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Ecotourism, Income Generation and Poverty Reduction: A Case of Kuala Tahan National Park (KTNP), Pahang, Malaysia

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A b s t r a c t

Ecotourism is one strategy for supporting conservation, generating income, and creating employment for communities living around protected areas. In Malaysia, the management of national parks (protected areas) focuses on the planning and implementation of various activities which contribute to the long-term conservation of the areas while mitigating or reducing conflicts between human and the environment. The issue is whether ecotourism development helps to improve income and reduce rural poverty. A case study was conducted in 2014 where 158 Malay households from Kampung Kuala Tahan were interviewed. Villagers engaged in economic activities related to ecotourism development in Kuala Tahan National Park (KTNP) area (2,477 sq. km) directly and indirectly. The result shows the average monthly household income of this village was RM4, 035. On the whole, about 90% of the average monthly household income was cash income while 10% income in kind. The income sources of villagers were from those within the state land forest areas (related to NTFP harvesting), and outside KTNP (related to forestry and ecotourism). Income generated outside KTNP (related to forestry and ecotourism) area was significantly high compared to those within state land forest and outside KTNP (non-forestry). On average, about RM1, 895 or 47% of the average monthly household income was generated from the ecotourism related activities and forest area. The highest percentage of cash income was from villagers' engagement as tour guides. Income generated from this source accounted for 13% of household income. Ecotourism related retail stores or restaurant operators also significantly contributed to the average monthly household income at 10%. The incidence of poverty among the households in the village was 4% in 2014 compared to 3.4% among rural Malaysian households in 2012. The findings in this study showed that the income received from forestry related activities and ecotourism is important in reducing poverty among local households.

1.   Introduction

Tourism has been identified as the largest industry which act as jobs provider, and is fast developing in Malaysia. It is proven by the total number of visitor arrivals to the country. The number of visitors to Malaysia increased from RM 16.43 million in 2005 to RM 24.58 million in 2010 and to RM 25.72 million in 2013. The increase in the number of tourist arrivals also directly increased the income generated from tourism from 32 billion in 2005 to 56.5 billion in 2010 and 65.44 billion in 2013 **(Table 1).** From 1990-2005, the growth rates were 173% for number of visitor arrivals and 614% for the income generated by this industry. The tourism industry in Malaysia registered 13.6% annual growth during the 1995-2000 periods, surpassing the average annual GDP growth rate of 4.7% for the same period. Hence, under the Ninth Malaysia Plan (2006-2010), the Malaysian Government's policy thrust was "to enhance the country's position as a leading global tourist

destination and promote domestic tourism" (Malaysia 2006).

According to Malaysia's Travel and Tourism Economic Impact 2014 by World Travel and Tourism Council (WTTC), tourism industry contributed directly to GDP in 2013, that was RM 70.4 billion (7.2% of GDP). The GDP was estimated to rise by 7.0% to RM 75.3 billion in 2014. This primarily reflects the economic activities by industry such as hotel, travel agents, transportation services (except commuter train), the activities of restaurant, and leisure activities that supported the tourist (WTTC, 2014). The same report also stated, these industry generated about 881, 000 employment in 2013 (6.7% from total employment in Malaysia and estimated to grow by 5.1% (926, 000 employments) in 2014.

Table 1: Selected tourism indicators, 2000, 2005, 2010 and 2013

| | 1995 | 2000 | 2005 | 2010 | 2013 | Average annual growth | | | |
						1995-2000	2000-2005	2005-2010	2010-2013
Number of tourist arrivals ('000)	7.47	10.22	16.43	24.58	25.72	7.42	13.17	20.87	25.01
Total tourism receipt (RM million）	15.4	17.3	32.0	56.5	65.44	11.9	25.1	45.7	60.21
Average length to stay	-	5.5	5,8*	6.8	8.1	-	-	-	-

Sources: 1990 – Malaysia (1991)
1995 – Malaysia (2001)
2005 – Malaysia Tourism Malaysia, www.motac.gov.my
2010 – Malaysia Tourism Malaysia, www.motac.gov.my
2013 – Malaysia Tourism Malaysia, www.motac.gov.my

According to Ministry of Tourism and Culture Malaysia (MOTAC, 2000), formerly known as Ministry of Culture, Arts and Tourism, about 10% of tourists who visit Malaysia are expected to be eco-tourist. In Malaysia, ecotourism takes place in the country's protected areas (PAs). At present, these areas make up approximately 11.69 % of the Malaysia's area, comprising 10.64% terrestrial PAs, and 1.05% marine PAs. There are 54 PAs in Malaysia include, 28 strict nature reserves, 16 national parks, nine managed nature reserves/wildlife sanctuaries and one protected landscape. The number of tourists, especially in National Parks increased significantly from year to year. In KTNP, Pahang (case study) the number of tourist arrivals in 2012 was 86, 797 tourists compared to 55, 533 tourist in 2000. The increasing number of tourists has indirectly contributed to the increase in employment opportunities and sources of income especially to local communities.

1.1 A case study in Kg. Kuala Tahan, Pahang, the village adjacent to KTNP - Description of the site

Taman Negara National Park (TNNP) was originally established in 1938 and had been gazetted as King George V National Park (DWNP, 1990). However, after Malaysia acheived independence in 1957, this park was renamed as Taman Negara National Park with the purpose to utilize the land within the parks in perpetuity, for purpose of propagation, protection, and preservation of indigenous flora and fauna (Act 226 National Parks Act, 1980). With an extensive area of 4.343 sq. kilometers, TNNP covered three states, which are Pahang, Terengganu, and Kelantan. The highest peak in TNNP is Gunung Tahan (2,187 meter), the highest mountain in Peninsular Malaysia. Taman Negara Kuala Tahan (KTNP), covered the largest area of TNNP which is 2,477 sq. kilometers (54%), while Taman Negara Kelantan and Terengganu 1,043 (24%) and 853 (19%) sq. kilometers respectively.

According to IUCN, ecotourism is "environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features — both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations". Richness in fauna diversity, scenic beauty, and the vast landscape with vegetation made up off dipterocarp, and montane forest, KTNP offers variety of ecotourism services. These attractions made KTNP as an ecotourism destination in Malaysia for both local and international tourists.

The activities available at KTNP are river rides, bird watching, visit fish sanctuary at Tahan River, visit Orang Asli settlement along the Tembeling River, and outdoor activities like mountain climbing, and cave exploration that were guided and operated by local communities (DWNP *et al*., 1996). The involvement of locals in ecotourism, also known as community-based ecotourism, is the essence of ecotourism sustainability and already been acknowledged by National Ecotourism Plan (Wong, 2005). Through these activities, incomes of local communities were generated and indirectly increased their socio-economic well-being and reduced the poverty at KTNP. Year by year, the growing of ecotourism activities at KTNP creates economic opportunities for local communities especially at Kampung Kuala Tahan. **Table 2** shows the statistic of visitor's arrival at KTNP from 1975 to 2012.

2. Materials and Methods

Different approaches were used to obtain different types of data information from different types of informants. The approaches are in form of interview, discussion, and survey. For examples, socio-demographic information like age, gender, income sources, employment, and perception towards the establishment of the KTNP had been obtained through household survey. Through focus group discussion, the issues especially related to social conditions, village's developments and others can be obtained. For this study, there are several approaches applied namely Rapid Rural Appraisal (RRA), and Survey Implementation.

Table 2: Statistic of visitors' arrival at KTNP, Pahang

Year	Total visitor	Year	Total visitor
1990	17,347	2002	65,744
1991	19,308	2003	51,804
1992	24,975	2004	53,616
1993	31,034	2005	71,627
1994	35,418	2006	79,758
1995	43,491	2007	81,974
1996	47,272	2008	84,044
1997	50,676	2009	86,685
1998	52,093	2010	81,989
1999	47,987	2011	84,963
2000	55,533	2012	86,797
2001	65,474		

Source: Department of Wildlife and National Parks Annual Report (Year 1990-2012)

2.1. Rapid Rural Appraisal (RRA)

This RRA technique is a tool that enables a quick assessment of the existing environment and the possible impacts of the forest resource utilization and the other environmental services to the local socio-economics livelihood (Liswanti *et.al,* 2012). Some of the techniques of RRA include group interview (includes focus group interview); methods of cross-checking information from different sources; methods of obtaining quantitative data in a short time frame, direct observation at study site level and use of secondary data (Crawford, 1997). This technique can be applied as a preliminary stage of the study, which will provide basic information, and ethno-histories of the study site for baseline in questionnaire design. In this study RRA was conducted in August 2013 and subsequent visits were made between September and January 2014.

2.2. Sampling Technique

The estimation of sample size/ respondents was based on the number of household living at Kg Kuala Tahan. From the data provided by Jerantut District Council, there are 400 households at Kg Kuala Tahan. Considered the level of precision of 5%, and using the simplified sampling formula from Yamano (1985), 200 households were identified to be sampled. However, due to lack of manpower and time constrain only 158 households successfully interviewed.

$$n = \frac{N}{1 + N\,(e)^2}$$

Where, n = Number of sample

N = Population size

e = level of precision

2.3. Questionnaire Design, & Data collection

The study involved household survey at Kampung Kuala Tahan using structured questionnaire (Figure 1). It was constructed into few sections covering demographic characteristic of the households, household's income sources, and their perception toward the KTNP. The household survey was conducted from February until April 2014. During the household interview, the respondents were briefed on the objectives and purpose of the survey. Time taken for each interview was about 30-40 minutes per interview.

Section A: Demographic profile of the household's

Section B: Perception toward the establishment of KTNP

Figure 1: The structure/organization of questionnaire

2.4. Impirical Results

From January 2014 until April 2014, the research team conducted a socio-economic survey on Kuala Tahan village adjacent to the Taman Negara Kuala Tahan (KTNP), Pahang. The team comprised of 2 researchers, 6 research assistances from FRIM, 1 researcher from FFPRI, Japan and 7 trained enumerators (graduated Degree holders). A total of 158 households (40% from total households) were interviewed during the survey. Basic information gathered during RRA interview shown in **Table 3**.

2.5. The level of average monthly household income

In 2014, the average monthly household income of village studied was RM4, 035. The income level was higher than that of the average household income for Rural Malaysia (RM3, 080), but lower than

that of the average household in Malaysia (RM5, 000) as indicated in Table **4**.

Table 3: The basic information gathered during RRA interview

Item	Descriptions
Name of village	Kampung Kuala Tahan
District	Jerantut
Area of Village	10, 256 Acre sq.
Name of Village Head	Tok Ampat Ali Asra Abd Rahman
Infrastructures	Hall, Mosque, School, Police station, Clinic, Maternity, Bus station, Electricity, Tap Water, Sport facilities, Market, Stalls, Workshop, Public phones, etc.
Main Economic Activities	Ecotourism activities (Tour guide, Boatman, Restaurants, Resorts/chalet employee, etc.) Agriculture (Oil palm and Rubber)
Total Population	2, 417 persons
Estimated Household	400 households
Sampled Household	158

Table 4. Average monthly household income in village studied

Village	Average monthly household income (RM)
Kg. Kuala Tahan	4,035
Rural Malaysia (2012)	3,080
Malaysia (2012)	5,000

Source*: Village – field data. Economic Planning Unit (EPU), Malaysia)*

2.6. The sources of income

The village received cash and income in kind. On the whole, about 90% of the average monthly household income was cash income while 10% income in kind. This seems to indicate that villagers derived major portion of income from cash sources while income in kind is relatively less significant. Cash is relatively more important compared to the past when the rural villagers were mainly subsistence farmers.

At the local level, the income sources of the village studied may be observed from this three categories i.e. i) income generated within the permanent reserve/state land forest areas (related to NTFP harvesting), examples rattan, bamboo, and honey; ii) income generated outside KTNP (related to forestry and ecotourism), examples boatman, tour guide, restaurant operator, souvenir shop operator, chalet operator; and lastly (iii) income generated outside KTNP (not related to forestry and ecotourism),

such as, orchard, oil palm and rubber plantation, and government officers. On average, about RM1, 895 or 47% of the average monthly household income was generated from the activities related to forestry and ecotourism.

Employment related to forestry and ecotourism generated RM1, 895 or 47% of the average monthly household income in the village studied. The proportion of average monthly household income derived from other sectors (salary from private sector/government servant outside KTNP – not related to forestry and ecotourism) was 53% for the village studied. This indicates that other employment and income generation activities also play a significant role in generating household income. The detail break down of the sources of income in the village is shown in Table 5.

In total, the highest percentage of cash income was from the participation as tour guides (outside KTNP – related to forestry and ecotourism). Income generated as a tour guides accounted for 13% of household income. Working as government servants also significantly contributed to the household income at 16%. The non-cash income from the use of residence/dwelling from home was 10% (Table 5).

2.7. Poverty reduction

The extent of poverty among these local villagers could be seen from the incidence of poverty among the households in the village. As stated earlier, poverty in Malaysia "is measured on the basis of a minimum expenditure level or the poverty line income (PLI) to separate the poor from non-poor" (Government of Malaysia 1986a). In 2010, the per capita PLI was RM197. Taking into consideration the rise in the consumers' price index of about 9.7% between 2010 and 2014, the per capita PLI was calculated to be RM216 in 2014 and this was used to measure the incidence of poverty in the village studied. The incidence of poverty was 4.4% in 2014. Poverty among villagers adjacent to KTNP area was relatively higher compared to 3.4% among all Rural Malaysian households in 2012.

Table 5. Source of monthly household income

Items	Village Kg. K. Tahan	
	RM	%
Within PF/SL Forests		
NTFP harvested	4	0.1
Outside KTNP (forestry related)		
Resort worker	295	7.3
Chalet operators	304	7.5
Homestay Operators	19	0.5
Boatman	285	7.1
Tour guide	503	12.5
Retail store/restaurant operators	395	9.8
Fishing	23	0.6
Fish consumed*	58	1.4
Natural water consumed*	10	0.2
Outside KTNP (non-forestry)		
Mill worker	41	1.0
Salary (government)	624	15.5
Salary (private)	298	7.4
Contract worker	88	2.2
Others (salary)	131	3.2
Petty trade	142	3.5
Others (self-employed)	135	3.3
Vegetable farming	6	0.1
Paddy farming	10	0.3
Rubber tapper	116	2.9
Sales of oil palm	100	2.5
Orchard farming	4	0.1
Other cash (agriculture)	8	0.2
Remittance	39	1.0
Other cash (bonus, dividend, rental & etc.)	75	1.9
Poutry and vegetable*	22	0.6
Imputed rent*	297	7.4
Other income inkind	1	0.0
Total	**4,035**	**100**

The strength of the relationship between the income sources attributes and poverty status was also determined, a multiple regression test was utilized. One regression model was used; the Income sources attributes represented the independent variables and the overall poverty status represented the dependent variable. The results illustrate that three of the 17 income sources attributes (cash income) are significant predictors of overall poverty status **(Table 6)**. The strongest predictor of overall poverty status is income from ecotourism operator (coefficient= -0.000027). The second strongest predictor of overall poverty status is income generation as government servant (coefficient= -0.000073), followed by income through sales of oil palm (coefficient= -0.000166). Overall, this regression model accounted for approximately 14% of the variance associated with the overall poverty status.

Table 6. Multiple regressions on income sources attributes with overall poverty status

Income Sources	Coefficient	S.E.	
NTFP harvester	-0.000043	0.000034	
Ecotourism operator	-0.000027	0.000008	***
Mill worker	-0.000101	0.000093	
Salary (government)	-0.000073	0.000025	***
Salary (private)	-0.000024	0.000039	
Contract worker	-0.000081	0.000085	
Others (salary)	-0.000092	0.000059	
Petty trade	-0.000060	0.000062	
Others (self-employed)	-0.000001	0.000050	
Vegetable farming	-0.000245	0.000208	
Paddy farming	-0.000346	0.000311	
Rubber tapper	-0.000102	0.000076	
Sales of oil palm	-0.000166	0.000078	***
Orchard farming	-0.000124	0.000125	
Other cash (agriculture)	-0.000105	0.000101	
Remittance	-0.000063	0.000239	
Other cash (bonus, dividend, rental & etc.)	-0.000173	0.000128	

Response scale is 1= poor (percapita income ≤RM216), 0=non-poor (percapita income >RM216)
* denotes significant at the 5% level (p<0.05)
*** denotes significant at the 1% level(p<0.01)

3. Conclusion

The tourism sector is one of the contributors to socio-economic development and can be used as a tool to reduce poverty at the national, regional and rural areas in Malaysia. Through research that has been conducted, it has been proven that ecotourism has contributed to reduce poverty among villagers in Kg. Kuala Tahan by bringing money into the economy and creating jobs. Tourism directly responds to poverty reduction objectives since it:

- Unlocks opportunities for pro-poor economic growth by providing formal and informal employment;
- creates profit and collective income from locally owned enterprises;
- facilitates social development by increasing access to infrastructure, providing local people with the opportunity to access tourism infrastructure;
- reduces vulnerability by helping to diversify income opportunities.

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