

Designing an ecotourism initiative to create economic incentives for forest conservation

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Abstract

Forest reserves and protected areas have significant ability as the effective nature conservation strategies especially in conserving forest habitats. Many alternatives were developed to improve habitat destruction in forest environments, including empowerment of local communities' participation. The research aims to create financial incentives to strengthen the local community's involvement using conservation financing approach in ecotourism strategies at Ulu Tampik Waterfall (UTW), Lentang Forest Reserve, Bentong, Pahang. It also discusses strategies adopted in empowering locals for ecotourism purposes by implication conserving the forest reserve for Primary data and baseline information were collected through rapid rural appraisal, focus group discussion and field research to estimate the economic benefits of preserving the forest area based on public preferences. It examined 149 respondents (January 2018) to estimate willingness to pay (WTP) for natural resource conservation using the contingent valuation method (CVM). A few initiatives also were adopted to empower local community including stakeholders' consultation workshops, technical visits and study tours to Malaysia's best practices community-based ecotourism from 2018 to the latest event in 2021. Such programmes indirectly educate and empower local community's knowledge, experience and support in natural resource conservation.

Keywords:

Nature-based tourism; community-based ecotourism; capacity building; social forestry; conservation

1 Introduction

Forests play a significant role in maintaining environmental stability including the protection of water resources, biological diversity, flora and fauna (Talib, 2015). Forests in Malaysia can be classified into seven categories according to changes in the characteristics of height above sea level, and the combination of flora, habitat, climate, and soil. The forest classification is divided into mangrove forest, peat swamp forest, lowland dipterocarp forest, hill dipterocarp forest, upper dipterocarp forest, montane forest and ericaceous forest (Forestry Department of Peninsular Malaysia, 2020). Besides providing direct benefits, the forests play vital role in maintaining environmental stability and quality, protecting soil and water resources, conserving biological diversity, and also preserving cultural, ecotourism, recreational and other intrinsic values which enhance people's quality of life (Mok, 1992).

According to the World Tourism Organization (UNWTO), tourism is one of the important sectors that contribute to economic growth. Nature-based tourism in Malaysia has started to attract the attention of various stakeholders in terms of projects and investments. The Malaysian economy has greatly benefited from the increase in tourists from 17.55 million in 2011 to 26.1 million in 2019, with income generated reaching MYR 86.1 billion (approximately USD 21 billion) in 2019. The scenario was seen as an opportunity for locals living in the tourist destination to reap socio-economic gains while ensuring that forests and protected areas in the tourist area are conserved. However, Malaysia faced a critical phase since the Coronavirus, COVID-19 outbreak as it becomes one of the threats to tourism industries which tourism sector in Malaysia losses about MYR 45 billion (10 million USD) due to the outbreak (Bernama, 2020).

Currently, Malaysia focused on domestic tourism and natural attractions have been the best choice to visit especially for urban dwellers who need peace of mind. Malaysia has adopted ecotourism as an approach to forest conservation as well as a means of uplifting the socio-economic status of local communities. One of the option is through community-based ecotourism (CBET) approach for the rural communities adjacent to the protected areas. Ecotourism has tremendously contributed to forest conservation efforts and positive socio-economic implications by providing for the self-financing of protected areas through user fees and concessions. The concept is that ecotourism is based on the preservation of attractive natural ecosystems and diverse flora and fauna, therefore, assisting communities in earning money from ecotourism provides both an incentive for conservation and an economic alternative to destructive activities and enhance for the cultural heritage (Kiss, 2004; Abdullah et al., 2018).

The research presented intend to explore the potential of ecotourism as a conservation tool for upgrading the socio-economic among local communities. Therefore, main principle of the research objective is to strengthen conservation efforts through the use of economic and financial tools as a model for effective forest

management. This study seeks to review best prices in recreational fee systems in the forest reserve and to find a relevant entry fee for one of the most attractions in Lentang Forest Reserve, Ulu Tampik Waterfall (UTW). Through this principle it is indirectly improved the socio-economic benefits of the local people by maximizing their financial return from ecotourism development, which in turn will lead to better involvement and commitment for the management of forest resources among local communities.

The second objective of this study intends to increase the knowledge and raise awareness of the local communities on forest conservation through education and consultation workshops. These initiatives were undertaken to provide policymakers and resource managers with baseline information on the efforts and strategies of the livelihoods for the purpose of natural resources conservation through their participation in ecotourism and recreation activities in the vicinity of Lentang Forest Reserve specifically in Kampung Janda Baik, Pahang, Malaysia.

2 Literature Review

2.1 Community-based tourism or community-based ecotourism

Many alternatives were developed to improve habitat destruction in forest environments, including empowerment of local communities' participation. In Malaysia, community-based ecotourism is an option especially for the rural communities adjacent to the protected areas. Boo (1992) defined CBET as 'nature tourism that promotes conservation and sustainable development', introducing the element of proactive conservation and economic development. Honey (1999) expanded the concept to include not only financial benefits for biodiversity and local communities, but also respect for human rights and democratic movements. Malaysia National Ecotourism Plan, 2015, underline five important elements for an activity to be called ecotourism which include respect for nature, contribution to conservation, benefit to local community, component of education as well as awareness and sustainability in terms of ecology, economy, socio-cultural and ethics.

Community-based Tourism or Community-Based Ecotourism (CBT/CBET) is often regarded as a panacea by creating an alternative source of livelihood once protected areas are gazette around or close to local communities who used to be dependent on the forest resources. Numerous studies on CBET nexus have demonstrated the critical role of livelihood participation and active contribution as a pathway for poverty alleviation (Zapata et al., 2011; Hamzah & Mohamad, 2012; Saufi et al., 2013). CBET is also widely used as an economic incentive to achieve specific conservation strategies, such as habitat or species protection or even integrated between conservation and development project (Sakata & Prideaux, 2014). Thus, the participation of local community in CBET directed them to be responsible in the decision making process and finally generate fair distribution of economic (Yanes et al., 2019).

CBET has been extensively practiced in all over the world. CBET has been increasingly used as a tool for reducing local threats to biodiversity, such as expanding agriculture, unsustainable harvesting of wild plants and animals, and killing wildlife that threaten people's crops, their livestock or themselves. While some researcher such as Goodwin & Santilli (2009) argue that large majority of CBET projects may enjoy very little success, undoubtedly, there are some of the successful CBET programs that can be learned from which include Buhoma Village Walk, Uganda – which provides an activity in a period of the day when visitors go to see the gorillas; Kahawa Shamba, Tanzania - a very successful coffee farm visit, with lunch and an option of overnight accommodation for groups; Meket Community Tourism Project, Ethiopia - three community owned lodges and trekking between them; Nambwa Campsite, Namibia - owned by a conservancy it provides pitches and some activities (Goodwin & Santilli, 2009). Also, in Mexico, mangrove rehabilitation area turned to ecotourism area, managed by local community in Ventanilla, Oaxaca, proved to be moving towards sustainability (Foucat, 2002).

The growth of CBT/CBET has been also contributed to the benefits of positive socio-economic local community (Saarinen, 2011; Moswete & Thapa, 2015;) and indirectly increased awareness among the locals about the cultural and heritage preservation (Boley & Green, 2015). The communities also acknowledged positive economic and environmental outcomes (Sakata & Prideaux, 2014), improved locals well-being and encouraged individuals to conserve forests and wildlife (Stem et al., 2003).

Whereas, in Southeast Asia, most of CBET efforts are led by Thailand and Vietnam. For example, in Ban Hua Thang, Satun Province had been highlighted as one the well-known destination for CBET in Thailand. The uniqueness of this model, local community participated in the CBET for both ecotourism management and mangrove forest conservation. CBET has the potential to leverage natural features and cultural traditions related to the local Muslim lifestyle (Treephan et al., 2019).

A model for successful CBET project in Malaysia located at Batu Puteh, within the Kinabatangan region in the state of Sabah. The CBET project is regulated under a program called MESCOT (Model for Ecologically Sustainable Community Conservation and Tourism). This program focused on homestay based activities, also known as Miso Walai, and restoration activities such as tree planting at selected site i.e. Tugog Camp Forest. More Community Based Tourism (CBT) programs has been documented in Sarawak such as in Kampung Annah Rais, Padawan, Kampung Tebekang Melayu, Serian and Kampung Santubong, Kuching (Kaur et al., 2016) and Peninsular Malaysia (Kasim et al., 2016) as in Langkawi, Kedah, Selangor, Negeri Sembilan and Melaka with homestay being the main activity. However, very little documentation of CBET in protected area, with emphasize of ecological aspect of ecotourism has been found.

2.2 Local communities' participation in nature-based tourism

World Wildlife Fund (WWF) defines CBT as a form of tourism 'where the local community has substantial control over, and involvement in, its development and management, and a major proportion of the benefits remain within the community' (WWF, 2001:2). Thus, CBT has often been portrayed in promoting community participation and seeks to deliver wider community benefits. Recognition of the need for community participation in managing natural and cultural resources makes community participation in CBT an increasingly important aspect of its sustainability (Hibbard & Lurie, 2000; Mitchell & Reid, 2001). The CBT programmes are aimed to empower local people and decrease the poverty degree in rural communities (Rozemeijer, 2001), the nature of community representation in such ventures has remained largely unexamined (Salazar, 2012).

Local communities, other than providing useful information for developing management plans and helping to improve the capabilities of institutions through the information they provide, also help to enforce the guidelines outlined. The participation of local communities is crucial as in one community-based ecotourism project, it should include four main dimensions namely involvement, awareness, collective and harmony to have long-term sustainability in their business venture (Amin & Ibrahim, 2015). The economic benefits emanating from ecotourism development for local communities played an important role particularly through employment creation and raising the standard of living (Jaafar et al., 2013). The positive economic impacts linked to the job creation (Venkatesh & Gouda, 2016), and significantly uplifting the social interactions indirectly improved the local quality of life (Wishitemi et al., 2015). The CBET program in Cambodia, it showed the CBET did not contribute directly to increased household incomes and livelihoods. Rather, income from CBET was low, and only provided a secondary source of income, and CBET members could not depend on it to improve their livelihoods. That it is a challenge to use CBET to achieve poverty reduction objectives with equitable income shares. The Chambok CBET program income distribution policy should be revised to provide equitable opportunities to obtain additional income so that poor households can benefit from ecotourism (Lonn et al., 2018).

CBET's degrees of participation may be portrayed from a regular community consultation which can provide insight of engagement, assuring local community involvement in the management of the ecotourism programme, to partial or complete community ownership of entire ecotourism enterprises (Kiss, 2004). For a successful and sustainable ecotourism, a good practice in incorporating the fundamental principles of local community participation into the processes by which ecotourism projects are planned and managed should require with not only focus to the planning and management model approaches but also involved in the decision-making processes (Weaver, 2001). The extent of involvement should seek also in the implementation stages (Mohd Noh et al., 2020) as their participation lead to sustained the ecotourism development.

2.3 Contingent Valuation Method- CVM

Contingent Valuation Method (CVM) was capable of estimating the value of non-market goods and services indirectly measuring economic value. This is because it has been used by economic experts for over 30 years in assessing environmental change (Adamowicz et al., 1998) and is aimed at improving the ecosystem and estimating the degree of ecosystem degradation. CVM is an instrument used to estimate value for goods and services through hypothetical questions to individuals (Shavell, 1993). As it brings several benefits. CVM improved the quality of damaged services, establish a clear analysis of the monetary value of goods and services that have no market value (Anang et al., 2017) and know the maximum and minimum values that individuals are willing to pay for a product or ecosystem services (Pearce et al., 2002). Therefore, nature conservation can be evaluated using the CVM which elicit the willingness to pay (WTP) values of individuals. The CVM plays an important role in supplying biological information in achieving biological conservation goals and priorities due to financial constraints for biodiversity conservation (White & Lovett, 1999).

2.4 Willingness to pay- WTP

Consumer willingness to pay should be calculated when setting pricing so that revenue is not lost if fees could exceed the elasticity of consumer/visitor demand. The WTP valuation is included in the hypothetical scenario in the absence of price and its value can be estimated using the Contingent Valuation Method (CVM). In the absence of price, the research adopted the hypothetical scenario using the Contingent Valuation Method (CVM) to estimate the value of conservation fees.

Conservation value serves to create awareness on the need for decisions to optimize proper ecosystem resource management (Amiri et al., 2015) and this technique has been used to price non-market goods or services of ecosystems (Ajzen & Driver, 1992). The measurements included was a willingness to pay (WTP) for the conservation of nature tourism area. Therefore, the public preferences or users/tourists survey has been applied a CVM to quantify WTP which later will be used to determine appropriate conservation fees for the UTW. The summary and meta-analysis of CVM studies of Loomis and White (1996) suggest that the CVM can provide meaningful estimates of the benefits of preserving nature tourism area, which can be used in policy planning.

3 Methodology

3.1 Study site

This research has been undertaken at Lentang Forest Reserve (LFR), Pahang. The specific areas focused to the UTW, located at Kampung Janda Baik, Bentong district, Pahang, Malaysia. The area was approximately 45-minute drive from downtown Kuala Lumpur. It was located in compartment 51 of LFR and managed by Bentong District Forest Office. The environment was a unique and exciting recreation area. In terms of topography, this environment was within the Titiwangsa Range and hilly areas with an

altitude of between 600 m and 800 m above sea level. The main physical component was the uniqueness of the waterfall and its water purity. The UTW and its environment was a popular leisure area for local residents of Janda Baik, visitors from other areas as well as internationals. As of April 2020, the area was within the Use Permit area, operated by the local society known as Persatuan Sahabat Alam Tampik Janda Baik (SATJB). The society was the official registered society under The Registry of Societies Malaysia (ROS) managed by the local communities and the land was protected water catchment area.

3.2 Sampling and data collection for baseline research

The rapid rural appraisal (RRA) technique enabled a quick assessment of the individual or households in the communities living in the vicinity of the UTW. It provides a general overview of the conflicts that exist and also the perception of the community towards the conservation of LFR. The RRA involved the focus group discussion with the head of the village, leaders of the homestay and recreation associations, accommodations operators, restaurants owners and nature tourist guides. The RRA as a baseline research has been conducted since January 2018 to compile the basic information on the visitors' demand. This is essential for observation and important input for the purpose of several series of stakeholders' consultation workshops.

As the yearly visitors' statistic unavailable, research team interviewed the visitors who had completed their recreational activities and willing to be as respondent in the survey. The primary data obtained from a total of 149 visitors as sample respondents using purposive sampling in January 2018. These techniques are considered appropriate for the complexity of the total number of visitors visited Lentang Forest Reserve, Ulu Tampik Waterfall (UTW).

A visitor survey involved a face to face survey administrated with structured questionnaire form. The questionnaire form as a main instrument was designed in dual language (English-Malay) contained information of the tourist's background, their perceptions and participation related to the nature recreation activities and the socio-demographic information included were socio-economics profile and background of the visitors; gender, age, educational level attainment, marital status, profession, monthly gross income (Malaysian Ringgit) and country origin. In this article, the findings focused to present on the value of WTP in recreational fee systems in the forest reserve. This principle related to determine a relevant entry fee for one of the most attractions in Lentang Forest Reserve, Ulu Tampik Waterfall (UTW).

3.3 Statistical analysis

The first objective aims to create financial incentives to strengthen the local community's involvement thus research adopted conservation financing approach in ecotourism strategies. Main principle of the research seeks to review best prices in recreational fee systems in the forest reserve and to find a relevant entry fee for UTW.

Therefore, only the value of WTP is revealed without further in-depth to other aspects of factors affecting of WTP.

The estimation of willingness to pay (WTP) for natural resource conservation in this article using the contingent valuation method (CVM) based on public preferences. It focused used conservation fees as a payment vehicle. The approach of CVM for this study used the dichotomous choice – double bounded format. The format provides the respondent an opportunity to choose the amount of WTP. The dichotomous double-bounded format with different bid price (e.g. RM2, RM8, RM10, RM15 and RM20) has been used in this questionnaire and face to face interview. The bid value was determined based on a pilot study involving sixty respondents, thirty visitors and the other thirty respondents were generated from the local communities.

The hypothetical question for WTP assessment was, “If you are required to pay RM X per year to the conservation fund to conserve UTW, are you willing to pay?”. The DC-CVM approach is a method for obtaining information from respondents about WTP by providing an initial bid in which the respondents will be asked whether they are willing to pay the amount specified for the service. Thus, respondents have the opportunity to either accept or reject proposed bid prices. Through this format, the response ‘yes’ or ‘no’ is needed for the WTP questions. If the answer “yes” followed by a prechosen higher amount, and if the answer was “no”, a prechosen lower amount was assigned. Finally, respondents asked on the open-ended maximum WTP. In the double-bounded DC-CVM format, each survey respondent is given a series of price offers, including the initial bid and a second bid its direction (higher or lower) is dependent on the response to the first bid. Thus, the offered price will increase if the first response is “yes,” and decrease if the first response is “no.” Each respondent, therefore, had a choice to accept both bids or reject both bids, or to accept only one of them. Hence, double-bounded CVM, which is more efficient (i.e., has a smaller variance around parameter estimates and narrower confidence intervals around welfare estimates) than the single-bounded format for equally sized samples, was selected for this study (Hanemann et al., 1991; Kanninen, 1995; Calia & Strazzera, 2000). An individual would derive utility from environmental quality and money income. In this study focused to the visitors; defined who participate in the recreation activities in the nature-tourism sites. The statistics carried out using the econometric software program Statistical Package for Social Sciences (SPSS).

3.4 Education and consultation workshops

For the education and consultation workshops, there were several series and strategies have been sort out from 2018 to 2021. For the purpose of training and empower the local communities’ knowledge and skills, the Forest Research Institute Malaysia (FRIM) rolled as the technical advisors to the local communities especially to the association “Persatuan Sahabat Alam Tampik Janda Baik” assist in the organizing several series of workshops and hand on courses. The implementation of this project has started since 2018 and ended in August 2019. However, with the continuous support

from Forest Research Institute Malaysia (FRIM) as a technical advisor to the community-based ecotourism project, various activities have been carried until April 2021.

4 Findings

4.1 Socio demographic profiles of visitors

Table 1: Socio-demographic profile of visitors to UTW (n=149)

Characteristics	Frequency (N=149)	%
Gender		
Male	92	61.7
Female	57	38.3
Nationality		
Malaysian	125	83.8
Non- Malaysian	24	16.2
Marital status		
Single	101	67.8
Married	48	32.3
Age (years)		
20 & below	41	27.5
21-30	62	41.6
31-40	14	9.4
41-50	22	14.8
51-60	4	2.7
More than 61	6	4.0
Education		
Secondary School	41	27.5
Certificate/Diploma	34	22.8
Degree	48	32.2
Master / PhD	26	17.4
Occupation		
Government Staff	11	7.4
Private Staff	71	47.7
Business	8	5.4
Housewife	2	1.3
Retired	6	4.0
Student	45	30.2
Self-Employ	1	0.7
Monthly Income (RM)		
1000 & below	62	41.6
1001-2000	32	21.5
2001-3000	19	12.8

3001-4000	9	6
Above 4001	27	18.1

Source: Field survey, 2018

4.2 Willingness to pay (WTP) levels

To estimate the economic benefits preserving of UTW nature tourism area and its surroundings based on public preferences (users), research measured the WTP of visitors to UTW. The visitors indicate their willingness to pay for conservation of the natural resources with 87% of the respondents agreed, while 13% did not agree to contribute to the conservation of the UTW area. The respondents who were not willing to pay indicated that the conservation of the area and the development of the area were the responsibility of the government. Any improvement of the facilities and services would benefit them without the need for them to pay. The visitors might have considered that they did not need to pay or contribute to the conservation of the area since they were already doing so through their income tax deductions. The frequency analysis shows that the WTP levels in the conservation fee for visitors to the UTW range from RM1 to RM80 as of summarized in Table 2.

Table 2: WTP levels

WTP levels (MYR)	Domestic visitor (%)	International visitor (%)	Overall (%)
1-5	29.5	11.1	26.9
6-10	32.1	55.6	35.4
11-15	13.3	11.1	13.1
16-20	9.8	0	8.5
21-25	1.0	5.6	1.5
26-30	8.9	5.5	8.4
>30	5.4	11.1	6.2
Total	100	100	100

Source: Field survey, 2018

4.2.1 Estimation of mean willingness to pay

This article only presented an estimating mean WTP through Ordinary Least Square (OLS) regression analysis. The calculated mean value as listed according to model estimation showed in **Table 3**. Result indicate the differences in the preferences of the international and local visitors to UTW with differences between the mean WTP. In OLS model, the mean WTP values for international visitors are higher than the means given by local visitors. The estimation of the overall mean WTP for model estimated through OLS provide was RM14.35.

Table 3: Mean WTP estimated for the sample

Model	Mean WTP (RM)		
	Local	International	All visitors
Open ended- OLS regression	14.04	16.28	14.35

Note: OLS- Ordinary Least Square

This result showed the WTP among international visitors higher than local visitors. This situation as international visitors might have perceived higher income because it is made up of domestic and international visitors, which have a different currency value or likely higher than Malaysia. On the other hand, Mohd Aswad et al. (2011) states that visitors are willing to spend more money on a rewarding experience, including seeing the beauty of a nature fountain and waterfall in tropical forest.

4.3 Local communities' participation for the nature conservation

The communities living adjacent in the Lentang FR comprised five (5) main local villages, namely Kampung Sum Sum Hulu, Kampung Cherengin, Kampung Cherengin Hulu, Kampung Cherengin Tengah, Kampung Janda Baik and Kampung Chemperoh, Pahang. The back to back series for empowering local communities, involved seven (7) series of consultations workshops and three short courses involved the 151 local communities throughout the three years of continuously networking from 2018.

Activity 1: Stakeholders' consultation workshop

The first stakeholder consultation workshop was held 30th June to 1st July 2018 organized at the village level, with a theme "Conservation of forests through sustainable eco-tourism". Two main topics have been discussed throughout the workshop: (i) the potential of the services or advantages and opportunities in the community that can be commercially and continuously offered to future visitors, (ii) rules or means of benefit sharing that can be developed and applied which will bring benefit to both parties such as Pahang Forestry Department or State Government and local communities, in addition to management issues especially in the vicinity of Ulu Tampik Waterfall. The UTW area with 30 hectares (74 acres) was requested to be handed over to the local community through a use permit to be fully managed as a community-based ecotourism project site. The official application was made to Pahang State Forestry Department with the assistance and technical advice from Forest Research Institute Malaysia (FRIM) in October 2018. At this workshop, the community has unanimously agreed to give full commitment and be willing to actively participate in project implementation through forming a special committee.

Another consultation workshop namely "Identification of ecotourism and development of ecotourism package" was conducted from 21st to 22nd November 2018. The workshop focused on the potential of ecotourism activities and marketable package development. The workshop was organized to enable the ecotourism package to be successfully developed and promoted to potential prospects. The workshop

participated by 47 participants from government agencies, local authorities, non-governmental organisations, resort and homestay associations and also the committee. The workshop reached consensus between local communities and agencies, especially the Forestry Department of Peninsular Malaysia (FDPM) and Pahang State Tourism, Art and Culture Office (MOTAC Pahang) and Pahang Tourism office to jointly conserve nature and generate alternative income, contributing to the socio-economic enhancement of the local community. At the end of the workshop, it discovered the identification and enhancement of the existing Unique Selling Point (USP) at Kampung Janda Baik and designing package based on the market segment.

Activity 2: The Joint Forest Management (JFM) mechanism as one of the environmental conservation strategies

The special community is formed on the 8th of July 2018 for Joint Forest Management (JFM) strategies. The JFM of association as an eye and ears for the state government, in this case, refer to Pahang State Forestry Department. The *Persatuan Sahabat Alam Tampik Janda Baik* (SATJB) was formed with a specific Term of References (TOR) and this so-called association, has been chosen as a representative of the local communities of Kampung Janda Baik. Forest Research Institute (FRIM), Ministry of Energy and Natural Resources (KeTSA), Pahang State Forestry Department rolled as technical advisors for the committee. The JFM is responsible for the environmental management of UTW, Janda Baik, Pahang in the Lentang Forest Reserve area of 30 hectares (74 acres) under the assistance of this association for the purpose of recreational and ecotourism activities.

Activity 3: Short courses and study tour visits

To increase the capacity building of the committee, a study tour and short course has been conducted. The study tour to Miso Walai Homestay under the supervision and operated by Koperasi Ekopelancongan (KOPEL) Sdn Bhd, Sabah was held from October 16th to October 19th, 2018 focused to understand the establishment and management of community-based ecotourism site. A total of 30 participants attended this study tour and course, which consist of representatives from government agencies and local communities from SATJB, Sabah and Sarawak communities. Through this study tour, the local community directly learned from KOPEL experiences increased existing knowledge and raised awareness about forest conservation from environmental education and other extension services offered. The tour also acts as a suitable medium for networking, sharing of experiences and exchanging of ideas among local communities. The participants also were exposed to the needs and modalities of developing ecotourism packages based on their uniqueness and the availability of natural resources.

Activity 4: Green Badge Nature Tourist Guide

Other than the study tour, five local communities were given an opportunity to become a professional and licensed nature tourist guide (Green Badge Nature Tourist Guide) by the Ministry of Tourism, Act and Culture Malaysia (MOTAC) from 13th to 29th of November 2018. The two weeks' course allowed the selected local communities to become professional and licensed nature tourist guides. The modules of the course involved various themes. All participants were exposed to the ecotourism issues in Malaysia, basic criteria as a nature guide, communication skills, tourist psychology, safety and first aid kit, the principle of environmental interpretation, history and socio-culture of Malaysian communities, introduction to Malaysian flora fauna, wildlife track and sign, marine conservation, and others relevant topics.

Activity 5: Environmental Interpretation Short Course

The Environmental Interpretation Short Course, organized from 28th to 29th of April 2019 with the attendance of 25 local communities involved the full time and part-time nature and tourist guides had strengthened their understanding of ecological contexts and raise awareness about human behaviour in forest nature. This short course provided an understanding of nature interpretation as a tool for education, recreation and conservation of the natural environment particularly the UTW nature area and its surroundings. The course provided an opportunity for local communities to understand issues related to environmental interpretation as well as hands-on experience on proper interpretation methods when bringing visitors to the natural environment. During the course, participants were exposed to the principle of environmental interpretation, environmental conservation issues, communication skills and other relevant topics. Throughout group discussion during the training, participants have been given space and opportunity to train and practise as a real nature tourist guide, at the same time contributing relevant ideas during the presentation and on-site assessment.

Activity 6: Identification and assessment of flora and fauna along Ulu Tampik Waterfall Trail

Identification and survey of flora and fauna in Ulu Tampik Waterfall trail have been conducted from 14th to 17th June 2019. The activity has been conducted with the assistance of research team experts from the Forest Biodiversity Department, Forestry and Environment Division and Natural Product Division, FRIM. Local communities also assist experts group in carrying out these activities. From the survey conducted, a total of 66 species of trees and medicinal plants have been recorded. For fauna, 7 species of mammals, 20 species of birds and 7 species of herpetofauna have been recorded. Through identification and tagging of timber trees, shrubs and herbaceous species, local community and visitors could use this as a tool to educate themselves and to be more familiar with resources surrounding the nature area. Besides that, visitors could observe and learn more about the tagged flora. This is a good opportunity to enhance visitors'

experience and is important as an added value to the tourist to UTW. As a result, the local community and visitors learned about various species of timber trees, shrubs and medicinal herbs, as well as gained knowledge on environmental education.

Activity 7: Tampik Junior Rangers

The association initiated the establishment of Tampik Junior Rangers (TJR) to enhance the support for the environmental conservation of UTW. This opportunity has exposed the juniors and school children (below 12 years old) on the importance and preservation of natural resources. This programme is open and on volunteer-based to the young schoolchildren. They were trained in the field site as a young local nature guide and learning new skills, connecting with their local communities, risk management and emergency procedures indirectly empowered their forest survival knowledge.

Activity 8: Study tour and short course to Pahang National Park and local community of Kampung Sat, Jerantut

The hands-on learning organized on April 2021 involved 51 participants from forestry department, local communities from Terengganu and 10 local nature guide from SATJB. This form of capacity building with the aim to expand their knowledge and raised awareness about forest conservation, through education and extension services especially on the ecotourism packages (flora, fauna and ecosystem services), direct experience from local communities and exposure to the local communities in terms of the resource management. The course as one of the best platform for networking, sharing of experiences and exchanging of ideas with local communities in Pahang National Park and Sahabat Cakna Gunung Tebu, Terengganu. Local communities of SCGT learned from SATJB experience on the set up and community-based ecotourism model for a collective plan for ecotourism development and management.

5 Conclusion

First objective achieved through strengthened the conservation efforts using an economic and financial tools as a model for effective forest management. This study seeks to review best prices in recreational fee systems in the forest reserve and to find a relevant entry fee for UTW. The value retrieved from the baseline study has been applied as the visitors' or entrance fees started in April 2020 for the operational of Ulu Tampik Waterfall. The recreational services offered in UTW included jungle trekking, hiking, picnic and swimming at UTW.

This paper explored an inspiring story from local communities in Kampung Janda Baik, Pahang on their role in managing natural resources due to support for conservation. Through it second objective; to increase the knowledge and raise awareness of the local communities on forest conservation through education and consultation workshops. Local communities aware and actively participated in the

conservation efforts through several series of stakeholders workshops, courses and study tours.

Many alternatives have been developed to improve habitat destruction in forest environments, including empowerment of local communities' participation. This study was the first to present an achievement on the development of a community-based ecotourism (CBET) model initiated between research institution and local communities for Peninsular Malaysia case. The ecotourism initiatives designed inspired from the economic incentives to captured forest conservation. The three-year journey has been successful in empowering local communities to participate in assisting the government and relevant authorities to formulate conservation strategies and actions. The establishment of community-based management practices has enabled to mitigate human-environment and natural resource-conflicts. FRIM as the technical advisor to CBET is continually educating and empowering the local communities specifically in Kg. Janda Baik to put an effort for greater support and engagement in natural resource conservation.

To ensure the sustainability of community-based ecotourism, dynamic leadership and organization should be enhanced. The establishment of legal society with a strong commitment from the association (SATJB), including partnerships with government agencies and tourism industry players play a crucial part in the model of the community-based ecotourism initiative in Peninsular Malaysia. It is essential to administer the opportunities for the communities play their significant role indirectly to develop a systematic sustainable framework to community's forest dependency. Such strategies and initiatives could assist stakeholders that wish to find ways of facilitating local empowerment through ecotourism in future.

6 About the author

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Mohd Parid is Head of Social Forestry Programme in FRIM. He has a background in environmental economics for ecosystem services in protected areas.

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