Threats Factor on Eco-tourism Activity in Kilim Karst Geoforest Park, Langkawi

Noor Syarafina Mohd Fauzi[1#], Alamah Misni[2]

1 Center of Graduate Studies, Faculty of Architecture, Planning, and Surveying, Universiti Teknologi MARA 40000 Shah Alam, Selangor, MALAYSIA.
2 Faculty of Architecture, Planning, and Surveying, Universiti Teknologi MARA 42300 Puncak Alam, Selangor, MALAYSIA.
Corresponding author. E-Mail: sya_finafauzi143@yahoo.com.my; Tel: +6012-2490290; Fax: +603-3258611.

ABSTRACT Geo-heritage is those parts of geo-diversity that specifically identified as having conservation significance. In recent years, the eco-tourism sector has evolved and become a significant impact towards the loss of geo-heritage elements around the world. Nevertheless, Geopark concept has introduced the idea of managing the geo-heritage site through the concept of conservation, education and sustainable development. Therefore, the study used in-depth professional and expert interview to obtain data to identify the threat factor in Geopark area. The results of the interview translated into detail transcript and analysed through the latest Atlas.ti software. Meanwhile, the overall result has been sorted out, visualized through a Conceptual Model Network, and supported by figures and charts. Based on the result, eco-tourism activity identified as threats that contribute towards the negative impact in Geopark area. Therefore, proper conservation management planning is required to address the problems. This study hopes to organize, identify and analyse a precise Geopark measure in strategically sustain the valuable features of the Kilim Karst Geoforest Park.

KEYWORDS: Geo-heritage; Conservation; Education; Geopark; Sustainable development

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INTRODUCTION

Langkawi Geopark is located in the far northwestern corner of Peninsular Malaysia which in the State of Kedah. The area is unique in the sense that formed on 99 islands that together made up the legendary Langkawi archipelago. Langkawi Geopark has successfully accorded Global Geopark status on June 1, 2007 (LADA, 2014a) under Global Geopark Network (GGN) programme, and becoming the first in South-East Asia and the 52nd in the world to earn the recognition (Thestaronline, 2015). The Langkawi Geopark has fulfilled these three key criteria set by The United Nations Educational, Scientific and Cultural Organization (UNESCO). According to LADA (2014b), the criteria included having an extensive mangrove park, natural resources such as beaches and islands, as well as a multi-racial culture.

Langkawi Geopark offers an experience of exploring the meaning of integrating nature and human development. As Langkawi Geopark accorded the geopark status, this eco-tourism destination became more famous especially for nature lovers and resulted in the rapidly increasing numbers of tourist each year (Fauzi et al., 2017). Langkawi Geopark consists of three most famous Geo-heritage sites known as Matchinchang Cambrian Geoforest Park, Dayang Bunting Marble Geoforest Park and Kilim Karst Geoforest Park (KKGP). All these three areas area having richness in Geo-heritage value and vast, beautiful natural landscape. As stated by Ismail et al. (2005), a geoforest park is a special conservation area that includes an outstanding geological and biological resources within the forest area where protection and wise utilization of these resources are geared towards sustainable recreation, promoting multidisciplinary research and enriching community awareness about the nature.

This study has chosen KKGP as a case study area to identify the threat factor that resulted from an eco-tourism activity, especially since this area has accorded Geopark recognition. The KKGP area has been chosen because the main attraction in this area involving a mangrove tour by boat trip.

This Geo-trail involved various areas that provided with exciting tourism activity. Obviously, KKGP branding as a famous eco-tourism destination as it is rich with impressive rock or karst formations called Setul Formation surrounded by ancient jungle, vast caves with stalactites and stalagmites, winding mangrove rivers, sea caves and tunnels, wildlife and others. In addition, KKGP also been provided with various kind of tourism activities such as mangrove tour, cave tour, fish farm show, lunch treats at floating restaurants and others. In recent years, KKGP which known as a special place with natural attractions for tourists; however, faced challenges concerning sustainability (Jaafar et al., 2014) was believed affected by these activities (Aris et al.). Besides, having a richness in historical geology and natural environment aspects, Geopark area such as the KKGP need to consider its heritage, tourism, education and community involvement in relation to maintain the Geopark status.

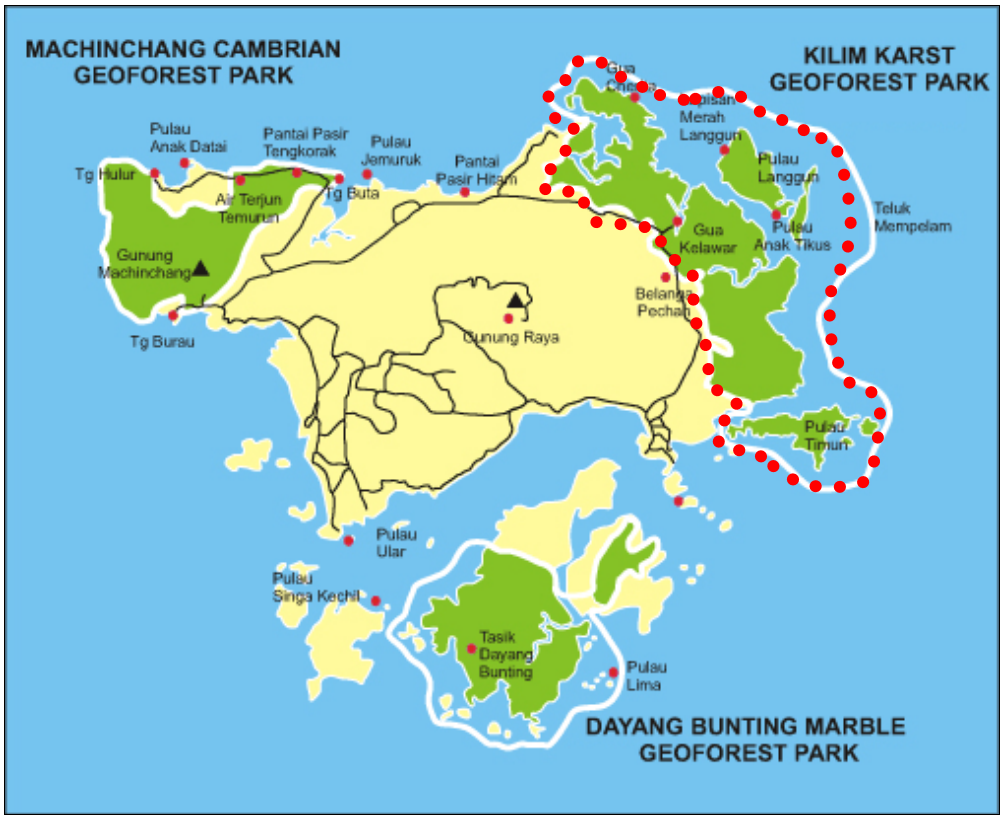

Figure 1. The location of KKGP in Langkawi Geopark. Source: LADA (2014)

METHODOLOGY

This study has prepared in-depth expert interview in order to obtain data of the threat factor affecting the sustainability of KKGP area. The interview data were transcribed into a detailed transcript and analysed using Atlas.ti software. According to the scope of this study, which emphasized on specific geological and natural conservation aspect, professional and expert involved in KKGP management was the perfect group that should be interviewed rather than publics. This is because a conservation and management aspect was quite a challenging and technical aspect. As stated by Curtis et al. (2000), the aspect of the validity of qualitative research relates to the sample/respondents that should produce believable descriptions/explanations. Hence, responsible professionals and expertise on KKGP were the chosen group selected to gain useful and valid data. From the in-depth expert interviews, the experts were asked about the conservation and management-related issues and problems in KKGP. The structure of the question was divided into a few categories by referring to the indicators and elements of the Geopark and Geoforest Park. The categories include general understanding of the Geopark and Geoforest Park, issues and problems

of KKGP, and conservation management aspect in KKGP. The following lists are the group of representative, which involved in the management of KKGP and have expertise in related scope of studies. These professional and expert was being asked on the conservation aspect and the current issues that possibly poses a high risk and creates a disturbance towards the surrounding environment in KKGP.

Table 1. List of Professional group involved in the in-depth professional and expert interview

No.	Organization	Number of Person
1.	LESTARI UKM – Langkawi Research Centre (PPL)	4
2.	Langkawi Development Authority (LADA)	3
3.	Friend of Langkawi Geopark (FLAG)	1
4.	Forestry Department	1
5.	Local community: The Cooperative of Kilim Village Community Langkawi	4
6.	Local Authority: Majlis Pembandaran Langkawi Bandaraya Pelancongan (MPLBP)	1
7.	Local Tourist Guide Association (LTGA)	1
8.	Academician	2
	Total	17

There were 17 professionals and experts that been interviewed. According to the list of the professionals and expert interview, there are two main agencies which responsible and have a major role in managing KKGP which are LADA and Forestry Department. The LADA is the federal agency that was appointed by the State of Kedah to be the coordinator of Langkawi Geopark. Hence, the data collected in the interview survey from the representative of LADA were one of the essential information in analysing the current Geopark development and conservation aspect in KKGP. Apart from LADA, the Forestry Department is also the main agencies that involved much in managing KKGP. The KKGP area has originally been managed by the Forestry Department because the area was included in Kisap Forest Reserved. However, this study could only reach one representative from the Forestry Department as the officer specifically assigned to manage the part of Langkawi Geopark, which includes the KKGP area. Therefore, this officer is the one that responsible and expected to answer the required aspect in this interview.

RESULT AND DISCUSSION

The result and analysis of the interview survey, there are both positive and negative impacts of Geopark development towards KKGP area. However, as the negative impact related to the conservation aspect, it poses high risk and resulted in the loss of various geological importance and biodiversity as it become worse. The Conceptual Model Network (CMN) (Figure 2) visualized the detailed result of the professional and expert interview. According to the CMN result, the negative impact in KKGP causes by a few aspects such as management, tourism activity, and others. In addition, the study focused on the CMN result, which identified that the tourism activities had pose various impacts towards the surrounding environment and becoming the serious threat factor in sustaining and conserving the area.

Types of Eco-Tourism Activity that Becoming the Threats for Sustainability in KKGP

In order to entertain and attract tourist with various kinds of enjoyable eco-tourism activity, KKGP had faced so much risk and challenges involving the conservation aspect. Although there are

multiple choices of interesting activities provided in the tour package, however, these activities have contributed to various negative impacts towards KKGP area. According to the professional and expert comments, the result of the in-depth professional interview has been visualized through Figure 3. Based on the result, 68% from the professional and expert's comment have agreed that boat tour activity has given the most negative impact to KKGP area. Meanwhile, the second highest, eco-tourism activities that risk KKGP are eagle and monkey-feeding activity acquired 20% of the comments. Bat cave tour and other activities such as kayaking and fish farm's show resulted in less impact towards the surrounding area. According to the professional and expert's comments, currently, uncontrolled boat tour activity in KKGP had caused various kinds of issues and problems towards the ecosystem.

For example, as a result from a mass tourist number in KKGP, boat trip has increased rapidly in a day. Thus, this had caused cramped spaces and exceeded the carrying capacity in KKGP. A cramped space at the Kilim's Jetty and waterways could sometimes create chaos, hence had caused an accident and risk the safety of the visitors. In addition, without a proper supervision from the management team and advice from a certified tourist guide, there are uncontrolled numbers of boat trip per day and some boat trips have exceeded the speed limit in KKGP area. Therefore, this condition has resulted in riverbank erosion and damages of mangrove forest. The strong and multiple hits from the boat's wave bring a bad damage along the riverbank.

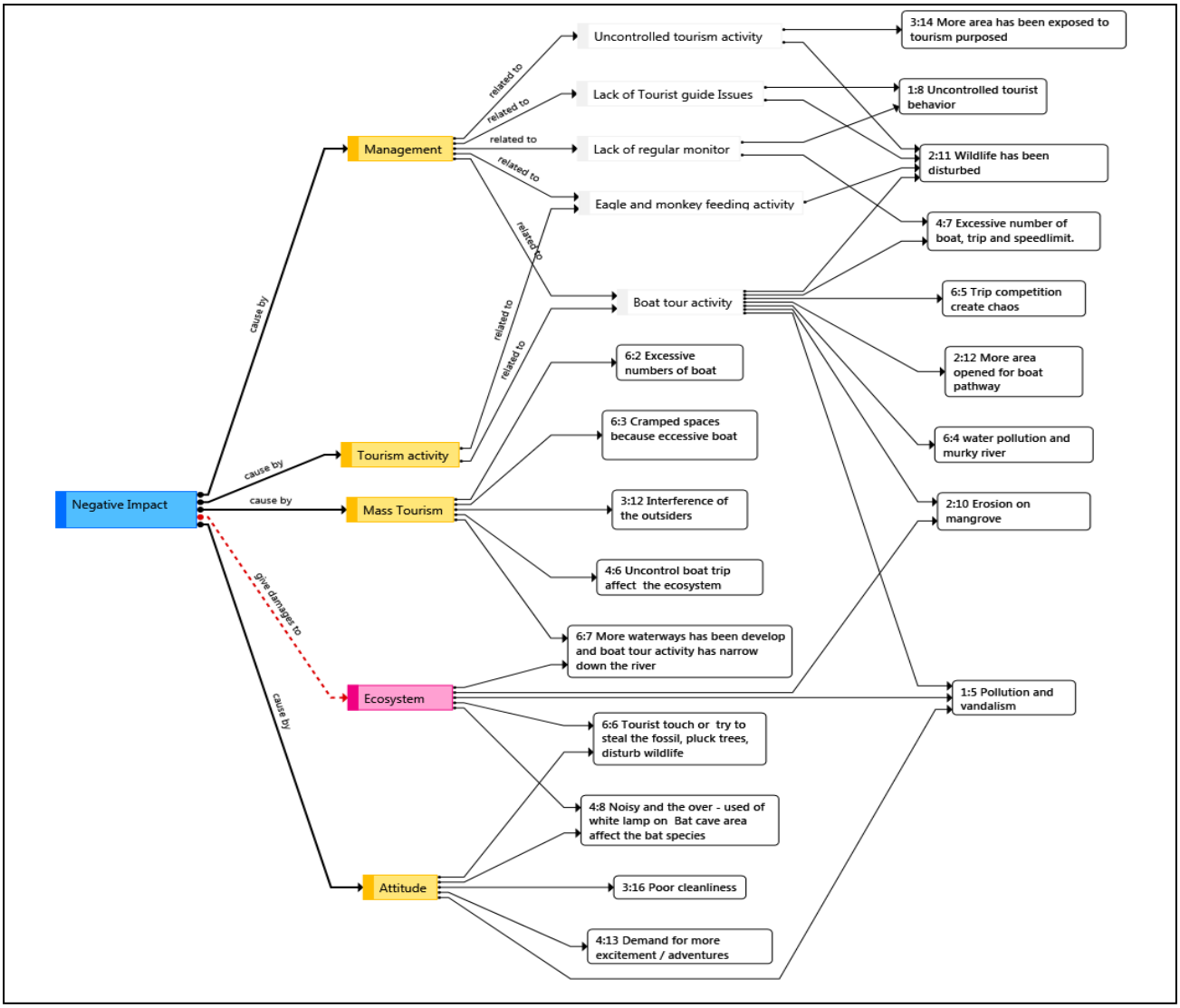

Figure 2. Conceptual Model Network (CMN) on the Negative Impact of Geopark towards KKGP

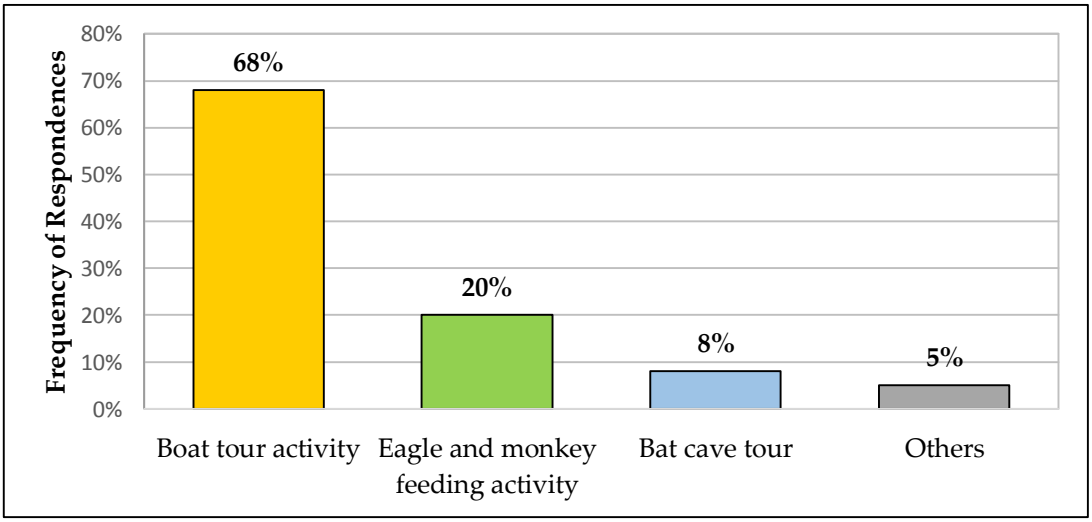

Figure 3. The professional and expert's comments on the types of eco-tourism activities contributed in negative impact towards the KKGP area.

Besides, the eagle and monkey feeding activity also become one of the most exciting experiences for the visitors in KKGP. However, an expert has stated that those activities caused a bad impact towards the wildlife species. This activity could result in water pollution and disturb the lifestyle of the wildlife. For example, previously, eagle species have given a chicken part, skin, and fats to gather and entertain the tourist with the magnificent view of eagle feeding. Nevertheless, this activity has polluted the water with the chicken fats and oil. This activity receives much criticized from naturalist and scientist. As for the bat cave tour and other activities, lack of supervision and guidance from certified tourist guide may continuously affect the surrounding ecosystem in the future. Without a proper knowledge and guided, visitors does not aware and educate on the significance of those historical geological and natural elements in KKGP. Their behaviour and attitude could not be controlled from damaging and disturbing the surrounding elements. Thus, this may result in many serious problems towards KKGP.

Impact of Eco-Tourism Activity towards KKGP

Although KKGP becomes famous worldwide because of the richness in geology and natural heritage, and various exciting activities that have been provided, unfortunately, uncontrolled eco-tourism activity has become the main threat factor towards the conservation of KKGP. Those activities have resulted in many disturbances and damages towards the surrounding ecosystem at KKGP. For example, Figure 4 shows 26% of the result from the professional and expert's comment which specifies that mangrove erosion was the worst impact of the tourism activity in KKGP. Uncontrolled boat tour activity regarding the over the speed limit aspect and number of boat trips had caused a serious problem towards the mangrove riverbank erosion. Meanwhile, the second highest impact was the pollution that received 24% comments towards the area of KKGP.

According to the professional comments, various pollution issues occur in KKGP such as water and noise pollution, which resulted from floating restaurant, fish farm, and mangrove tour activity. This is because of the wastage been delivered directly into the river around KKGP. Apart from that, tourism activity such as cave tour also resulted in wildlife disturbance. Chaotic and loud noise from numerous numbers of visitors at a time could disturb the wildlife such as bat species in the cave. This matter was related to lack of tourist guide issues. According to the professional and expert's comments, they have suggested that one tourist guide must accompany each boat trip. Therefore, this approach could help to educate visitors to behave and aware of the surrounding ecosystem. Besides, the result from the interview also indicated that tourism activities has resulted in boatman

competition, increasing the probability on more area exposed, cramped spaces in the jetty and waterways, vandalism and even karst erosion. Hence, without a proper management, specific planning, guidelines and approach, eventually, tourism activities were becoming the major threat factor towards the loss of KKGP's natural assets.

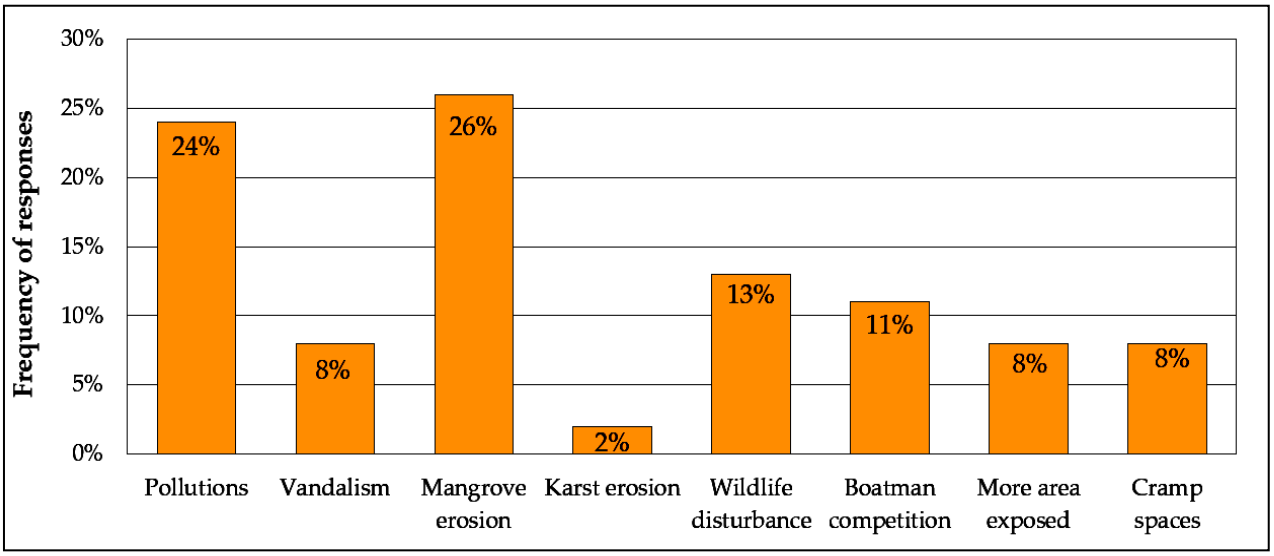

Figure 4. The professional and expert's comments on the impact of tourism activity towards the surrounding ecosystem in KKGP.

As an eco-tourism destination, KKGP was definitely having to be provided with various kinds of attraction such as tourism activities, infrastructures and facilities in order to meet the visitor's comfort and satisfaction. However, mass number of tourists that come to the KKGP at certain times has to be controlled in order to sustain and conserved the surrounding environment. For example, as the mangrove-tour was the main activity in the KKGP, the boat trip management and procedures should be well prepared. Certain guidelines should be provided to control and strategically supervise the boat tour activity. One tourist guide should accompany each boat trip to give a better experience and knowledge while educating the tourist on the importance of valuing our historical elements. In addition, boatman should be well educated on the importance of controlling the boat speed as to protect the mangrove in KKGP. Types of boat, size and speed should be standardized for easily monitor the progress of the boat activity in KKGP. Enforcement by law should be taken for those who may not follow the rules. The management team should regularly monitor and cooperate with one another to address each issue occurred within the KKGP area. Strategy and approach such as declaration of a certain period for maintenance day could help much in conserving the whole area. Furthermore, sensitive area such as KKGP should be conserved with proper management and well mannered.

CONCLUSION

The KKGP area has become one of Malaysia's geological and natural treasures, which could not be replaced and the evidence towards our country historical background. However, tourism activity that has been provided such as boat tour activity, eagle and monkey feeding, cave tour and others has resulted in various kinds of impact towards KKGP as those activities was not well monitored. Many damages such as mangrove riverbank erosion, pollution, disturbance of wildlife have become the vital threats towards the conservation of KKGP area. Professional and expert had suggested that related management team need to struggle in preparing plans and guidelines to address the problems. Each involved agencies should cooperate in conserving the area. Local

communities must be educated on the importance of those elements for the future benefits, hence their involvements were strongly recommended. A failure to address the problems will lead to the loss of our precious historic treasure. Therefore, as the threats has been identified, KKGP was hoping to be well protected and conserve with proper development planning.

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