How to cite this article:

Ahmad Shukeri, N. H., Ghazali, N., Abdullah, J., Ramlan, M. R., & Saad, S. (2023). Study on knowledge and awareness of recycling activities in Ulu Muda, Sik, Kedah. *Journal of Governance and Development, 19*(1), 67-92. https://doi.org/10.32890/jgd2023.19.1.4

STUDY ON KNOWLEDGE AND AWARENESS OF RECYCLING ACTIVITIES IN ULU MUDA, SIK, KEDAH

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ABSTRACT

Recycling is a practice decisive to a better future to avoid pollution that could change the world landscape and affect the lives of future generations. This study was conducted to examine the knowledge and awareness of the Ulu Muda, Sik community on recycling practices. The descriptive study used random probability sampling whereby the sample size of the study was 30 respondents. Questionnaires were used as a medium to measure the level of knowledge and awareness of the community in the study area. In addition, interviews were also conducted to get an accurate picture and information on recycling practices among fishermen, traders and the local community. The findings of the study found that the respondents strongly agreed with

the recycling activities carried out to preserve their environment although they have a moderate level of knowledge and awareness regarding recycling practices. In addition, an eco-friendly lifestyle is not yet a culture despite the environment is an important resource in ensuring the well-being of life. In this regard, its care and conservation should be on the agenda and practice of both urban and rural residents. Comprehensive involvement from all parties will provide an opportunity for them to practice, appreciate and cultivate environmentally friendly and recycling features in the school environment, home, local community, community and finally at the Malaysian national level. In conclusion, in order to raise awareness of recycling practices in the community, education and information need to be increased to the community.

Keywords: Recycling, knowledge, awareness and practice.

INTRODUCTION

The Kedah Darulaman State Government towards the goal of Kedah Maju has devised several development strategies. Among the main focus is in the field of tourism and the beauty of the environment can help develop the tourism industry. This is because the beauty of the environment can attract the attention of tourists from within and outside the country (Norazni Syaripudin, 2016). Next, it can make an area a destination for the tourism sector. The increase in tourists from within and outside the country will increase the income of the local community as well as provide employment opportunities to entrepreneurs in this industry and subsidiary industries (New Gaik Ling & Jabil Mapjabil, 2012). The trend of the tourism market from 1990 to the present day shows a dynamic change. Tourists not only travel for the purpose of relaxing and shopping in major cities but they also go to places with natural attractions (ecotourism), rural areas with elements of agriculture (agrotourism) and historical heritage (cultural and historic tourism) (Johan Afendi Ibrahim & Mohamad Zaki Ahmad, 2008). Tourists now want to learn something new, escape from the daily routine, and undergo nostalgic and exotic experiences on the trip. Kedah in general and Sik in particular, can offer such tourism since Sik is a district rich with greenery and authentic experience. The development of tourism requires careful planning of natural resources to prevent the occurrence of natural pollution. In

this regard, efficiency in managing solid waste is important to ensure quality hygiene in an area. However, the rate of solid waste expansion presents challenges and pressures to local authorities. In this regard, many recycling programs have been implemented. As a result of the increase in solid waste the government launched a recycling campaign in 1993 and a second campaign in 2000 to encourage the community to do recycling. In fact, this recycling activity is a pretty lucrative business, as every recycled material such as mineral bottles, plastic and paper is a valued material (Mohd. Syami et al., 2015). The element of loving the environment is an important element that needs to be applied in society. The environment needs to be perfectly preserved so that future generations can experience a peaceful and harmonious life with a clean environment. In an effort to protect the environment, various efforts were made including the introduction of the 3R concepts of Reduce, Reuse and Recycle.

Study Background

The state of Kedah is 9,426km square or 2.9 percent of the size of Malaysia. There are 11 administrative districts in Kedah. The largest district in Kedah is Sik whereby the district area is 1635 sq km, 17.35 percent of the area of Kedah with the population of about 70,000 people. There are four sub-districts in Sik district which are Mukim Teloi, Mukim Jeneri, Mukim Sik, Mukim Sok. Sik District is administered by the Sik District Council and is an area that is still preserved by its flora and fauna. The district still has a large area of forest and recreational forest which is still preserved. In addition, this district has also been turned into an agro-tourism area by the Kedah State Government. One of the potential areas to be an eco-tourism area is Ulu Muda which is a state heritage forest and is rich in various species of flora and fauna. The direction of Ulu Muda development is a recreational and eco-tourism area in line with the function of Sik district as an eco-tourism district and a centre of agro-based industry. There are six objectives of Ulu Muda's tourism action plan which are, (1) strengthening the image and identity of Ulu Muda as a recreation and eco-tourism area in Sik and Kedah districts; (2) upgrade and increase tourism facilities and infrastructure in Ulu Muda area; (3) assist the implementing agencies in improving control and enforcement, quality of services and facilities, as well as the efficiency of the handling of tourism promotion; (4) upgrading facilities and infrastructure to support fisheries-related activities; (5) improving the

socio-economic status of the population through the improvement of environmental quality and new economic opportunities; and (6) maintain environmental sustainability and successful resources. In this regard, the knowledge and high level of awareness of recycling among the local community can help to make this happen.

Generally, the current population in Ulu Muda, Sik area is estimated at 1,206 people. The estimated number of houses available is 200 units in Kampung Kota Aur and 74 units of Kampung KEDA, Kota Aur. Most of the villagers work as rubber tappers. A total of 90 percent of the population taps rubber i.e. 80 percent work under FELCRA, while 10 percent work under The Tunku Abdul Rahman Foundation. Under FELCRA, each tapper only gets 300 rubber trees. Another 10 percent work as fishermen (13 people), rental boat operators (3 people), breeders and village enterprises. Accordingly, when eco-tourism can be realized, it is able to improve the economic status of the local community. However, the practice of an eco-friendly lifestyle is seen as still far behind. Therefore, one of the efforts to reduce environmental pollution is through recycling practices. Generally, the community has basic knowledge and awareness on environmental issues but the level of involvement and environmental care practices is still low especially in Sik, Kedah. The implementation of recycling can also help the local community increase their income simultaneously preserving the environment.

Problem Statement

The effectiveness of the tourism development project in Sik has not yet been able to attract the number of tourist arrivals to the optimum level. Therefore, strategies in strengthening tourism services and natural resource management should be formed and implemented. Sik is still backward in terms of the tourism aspect compared to other areas such as Baling. The Sik district which is surrounded by natural greenery hides many interesting places that can be used as eco-tourism such as Beris Lake, Ulu Muda Eco Park, Lata Hujan Lebat and many other unspoiled waterfall spots. Besides that, Ulu Muda, Sik also has interesting hot water streams and caves that need to be explored and can be used as a successful 'Natural Tourism'. However, various environmental problems occur as a result of the development of tourism. Among them, the management of natural resources in Sik is still at a low level with rubbish and poorly maintained buildings

that pollute the beautiful scenery in Ulu Muda. Recycling practices have long been introduced by local authorities for local communities. However, the effectiveness of this practice is still at a minimum. The attitude of the community who like to dispose of rubbish everywhere causes some areas to become dirty. The practice of segregation of waste by type of paper, plastic and glass is still too poorly practiced. Eco-friendly lifestyle has not yet become a practice. Hence, this study was done to find out the level of knowledge and awareness of the Sik community towards recycling and to make recycling a culture.

Research Objectives

1. Assess the knowledge and awareness of the Ulu Muda community, Sik on recycling practices.
2. Analyze recycling practices in Ulu Muda community, Sik.

Definition of the Concept

Recycling is defined as the process of recovering waste products that are processed back into reusable products either for their original purpose or other uses (Shahrom et. al., 2012). In addition, it also refers to a process in which the product used is converted into a product that has approximately similar physical and chemical characteristics than the original product. According to Jessica Ong (2013), recycling is an activity of isolating, collecting and processing daily use materials and materials that have been used in life by producing a new product to avoid wasting materials. Recycling is a great way to get a positive impact on the care of the environment and the world today. Recycling is important to carry out because an increase in revenue causes people to increasingly buy products that contribute to the production of more waste; as well as lifestyle changes which cause the production of technology products to produce food packaging made from non-biodegradable materials which are difficult to dispose of. In general, recycling is the process of restoring materials that should be discarded to be used as the same product or resources that brings value to the environment, finances and social benefits. Materials such as glass, iron, plastic and paper are collected, separated and sent to the processing center to be converted to products or fuel (Jabatan Pengurusan Sisa Pepejal Negara, 2007).

Solid waste is any waste produced by a household and of the kind normally produced by or removed by any premises when occupied

as a residential house such as food waste, cans, paper, glass metal including garden waste (Jabatan Pengurusan Sisa Pepejal Negara, 2010). Solid waste is also a material or resource that is no longer used because it has no economic value before it goes through the final process.

Awareness can be defined as behaviors, changes and experiences acquired by an individual. In addition, awareness also involves aspects of thinking. According to Sharma and Bhagi (1992) awareness is knowledge of the information received from the environment. Capra (1996), Classen (2011) and Rhodes (2003) also explained that the concept of awareness should involve aspects of one's knowledge as it is able to shape oneself towards success in the matter. Therefore, the important aspects needed to be evaluated in this study were the knowledge and awareness of a person because it plays a role in shaping one's thoughts and behaviors. Thus, the concept of awareness is formulated as an individual who possesses the knowledge to understand and interpret a thing or event as an experience in the process of making judgments and decisions.

Behavior carries the meaning of a person's actions doing something that can be observed, measured and done over and over again. It is any act or temperament committed whether consciously or semi-consciously or intentionally or not (Bicard, 2012). In addition, Guez and Allen (2000) state that behavior is the way the individual acts and responds in controlling himself or towards others.

Sustainability, on the other hand, means that all the necessities for life and well-being depend on whether directly or indirectly on nature. Sustainability creates and maintains conditions on humans and the environment to create a harmonious and productive environment. It allows and meets social, economic and other needs for present and future generations. Sustainability is important to ensure the quality of water, materials and resources for human health as well as the environment.

LITERATURE REVIEW

There are various studies that have been done on the level of knowledge and awareness of society in understanding the needs or

needs of people in empowering recycling. Among them is a study on recycling in Dhaka, Bangladesh conducted by Sharmin Sultana et al. (2021). They found that the management of waste or solid waste was one of the health issues related to the way of life of the community. Therefore, communities need to play their part in this issue. It is mainly about the level of awareness and effort to practice waste management. Communities need to be exposed to waste management and recycling.

Meanwhile, a study conducted by Haliza Abdul Rahman and Shaharuddin Mohd Sham (2020) on recycling knowledge among the indigenous students found that the recycling awareness of the indigenous students increased after they were exposed to promotions and educational programmes. Exposure to mass media helped them understand the aspects of recycling more deeply. Parents and schools are responsible for educating students in instilling awareness on the importance of recycling. In addition, Mohd Saifudin Mamat and Sumayyah Aimi Mohd Najib (2020) found that the education of solid waste recycling practices is decreasing as there are a handful of unscrupulous individuals who throw solid waste into the bins without following the type of recycling bins. The increase in solid waste was due to the increase in population from year to year which has caused the issue to intensify. The results also revealed that awareness on the correct use of bins for recycled wastes showed a positive effect during the study when the awareness campaign was carried out.

Next, Murugan Mini Ratamun (2019) in his study looked at the relationship between knowledge and recycling practices among trainee teachers at the Institute of Teacher Education Batu Lintang Campus (IPGKBL) based on gender. The findings showed that male trainee teachers have a high level of knowledge (M=3.82, SD=67) compared to female trainee teachers (M=3.69, SD=56). In addition, in terms of recycling practices, the result showed a higher level of recycling practice among male trainee teachers compared to female trainee teachers. Thus, his study has shown that the level of recycling knowledge helped improve recycling practices among IPGKBL trainee teachers. Meanwhile, Ahmad Ridzuan Abdul Rahman et al. (2018) in their study stated that Germany is the country with the highest recycling rate in the world as its population has the highest level of recycling awareness. The majority of its citizens and several other entities also promote biodiversity, greenhouse gas emission standards, recycling, use of renewable energy and support sustainable

development at the universal level. The success of Germany in the recycling program is also that its residents have adopted the attitude of isolating waste for quite some time according to the color code of the bins and every bin has its writing so that tourists can also understand. In addition, there is a drink bottle return system to get a reward of RM8.25 per bottle returned and followed by a government policy that encourages residents to recycle.

Meanwhile, the study conducted by Seow Ta Wee and Indera Syahrul Mat Radzuan (2010) showed that most of the residents in Batu Pahat district, Johor have basic knowledge of recycling but practice less of it. Additionally, a study conducted by Tan Cheng Li (2015) showed that one local university produced four to five tons of garbage per day. Despite having an awareness and high level of knowledge in recycling practices and reducing waste disposal, students in higher institutions have a negative attitude in recycling practice (Mah Hassan et al., 2017).

Augustine Towonsing (2017) in his study, explained that Taiwan is a country that practices a lot of recycling in the world. It used to be a dirty country, but now it is one of the cleanest countries in Asia. Taiwan is a country of about 35410km in size with a population density of 699 people. Taiwan strongly encourages recycling activities with high population density. The Waste Disposal Act, which obliges the manufacturer to recycle, provide waste guidelines to all residents and teach its citizens since preschool, conducts recycling campaigns which is a 4 in 1 program of a four-group collaboration between the government, the community, the private sector and the voluntary bodies in the country. Recycling is only successful if there is an incentive or benefit provision; for example, entrepreneurs in the United States recycle rechargeable nickel cadmium (Ni-Cd) batteries and introduce other alternatives to minimize the use of mercury batteries.

Johan Afendi Ibrahim and Mohamad Zaki Ahmad (2008) in his study focused on the tourism industry of Kedah which is seen to experience a number of issues that could threaten Kedah tourism in the future. To overcome the problems that arise, a number of appropriate actions were planned and implemented to ensure that the state's tourism industry is in a stable condition. The study also discussed the main tourist locations of Kedah, the current tourism issues of Kedah and the actions that needed to be taken to overcome the problems that arise.

In the Norazni Syaripudin (2016) study, he analyzed the economic and social impact on the population, and the effect of eco-tourism development on the environment in Semporna, Sabah. The results of the study found that the economic level has increased. However, the social problems that arose from the increase in tourists were also quite worrying. Among them was the issue of environment pollution which if not resolved properly would tarnish the image of the country in the eyes of the world. Based on the analysis of past studies, researchers can conclude that there are still gaps that require study on knowledge and awareness on recycling culture especially in rural areas such as Ulu Muda, Sik which has the potential to become a tourist area while helping to generate the economy of the locals.

METHODOLOGY

In this study, the researchers used cross-sectional survey design by applying a quantitative and qualitative approach through interview. The study was conducted in Ulu Muda, Sik, Kedah. Primary data collection was done through the distribution of questionnaires to respondents. The analysis of the data used the Statistical Package for Social Science (SPSS) software. Secondary studies involving semi-structured interviews and observations were also conducted to further strengthen the findings. Interviews involved the implementers such as the Chairman of the Fishermen's Association, the Village Head, the Village Development and Security Committee, as well as the locals concerned. Semi-structured interviews were conducted to also obtain relevant information to be used as a profile. In particular, these were the largest stakeholders in achieving the objectives of the study.

The sample of this study was selected through a simple random sampling technique consisting of 30 respondents i.e. 10 fishermen, 10 traders and 10 locals. While the questionnaire was divided into seven sections, namely A, B, C, D, E, F and G. General Description of Questionnaire – the division of questionnaires is as follows:

Section A – Respondents' background (14 questions)
Section B – Respondents' knowledge of recycling (13 questions)
Section C – Respondents' thinking on recycling (20 questions)
Section D – Respondents' awareness towards recycling
                      (20 questions)

Section E – Respondents' practice in recycling (20 questions)
Section F – Respondents' opinions about recycling (20 questions)
Section G – Environmental factors influencing recycling practice
        (20 questions)

In addition, the study also used the pre-environmental behavior model pioneered by Kollmus and Agyeman (2002). This model states that there is a linear relationship between knowledge, attitudes and behavior towards the environment. According to him, knowledge will increase awareness and the attitude will in turn produce individuals with more positive behavior towards the environment. Here is a diagram of the Pre-environmental Behavior Model:

Figure 1

Model of Pre-environmental Behavior (Kollmuss and Agyeman, 2002)

According to this model, subsequent knowledge will give the individual attitude and behavior change towards the environment. However, knowledge alone cannot lead to a change in attitude if it is not initiated by action. An individual should start the first step with the initial action and subsequently be able to repeat the action consistently to give a change to attitude. With this the change in attitude will have an effect on a positive change in behavior.

FINDINGS

Respondents' Background

A total of 22 respondents from Ulu Muda Area, Sik, Kedah were involved in this study. Table 1 shows the demographic background of the respondents involved. Most of the respondents were over 45 years old (36.4%). More than half of the respondents were male respondents (68.2%) compared to female respondents (31.8%); with over 90 percent of them were married. All of the respondents were Malay.

In terms of the number of households, 31.8 percent has less than 5 households compared to 68.2 percent who has family members more than 5 people. However, 81.8 percent of respondents stated that there were less than 5 family members live in a house with them. Table 1 also shows that 86.4 percent of respondents live in their own homes. Most of the respondents have an education up to high school (40.9 %). 40.9 percent of the respondents were self-employed and 36.4 % worked in the private sector. Majority of the respondents earn between RM1001 and RM2000 per month (54.5%).

Table 1

Respondents' Background (N=22)

	Frequency	Percentage
Age		
Below 25	5	22.7
25 to 30	1	4.5
31 to 35	4	18.2
36 to 40	4	18.2
Above 40	8	36.4
Gender		
Male	15	68.2
Female	7	31.8
Marital Status		
Married	20	90.9
Single	1	4.5
Divorcee	1	4.5
Ethnicity		
Malay	22	100.0
Number of Households		
Less than 5	7	31.8
5 to 10	15	68.2
Number of Family members in a house		
Less than 5	18	81.8
5 to 10	4	18.2

	Frequency	Percentage
Home Ownership Status		
Self-owned	19	86.4
Inheritance	4	13.6
Education Level		
Non Schooled	2	9.1
Primary School	5	22.7
Secondary School	9	40.9
Certificate/Diploma	6	27.3
Occupation		
Private sector	8	36.4
Self-employed	9	40.9
Not working	1	4.5
Others	4	18.2
Income		
Less than RM1000	7	31.8
RM1001 to RM2000	12	54.5
RM2001 to RM3000	2	9.1
More than RM3000	1	4.5
Total	21	95.5

Reliability Test

Reliability of the instrument or study tool refers to the ability of the instrument to obtain consistent and stable measurements (Creswell, 2005). The measurement can be made as a result of an internal consistency measured using Cronbach's Alpha values. Cronbach's Alpha shows a positive relationship for each item. Reliability is described based on the value of the reliability coefficient (alpha) between 0.00 and 1.00. The higher the value of the alpha coefficient, the better the test will be. According to Zickmund (2010), accepted Cronbach's Alpha value is above 0.65. For the purpose of this research, the results of the reliability test analysis are described in Table 2. It was found that Cronbach's Alpha value of the measurement was above 0.65 and indicated an acceptable value.

Table 2

Reliability of Instrument

Variables	No. of Items	Cronbach's Alpha
Knowledge	13	0.773
Thoughts	20	0.905
Awareness	20	0.953
Practice	20	0.864
Opinions	20	0.827
Environmental Factor	20	0.949

Descriptive Analysis

A descriptive analysis was carried out to test the respondents' agreement to the statements (items) and variables contained in the questionnaire. Respondents were required to submit answers to their statements based on three (3) answer scales for part B (Knowledge of recycling) and five answer scales for sections C to G.

In determining these levels, the researchers used the mean as a midpoint that separates between the high and the low level. This is in line with what Healey (2005) mentioned that the mean is a good descriptive measurement of determining the centralization of scores that serve as a lever that accurately balances the score. The mean score for each statement has been calculated to assess their level of consent in each statement. This mean score was divided into three categories as outlined by Healey (2005):

<div align="center">

1.00 to 2.66 = low
2.67 to 3.33 = moderate
3.34 to 5.00 = high

</div>

Respondents' Knowledge of Recycling

Table 3 summarizes the result of the respondents' knowledge on recycling in Ulu Muda Area, Sik, Kedah which was measured using 13 questions with a scale of 1 (Yes) to 3 (No). The descriptive test findings showed that the respondents' level of knowledge on recycling was relatively moderate with a mean score of 1.45. All respondents knew about the problem of solid waste (B1), while 90 percent of the

respondents knew how to distinguish the types of solid or liquid waste (B5). Table 3 also shows that the highest percentage of respondents who did not know about the law regarding solid waste disposal (B4).

Table 3

Descriptive Analysis of Respondents' Knowledge of Recycling

Statements	Percentage			Mean
	1	**2**	**3**	
B1	100.0	-	-	1.00
B2	86.4	9.1	4.5	1.18
B3	60.0	15.0	25.0	1.65
B4	45.0	15.0	40.0	1.95
B5	90.0	5.0	5.0	1.15
B6	63.2	15.8	21.1	1.58
B7	21.1	47.4	31.6	2.11
B8	73.7	21.1	5.3	1.32
B9	75.0	20.0	5.0	1.30
B10	45.0	30.0	25.0	1.80
B11	25.0	40.0	35.0	2.10
B12	85.0	5.0	10.0	1.25
B13	90.0	10.0	-	1.10
OVERALL				**1.45**

Scale: 1: Yes, 2: Not sure, 3: No

Respondents' Thinking on Recycling

Respondents' thinking on recycling was measured using 20 item questions with five answer scales of 1(strongly disagree) to 5 (strongly agree). The results of the descriptive test showed that the respondents' level of thinking on recycling was high (M = 4.44). The majority of respondents agreed with each question in this section. Respondents showed the highest level of agreement to statements c13 (M = 4.73, C14 (M = 4.68) and C4 (M =4.68). However, the majority of respondents disagreed with statement C18, which referred to a satisfactory ready waste management system (M = 2.52).

Table 4

Descriptive Analysis of Respondents' Thinking on Recycling

Statements	Percentage					Mean
	1	2	3	4	5	
C1	-	-	9.1	27.3	63.6	4.55
C2	-	-		36.4	63.6	4.64
C3	-	-	9.1	54.5	36.4	4.27
C4	-	-		31.8	68.2	4.68
C5	-	-	4.5	36.4	59.1	4.55
C6	-	-		45.5	54.5	4.55
C7	-	-	18.2	27.3	54.5	4.36
C8	-	-		45.5	54.5	4.55
C9	-	-	4.8	33.3	61.9	4.57
C10	4.5	-	4.5	45.5	45.5	4.27
C11	-	-	-	42.9	57.1	4.57
C12	-	-	-	36.4	63.6	4.64
C13	-	-	-	27.3	72.7	4.73
C14	-	-	-	31.8	68.2	4.68
C15	-	-	-	40.9	59.1	4.59
C16	-	-	-	31.8	68.2	4.68
C17	-	-	-	57.1	42.9	4.43
C18	42.9	14.3	4.8	23.8	14.3	2.52
C19	9.5	-	-	19.0	71.4	4.43
C20	-	-	-	33.3	66.7	4.67
OVERALL						**4.44**

Scale: 1: Strongly Disagree, 2: Disagree, 3: Not sure, 4: Agree, 5: Strongly Agree

Respondents' Awareness towards Recycling

Next, Table 5 shows the result related to the respondents' awareness towards recycling based on 20 statements. Overall, the level of awareness of the respondents was high with a mean score of 4.59. The highest mean score was on the D1 statement (living in a clean environment is important) with 81.8 percent of respondents strongly agreeing to the statement (M = 4.82). This was followed by item D2 (keeping clean is a noble practice) with 72.7 percent of respondents strongly agreeing (M = 4.73). Other statements that recorded the highest mean score were items D4 (M = 4.68), D10 (M = 4.68), D15 (M = 4.68) and D20 (M = 4.68).

Table 5

Descriptive Analysis of Respondents' Awareness towards Recycling

Statements	Percentage					Mean
	1	2	3	4	5	
D1	-	-	-	18.2	81.8	4.82
D2	-	-	-	27.3	72.7	4.73
D3	-	-	-	36.4	63.6	4.64
D4	-	-	-	31.8	68.2	4.68
D5	-	-	-	36.4	63.6	4.64
D6	-	-	-	40.9	59.1	4.59
D7	-	-	13.6	59.1	27.3	4.14
D8	-	-	4.5	68.2	27.3	4.23
D9	-	-	-	45.0	55.0	4.55
D10	-	-	-	31.8	68.2	4.68
D11	-	-	-	40.9	59.1	4.59
D12	-	-	-	40.9	59.1	4.59
D13	-	-	-	50.0	50.0	4.50
D14	-	-	-	36.4	63.6	4.64
D15	-	-	4.5	22.7	72.7	4.68
D16	-	-	-	40.9	59.1	4.59
D17	-	-	4.5	27.3	68.2	4.64
D18	-	-	9.1	31.8	59.1	4.50
D19	-	-	-	36.4	63.6	4.64
D20	-	-	-	31.8	68.2	4.68
OVERALL						**4.59**

Scale: 1: Strongly Disagree, 2: Disagree, 3: Not sure, 4: Agree, 5: Strongly Agree

Respondents' Practice in Recycling

The level of respondents' practice in recycling was moderate (M = 3.41) with a frequency of 4 – 6 times a week. Based on the respondent's mean score, the most frequent respondent practice was E9 which was to ensure that the indoor environment is clean from solid (M = 4.36) and E3 of domestic waste is always disposed of in the area provided (M =4.32). Conversely, the majority of respondents regularly practice such acts. Table 3.4 also shows that respondents sometimes and

rarely spent part of their income on managing solid waste (E18) and ostracized neighbors in a good way for failing to manage solid waste (M = 2.36).

Table 6

Descriptive Analysis of Respondents' Practice in Recycling

Statements	Percentage					Mean
	1	2	3	4	5	
E1	-	-	4.5	59.1	36.4	4.27
E2	50.0	10.0	-	35.0	5.0	2.45
E3	4.5	9.1	-	31.8	54.5	4.32
E4	40.9	9.1	9.1	27.3	13.6	2.64
E5	22.7	27.3	18.2	27.3	4.5	2.64
E6	4.5	13.6	9.1	63.6	9.1	3.59
E7	9.1	13.6	18.2	40.9	18.2	3.45
E8	-	9.1	4.5	54.5	31.8	4.09
E9	-	-	-	63.6	36.4	4.36
E10	-	22.7	-	40.9	36.4	4.14
E11	-	4.5	4.5	54.5	36.4	4.23
E12	-	9.1	-	54.5	36.4	4.27
E13	4.5	9.1	18.2	40.9	27.3	3.77
E14	33.3	9.5	4.8	38.1	14.3	2.90
E15	15.0	10.0	20.0	45.0	10.0	3.25
E16	13.6	18.2	13.6	54.5		3.09
E17	40.9	13.6	18.2	22.7	4.5	2.36
E18	-	45.5	13.6	4.5	36.4	2.32
E19	9.1	9.1	27.3	36.4	18.2	3.45
E20	40.9	9.1	13.6	27.3	9.1	2.55
OVERALL						3.41

Scale: 1: Not once, 2: Rarely, 3: Sometimes, 4: Often, 5: Frequently

Respondents' Opinions about Recycling

The respondents' opinion about recycling was measured using 20 statements (items) with 5 answer scales. The result of the descriptive test in Table 7 shows that the respondents' opinion of recycling was high (M = 4.30). In Table 7, it was found that the respondents strongly agreed with item F13 that the *gotong royong* activity is a noble practice in hygiene and creating a healthy community lifestyle (M = 4.77). This was followed by item F9 which was to protect the

environment from compulsory pollution by humans (M =3.68) and item F11 which was the government's call and recommendation to reduce waste production should be welcomed (M =4.64). Another item was F16 i.e. the hygiene practices of the home environment should be the responsibility of each family (M = 3.64)

Table 7

Descriptive Analysis of Respondents' Opinions about Recycling

Statements	Percentage					Mean
	1	2	3	4	5	
F1	13.6	27.3	13.6	22.7	22.7	3.14
F2	-	4.5	-	36.4	59.1	4.45
F3	9.1	18.2	9.1	40.9	22.7	3.50
F4	-	4.5	4.5	54.5	36.4	4.23
F5	-	-	-	40.9	59.1	4.59
F6	4.5	-	4.5	45.5	45.5	4.27
F7	-	-	9.1	54.5	36.4	4.27
F8	9.1	4.5	18.2	36.4	31.8	3.77
F9		-	-	31.8	68.2	4.68
F10	-	-	-	50.0	50.0	4.50
F11	-	-	-	36.4	63.6	4.64
F12	-	-	-	50.0	50.0	4.50
F13	-	-	-	22.7	77.3	4.77
F14	-	-	4.5	45.5	50.0	4.45
F15	-	13.6	27.3	36.4	22.7	3.55
F16	-	-	-	36.4	63.6	4.64
F17	-	-	-	54.5	45.5	4.45
F18	-	-	-	40.9	59.1	4.59
F19	-	-	-	45.5	54.5	4.55
F20	-	-	-	50.0	50.0	4.50
OVERALL						**4.30**

Scale: 1: Strongly Disagree, 2: Disagree, 3: Not sure, 4: Agree, 5: Strongly Agree

Environmental Factors Influencing Recycling Practice

Finally, descriptive test was also carried out to study the respondents' level of agreement on environmental factors influencing recycling practices. Overall, the respondents' agreement for this section was high with a mean score of 4.53. Respondents also at least agreed with most statements, such as G2 item (a clean environment is best

to live in (M = 4.91). Over 90 percent of respondents strongly agreed with this statement. This was followed by the G1 item i.e. the dirty residential environment requires immediate cleaning (M = 4.73).

Table 8

Descriptive Analysis of Environmental Factors Influencing Recycling Practice

Statements	Percentage					Mean
	1	2	3	4	5	
G1	-	-	-	27.3	72.7	4.73
G2	-	-	-	9.1	90.9	4.91
G3	-	-	-	36.4	63.6	4.64
G4	-	-	-	31.8	68.2	4.68
G5	-	-	-	50.0	50.0	4.50
G6	-	-	-	50.0	50.0	4.50
G7	-	-	-	36.4	63.6	4.64
G8	-	-	4.5	40.9	54.5	4.50
G9	-	-	9.1	40.9	50.0	4.41
G10	-	-	-	50.0	50.0	4.50
G11	-	-	-	50.0	50.0	4.50
G12	-	-	4.5	54.5	40.9	4.32
G13	-	4.5	9.1	45.5	40.9	4.23
G14	-	-	9.1	40.9	50.0	4.41
G15	-	-	4.5	45.5	50.0	4.45
G16	-	-	-	50.0	50.0	4.50
G17	-	-	-	54.5	45.5	4.45
G18	-	-	-	45.5	54.5	4.55
G19	-	-	9.1	27.3	63.6	4.55
G20	-	-	-	45.5	54.5	4.55
OVERALL						**4.53**

Scale: 1: Strongly Disagree, 2: Disagree, 3: Not sure, 4: Agree, 5: Strongly Agree

Correlation between Variables

To test relationships between variables, Pearson correlation analysis has been used. Correlation analysis is an analysis between two or more variables (Cooper & Schindler, 2003). Correlation analysis is suitable for identifying types of compatibility, explaining the complex relationship between factors that can explain the results and predicting the results of predictor factors (Creswell, 2005). Pearson

correlation was used to measure the linear association between two non-leaning variables to indicate significant, directional (positive or negative) and strength. The strength of relevance among the variables that Davis developed (1971) is shown in Table 9.

Table 9

Correlation Values and Strength

Correlation Values	Strength
1. ±0.70 and above	Very Strong
2. ±0.50 to ±0.69	Strong
3. ±0.30 to ±49	Moderately Strong
4. ±0.1 to ±0.29	Weak
5. ±0.01 to ±0.09	Very Weak

Table 10 shows the result of the Pearson correlation test. The result shows that the respondents' knowledge has a relationship with practice ($r = -0.474$, $p<0.05$). Further, the respondents' thinking on recycling indicated a significant relationship with awareness ($r = 0.789$, $p<0.01$), opinions ($r = 0.83$, $p<0.01$) and environmental influence ($r = 0.740$, $p<0.01$). As for the awareness variable, it was found that the respondents' awareness of the environment showed a significant relationship with practice ($r = 0.615$, $p<0.01$), opinions ($p<0.737$, $p<0.01$) and environmental influence ($r = 0.814$, $p<0.01$).

Table 10

Correlation between Variables

	Knowledge	Thinking	Awareness	Practice	Opinions	Influence
Knowledge	1					
Thinking	-.268	1				
Awareness	-.380	.789**	1			
Practice	-.474*	.221	.615**	1		
Opinions	-.130	.683**	.737**	.262	1	
Influence	-.267	.740**	.814**	.419	.858**	1

Note: *$p<0.05$; **$p<0.01$

DISCUSSION

It can generally be seen that the residents of Ulu Muda, Sik have knowledge and awareness of recycling practices based on the finding that the majority of the population believed that waste can be recycled. In addition, they were also clear about the goals of recycling practices as well as their benefits in the long run. However, looking at the actual practice of recycling in their daily lives, only 30 percent practiced it. The respondents' level of recycling practice was moderate (M = 3.41) with a frequency of 4 – 6 times a week. However, they were always keeping the home environment clean, and this would allow recycling practices to be applied among the population. In addition, all respondents also reacted well to the programmes that were implemented. In this regard, these recycling programmes need to continue and receive support from various levels.

Based on Malaysia's total waste production of 15,000 tonnes per day, it illustrates that over time Malaysia will not have the space to cater for the waste generated. In this regard, recycling is seen to reduce pollution rates while saving energy (Getz, 1994). Recycling can also indirectly slow down global climate change, which, of course, will be felt by humans themselves eventually (Local Government Department, 2001b). Furthermore, from a long-term perspective, the cost of implementing a recycling program is cheaper than the cost of pollution management that occurs in the environment. In addition, the recycling programme can also provide five times more job opportunities especially to engineers, machinists, environmentalists, general workers and so on. With this it can indirectly increase the income of the individual or society in general.

The importance of recycling based on waste materials will clearly reflect the benefits of recycling to society. For example, old newspapers and recycled paper can reduce 4,390 tons of waste per day and this amount is equivalent to 78 000 trees. This situation shows how much we can preserve forests and at the same time maintains the quality of the environment by simply practicing recycling (Department of Local Government, 2001b). Likewise, if we recycle the 50 billion cans of aluminum used every year, surely we can build a building that is large in size. In addition, if the Malaysian community implements recycling at the rate of 22 percent or 16000 kilograms of waste per day, it means that we can save the 2-storey space of the Kuala Lumpur City Centre (KLCC) building every day (Local Government Department, 2001b)

The implementation of recycling by Malaysians can also help the government and other authorities save more than 90 million maintenance costs from the costs required to handle waste every year. The Ministry of Housing and Local Government has estimated that each Local Authority spends between 40 percent and 70 percent of its annual expenditure on collecting and disposing of waste. The increase in the population from year to year across the country will further increase the volume of waste produced and thus increase the expenditure and make it harder for the Local Authorities to obtain suitable landfills in the future. Uncontrolled disposal of waste can also threaten the health of the population and the quality and aesthetics of the environment.

In addition to the reduction in the cost of handling garbage, the reduction of environmental pollution and so on will lead to self-benefit whereby this recycling can also reduce expenses and bring profit to its own. In today's rising cost of living, the recycling industry can create awareness of consumerism and reduce the cost of living for consumers who are savvy in spending. Households as consumers can reduce the frequency of buying by spending once a month.

In general, it can be seen that the residents of Ulu Muda, Sik have a simple knowledge and awareness of recycling practices based on the findings of the study. Majority of the population believes that waste can be recycled but the practice and culture of recycling still needs to be actively explained and promoted by the parties involved.

CONCLUSION

A well-structured and careful strategic plan should be made to find ways to develop Sik tourism. Development without sustainability will not give well-being to society. Recycling is the determinant of a better future to avoid pollution that could change the world's landscape and affect the lives of future generations. Recycling practices are essential to reduce the destruction and pollution of nature. This study is also expected to be one of the basic platforms that will eventually bring together various parties whether government, NGO or private sector to find a cohesive framework towards the developed world in line with the concept of sustainable development. The comprehensive involvement of all parties provides an opportunity for them to practice, appreciate

and cultivate environmentally friendly and recycling features in the school environment, home, local community, community and finally at the Malaysian national level.

ACKNOWLEDGMENT

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