high degree of slope and low drainage area). Both are influenced by the degradation of vegetation, trampling, and heavy rainfall leading to erosion.

One of the major types of damages associated with higher impact activities is soil erosion (Liddle 1997; Leung & Marion 2000). In trail with repeated visitation, vegetation and litter may no longer protect the soil from erosion (Pickering 2010). A gully is one of the vertical impacts produced by flowing water that erodes into the soil (Cole 1983), and this is why the primary factors in the degree of erosion impact trail elevation, alignment and drainage factors influencing the channelling and erosive force of water in the texture of the trail and soil, the primary factor determining how deadly the soil is detached and carried away (Cole 1990).

3.4 Trail Conditions

The study result (Figure 6) shows a positive relationship with this impact parameter, particularly in altitudinal forest zoning, towards elevation inclination. The images condition along the Merapoh Trail has revealed in Appendix 1. This trail has undergone significant degradation, specifically in terms of two major recreational-use impacts: trail width and trail depth. Gunung Tahan's Merapoh Trail is the massive visitation that has had a profound impact during this period (1995-2018) as a favourite mountain access trail.

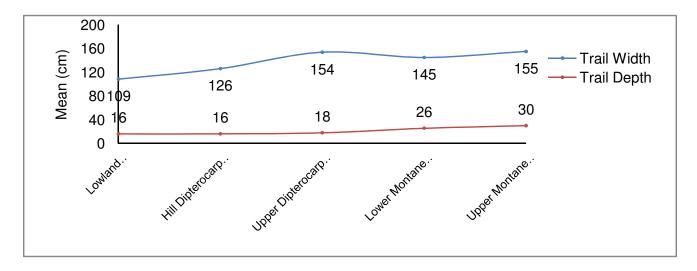


Figure 6. Connection between Trail Width and Trail Depth

4. CONCLUSION

It is discovered that Merapoh Trail at Gunung Tahan has been profoundly impacted over the years by the massive and repeat visitation. Degradation of the trail, such as widening the trail width and erosion of the trail to deeper the trail, is a severe problem at high elevation zoning forest. Findings indicate a sensitive and fragile ecosystem which characterizes the resources for mountain recreation. These findings made the area along Merapoh Trail the most affected. The fragility factors will slow down the rate of natural resource recovery after each disturbance.



This point requires recreation resources managers and administrators to take immediate mitigation action and carry out continuous monitoring. Most of the problematic area located ina remote area, management technique to sustainable trails aim to requires less maintenance and fewer resources to maintain its intended use. Maintenance of trails should work to keep the original design of the trail and use a sustainable technique to respond to problem areas. The current management effort, DWNP planning documents have embraced a carrying capacity approach with restrictions on visitation to controlr ecreation-related resources impacts. The alternative to this, two of the leading frameworks are Limits of Acceptable Change (L.A.C.) (Stankey et al. 1984) adopted by the U.S. Forest Service for Wilderness Management, and Visitor Experience and Resource Protection (V.E.R.P.) adopted by the U.S. National Park Services (Manning et al. 1985) can consider as a planning and decision-making method for assessing and managing effective trail conditions.

The best practice of management strategies and technique of trail impacts will help recreation resources managers and administrator's task of "dual responsible". The significance of dual responsible, or the concept of balancing recreation resources usage and the preservation of user's experience, has long been discussed in the field of recreation resources management; which emphasis on the importance to balance amongst three recreation ecosystem components, namely user, resources and agency.

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APPENDIX

Trail Condition Overview



Lowland Dipterocarp Forest



Hill Dipterocarp Forest



Upper Dipterocarp Forest



Lower Montane Forest



Upper Montane Forest



Upper Montane Forest



IDENTIFYING TOUR GUIDE'S ROLES AT AN ECOTOURISM DESTINATION IN MALAYSIA

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ABSTRACT

There are many ecotourism destinations in Malaysia. Among the oldest and popular ecotourism destinations in Malaysia is Taman Negara Pahang, which is well known as Taman Negara, which means National Park. Taman Negara is a much-developed area with good accessibility and great facilities, as compared to other ecotourism destinations and national parks in Malaysia. Nonetheless, it is still surrounded by thick forest with an abundance of flora and fauna that requires assistance from a tour guide to maximize participants' experience, particularly for jungle trekking and wildlife sighting activities. The role of tour guide, among others, is as an organiser, teacher, information-giver, leader and also a salesperson. This study investigates the role of tour guides at Taman Negara Pahang, which focuses on nature tour guides as the subject in this research. The sampling technique used by the researcher was purposive sampling. The guides were chosen based on a few criteria identified by this study. One of the identified criteria requires the tour guide at Taman Negara to respect the local and Orang Asli community. The result of this study found that tour guides roles are;i) organiser ii) salesperson and iii) preserver of local and Orang Asli's cultures. This finding reflects the important roles of tour guides in running outdoor activities at an ecotourism site.

Keywords: Tour guide, role, ecotourism and Taman Negara Pahang

1. INTRODUCTION

Recently, The Ecotourism Society defines ecotourism as a travel to a natural with a purpose to learn about other cultures and history of the place; together conserving and preserving the ecosystem; and giving opportunities for the local people to produce economically while taking care of their natural resources. (Epler Wood et al. 1991; p.75)

A 'tour guide' (TG) acts as a middleman between all the tourism players in a place such as tourism stakeholders, local community, tourist, and also destination resources (Cohen 1985). A TG's job is multifaceted, which includes different number of sub-roles, such as "knowledge-giver", "teacher", "motivator and initiator of touristic experience", "a representative for one's country", "catalyst or entertainer", "a kind-hearted person who comfort others", and lastly "group leader" (Holloway 1981).

A guide is an individual that guides visitors in their preferred language and at the same time interprets the culture and heritage of the surroundings, according to The World Federation of Tourist Guide Associations (2005). In brief, a tour guide is the frontman of the tourism experience, and they take care of the environment and at the same time provide a satisfying experience to the tourists. The objective of this research is to, (i)identify the roles of a tour guide, (ii) determine the actual role of tour guide in an ecotourism site, and (iii) find out the importance of tour guides in an ecotourism site.



2. LITERATURE REVIEW

Guiding is one of the oldest professions ever existed. During the prehistoric era, anyone that helps others in a geographical way to look for shelter and food is considered as a guide. According to Powell (1993), today's tour guides are originated from the earliest humankind that roamed the earth, and it refers to the people who lead the way: 'pathfinders', 'bear leaders', 'proxemos' and 'cicerones. This means that it is a very old profession and developed that will bring benefits in the future.

TG is the person who is in charge of leading a group of tourists. They act as a middleman between man and nature, which is a very vital role in the tourism industry, especially ecotourism site like Taman Negara Pahang. TG is the individual that is responsible for guiding visitors in their preferred language and interprets the cultural and natural heritage of a tourism site (WFTGA 2005). Nowadays, in order to get an organised tourist trip, it is a must that tour guides, tour managers and tour leaders to be present (Rabotic 2008). Later, Cetinkaya and Oter (2016) summed up the role of TG as a leader who is capable of assuming responsibility, an information giver and fountain of knowledge, a mentor (the role of the mentor resembles of teacher, tutor, instructor or advisor), and a mediator and cultural brokerage. Besides, TG is also acting as an ambassador extending hospitality and presents the destination in a way that makes visitors want to return, and a host who create a comfortable environment for tourists.

According to Ap and Wong (2000), TG plays an important role in the integration between the visited destination and the visitors since the front-liner workers are responsible for the overall experience with the tour services provided by the destination. TG is the frontman of the tourism industry; they are the fieldwork agents which will have to deal with the tourists' hands-on. Hence, their performance affects the tourists' experience, and it will determine whether it is a satisfying trip or the other way around (Cetinkaya and Oter 2016).

Besides, a TG is also considered as 'intermediaries' between the environment and the tourists. According to International Association of Tour Managers (IATM), TG functions as a 'buffer' between tourists, the social environment, arranging transportation, interpreting, handling conflicts, protecting tourists from difficulties and keeping the environment safe for tourists (Zhang & Chow 2004). While Holloway (1981) explains that TG is a knowledge sharer, educator, motivator and initiator for tourist experiences, a representative for their country, the one that keeps the group energize, high self-esteem, a kind-hearted person, leader of a group and disciplinarian. Other than that, TG isresponsible for handling public relations missions, to make touristfeels like home and as an eye-opener to a specific site, region, or country, (Pond 1993). He also suggests that a tour guide has five specific roles. They are the leader that takes responsibility, an educator by explaining about the site, host to represent the local community in a good manner so that there will be repeated customers, tour manager that creates comfortable surroundings for the guest, and lastly a facilitator that can execute all of the previous four roles.

Other than that, TG is also known for their roles as a promoter of tourism. This is because the satisfaction with the guide's services will directly portray the quality of the tour company and will lead to repeated customers and recommendations to potential customers, (Geva & Goldman 1991). It would be more convincing for the customer to recommend using the tour company or even the tour guide individually to their friends and families if they were satisfied with the service given.

Cohen (1985) study on tour guide's role covered the issue thoroughly and became a major reference for many tourism scholars such as; Geva and Goldman (1991); Weiler and Davis (1993) and Cetinkaya and Oter (2016) but unfortunately something is lackingin the tour guide's model. He did not include the conservation of the natural environment in the model. Thus, Weiler and Davis (1993)



modified the model after they recognised the flaws in Cohen's work on the tour guide's role and decided to add the environmentally friendly part in it. Therefore, they highlighted that there are three focuses on a tour guide's role, including taking care of the environment. Allof the other job scopes remain the same with an extra role, as a conservationist; in other words, the management of our natural resource (Weiler & Davis 1993). This management of natural resources focuses on two things (Table 1): "motivator" (the alteration of group's behaviour and impact on-site) and "environmental interpreter" (the passion and high awareness towards environmental issues in order to conduct a long-term responsible tourist behaviour). This study will use this model as a guideline for this study.

Table 1: Role of Guiding

Role of guiding	Outer directed	Inner directed
Leadership Sphere	Instrumental: navigation, accessibility, and safety.	Social: maintains cohesion within the group.
Mediatory Sphere	Interactionary: organises meals, makes the setting provides information, and non-threatening.	•
Resource Management	Motivator: reduces impact on site.	Environmental interpreter: encourages long-term behaviour.

Source: Cohen 1985; Weiler and Davis 1993

In Malaysia, there are two types of TG which are; city tour guide, and local nature tour guide. According to Ministry of Tourism, Arts and Culture Malaysia (MoTAC), city tour guides can guide tourists in the cities throughout Malaysia while local nature tour guides can guide tourists only within the natural areas they have selected when registering to obtain their license from the Ministry (MOTAC 2014). However, in this study, the focus was on the local nature tour guide.

3. METHODOLOGY

This study used a qualitative technique in order to get in-depth data from the respondents. Face-to-face interviews were conducted with the TGs at their workplace in Taman Negara Pahang. One of the advantages of this method is that it provides a great opportunity to gather precise data about what people believe and what their motivations are (Bhat 2020).

3.1 Study Site

The study area is Taman Negara, Pahang, the first national park in Malaysia and among the first in Southeast Asia. It opened in 1939 with the name King George V National Park when Malaysia was under the British rule and is estimated to be 130 million years old (Jusoff et al. 2009). After Malaysia



gained its independence from the British in 1957, they changed the name to Malay land called it Taman Negara. Currently, Taman Negara covers 4,343 km2 area and is located at three states border, which is Pahang, Terengganu and Kelantan (Figure 1). However, the most popular main entrance for Taman Negara among the visitors is at Kuala Tembeling, Pahang. Most of the tourism activities takes place at Kuala Tembeling, where the main office of the Department of Wildlife and National Park (DWNP) Malaysia is located. Visitors who want to enter Taman Negara need to pay a certain amount of fees ranging from RM10 to RM30 at the DWNP office in Taman Negara Pahang (The Star 2019).



Figure 1. Map of Taman Negara Source: Mardiastuti et al.2013

3.2 Research Design

A purposive sampling was used to select the participants for the research. The interview questions were designed based on the role of the tour guide studies as developed by Cohen (1985), and, Weiler and Davis (1993) (Table 1). Three tour guides were selected to participate in a 30 minutes interview regarding their role as a tour guide in an ecotourism destination, particularly at Taman Negara, Pahang. These tour guides are certified green badge nature guides holders that have at least ten years of working experience in Taman Negara. In this research, the participants were identified as Tour Guide 1 (TG1), Tour Guide 2 (TG2), and Tour Guide 3 (TG3). The researcher used an in-depth interview, which involved a face-to-face conversation about their daily schedule as a tour guide in Taman Negara. At first, a scheduled interview was set up with the TGs and they werebriefedabout the research. Next, researchers met the TGs to conduct the interviews. Each interview was recorded using a phone with a built-in recorder. The recorded interviews were transcribed and analysed, where the important information were extracted and listed down for thematic analysis. The data collection took place at Taman Negara, between 5th and 25th March 2017.



4. FINDINGS AND DISCUSSION

Research findings show that there are three main roles of a tour guide at the ecotourism destination. Those roles are to organise, becoming a salesperson, and preserving the cultural values of the local and Orang Asli community. This was also mentioned by Cohen (1985), Fine and Speer (1985), Holloway (1981), and Hughes (1991), that TGs are responsible for duties such as being a leader, salesperson, teacher, information-giver and organiser besides just a pathfinder. The characteristics of TG participating in the study are those withthe average age between 30 and 45 years old, male whohave more than 10 years working experience in Taman Negara, are certified green badge guides and they are all Malaysian citizens.

4.1 Role as an Organiser

One of the main roles of a tour guide is to act as an organiser ftrips, events, and programs. They are the ones that tourist seeks to plan for a proper trip. Normally, a TG is required to organise the overall itinerary from the transport for travelling to the beds for the tourists sleep at night. Rabotic (2008) states that, in order to get an organised tourist trip, it is a must that tour guides, tour managers and tour leaders are present. This statement is supported by the sharing made by the first participant (TG1):

- "...yang pertama, kita bawak pelancong ke alam sekitar, lepas tu kita bimbing pelancong conserve alam sekitar..."
- "...firstly, we bring the tourists to the field, and then we guide them how to conserve our natural environment"

The second participant (TG2) mentioned that one of their roles is to brief the tourists about the restrictions in a guided tour.

- "...kita dah brief siap-siap apa do's and don'ts, apa yang dia boleh buat apa yang dia tak boleh buat....."
- "...initially we briefed them about the do's and don'ts, what can be done and what can't be done..."

These findings proved that one of the main roles of a tour guide is being an organiser for the tourists. This result is supported by studies conducted by Cohen (1985), Fine and Speer (1985), Holloway (1981), and Hughes (1991), where tour guides are responsible for duties such as being a leader, salesperson, teacher, information-giver and also an organiser.

4.2 Role as a Salesperson

Other than a role as an organiser, tour guides are responsible for helping to promote the tourism destination in many ways (Geva & Goldman 1991). Tour guides are also known as promoters of tourism because customer's satisfaction of the tour guide's services would result in increasing number of repeating customers.

The second participant (TG2)- expressed in his interview:

- "...Saya rasa antaranya yang orang tak Nampak sangat, promote local punya business... "
- "...In my opinion, things that people overlooked is our role in promoting the local business..."



He also thinks that tour guides are the promoters of the local business, which contributes to the tourism sector, and also helps to improve the local economy at the particular tourist destinations. The other participant, TG3, also agreed in that sense when he mentioned that,

- "...Kadang-kadang kita selalu dipanggil untuk bersama dengan agensi kerajaan dalam mempromosikan ecotourism..."
- "...Sometimes, we are gathered together with government agencies to promote ecotourism"

He added,

- "...contohnya tahun lepas kita sampai dihantar ke UK untuk mempromosikan avitourism..."
- "... For example, last year we were sent to the United Kingdom to promote our avitourism..."

Their role as a salesperson is similar with other studies by tourism scholars such as Cohen (1985), Ap and Wong (2001), Dahles (2002), Cohen, Maurice and Cohen (2002), and Yu, Weiler and Ham (2001). Their studies found that tour guide is someone who creates ambience for tourists and influencing the quality of services provided, the tourists experience, length of stay and promoting the local community's business and also play a direct role on mediating cultural exchange between visitors and host cultures.

4.3 Roles to Preserve the Local and Orang Asli Community Culture

Besides being an organiser and a salesperson, a tour guide needs to respect the local people who are mostly the Orang Asli community. They are responsible for helping to preserve and conserve the Orang Asli customs. Urry (1990) suggested that tour guides can help visitors to understand other cultures which in this case, they can act as the middleman between the Orang Asli community and tourists.

Participant 1 (TG1) said that it is really important to do something which benefits the local community, which in this case are the Orang Asli community.

"...yang pertama kita bawak pelancong ke alam sekitar, lepastu kita dengan pelancong conserve alam sekitar, dan yang ketiga tu benefit to the local community..."

"Firstly, we bring the tourists to the field, and then we teach them how to conserve our natural environment, and thirdly we give benefits to the local community."

Besides TG1, TG2 also mentioned about the perspective of Orang Asli on receiving tourists to their place.

- "...Saya pernah tanyalah diorang (the Orang Asli), ok ke bila pelancong datang kampung diorang. Erm ada yang ok ada yang tak ok..."
- "...I have asked one of the Orang Asli people, whether is it okay for the tourist to come to their village? Some of them said okay and some of them said otherwise"

The answers from TGs showed that tour guide's role in preserving the local and Orang Asli community is somehow a part of their main role in ecotourism destination in Malaysia as stated by Weiler and Davis (1993). Also, it shows that they respect the local culture and environment.



5. CONCLUSION AND RECOMMENDATIONS

This research contributes to the finding on the importance of tour guides in the tourism sector and conservation context. In order to have sustainable tourism, we need tour guides as the frontliners. As a future recommendation, more research on tour guiding services, need to be conducted, particularly in Malaysia. This is because tour guides are important profession within the tourism industry and also in maintaining a sustainable tourism practice in Taman Negara, Pahang.

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