Penerbit Akademia Baru

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

Waste Management: Desa Ilmu, Kota Samarahan District Council, Sarawak, Malaysia

S. Mohamed [*,1,a] *and S. Mohamed* [2,b]

[1]Department of Construction Management, Faculty of Technology Management & Business
[2]Universiti Tun Hussein Onn Malaysia (UTHM), 86400 Batu Pahat Johor, Malaysia
[2]Samarahan District Council, 94300 Kota Samarahan, Sarawak,Malaysia
[a,*]*zakimin@uthm.edu.my,* [b]*paritraja55@gmail.com*

Abstract – *Human activities create waste, and the ways that waste is handled, stored, collected, and disposed of can pose risks to the environment and to public health. Solid Waste Management (SWM) includes all activities that seek to minimize health, environmental, and aesthetic impacts of solid waste. In urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of Municipal Solid Waste Management (MSWM) are of immediate importance. Hence this study is to study the waste collection services in Kota Samarahan, Sarawak. This research adheres to by reviewing relevant literature and quantitative method in which by distribution of questionnaire to the respondent who are involves in waste management. The results of the research would provide quantitative evidence in support of the notion that appropriate and comprehensive public perspective on solid waste disposal management to improve the solid waste management in Kota Samarahan. Furthermore, this study may also encourage key stakeholders mainly involved in solid waste management to increase their attention on possible factor, and helps to the achievements of future sustainable solid waste disposal management.*

Keywords: Waste management, Local council, Waste collection

1.0 INTRODUCTION

The notion of sustainable development was first proposed by the Brundtland Commission in 1972. This definition has evolved since the United Nations Earth Summit held by the United Nations Environment Programme (UNEP) in 1992 at Rio de Janeiro [1]. The characterization on the impact of economic, social and environmental development was discussed accordingly and a major concern at local governments globally when dealing with municipal waste. In urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of Municipal Solid Waste Management (MSWM) are of immediate importance. Most governments have acknowledged the importance of MSWM; however, rapid population growth overwhelms the capacity of most municipal authorities to provide even the most basic services. Typically one to two thirds of the solid waste that is generated is not collected . The uncollected waste is dumped indiscriminately in the streets and in drains, causing flood, breeding of insect and rodent vectors, and spreading of diseases. Even waste that is collected is often disposed of in uncontrolled dumpsites or burned, polluting water resources and the air. In many cities, Municipal Solid Waste (MSW) contains human and animal excrement as well as hazardous chemical pollutants and sharps. All facilitate disease and injury, especially among children, rag pickers, and employees in the waste management sector. Major studies have shown that a high percentage of workers who handle refuse and of individuals who live near

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

or on disposal sites are infected with parasites, worms, and related hazardous organisms [2] & [3]. Not only are the quantities of waste increasing commensurate with the growing economy and expanding population, the composition is also shifting towards plastics and paper packaging, a reflection of improved standard of living.

The implementation of MSWM practices benefits both public health and environmental quality directly and substantially [4] & [5]. Waste services are generally the least developed of the environmental services traditionally delivered by local authorities. With very few exceptions, authorities have not so far developed or applied integrated management techniques or innovative technology solutions. As such, to carry out integrated solid waste management, local governments also need partners. The general community, which is probably the most important stakeholder in waste management activities, must also actively involve or participate in the solutions by modifying their behaviour patterns. At present, public or community perception of local authority performance on waste is poor because of the environmental impact and visibility of waste. Therefore, a systematic way of collecting waste must be an important agenda for any local authority.

2.0 LITERATURE REVIEWS

2.1 Background study

The waste management involves the generation of waste, on-site storage, collection, transportation, treatment and processing of waste [6]. Moreover, inappropriate solid waste management can cause the air, water and land resources to be soiled. In addition, the scope of waste management include the administrative, legal, planning, financial and engineering functions to engage with the solutions to solid wastes problems. Kota Samarahan is still considered in its early stages of development. Therefore it is crucial to take into account every socioeconomic aspect in all its developmental planning and implementation. One of which is considered pivotal in long-term development plan is waste management. Waste Management should be placed as a priority in order to reduce negative environmental impacts. In addition, as Kota Samarahan population grow rapidly due to the migration of people following the rapid development transformation the amount of waste has increases drastically. Thus, it is questionable whether waste management systems are being implemented effectively when it comes to addressing waste in Kota Samarahan. The author sees it as the problem in the management with regards to waste management. This question has been the subject of extensive research recently [7] & [8] and, to generalise, it is clear that failings exist in terms of improper management such as follows;

- Collection frequency
- Machineries
- No proper signage regarding waste collection schedule

As with wide areas of this topic, thus practitioners, stakeholders and policy-makers working in the local government are calling not only for a systematic way of waste collection but for a shared framework and classification system, particularly when looking to encourage and implement systematic ways of waste management [9,10]. Hence, the Government must have the effective management and tactical-level operations to generate interest and awareness.

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

2.2 Methodology

The research involves three main steps. Step 1 involve conducting a literature review and desk research. Information is gathered from academics journal of waste management and sustainable development, publication from Kota Samarahan's office, related waste collection services articles and documentary from local government reports where available. While Step 2, survey method is implemented by means of questionnaire distribution to respondent. Survey data can be collected either through face-to face interview, telephone interview or postal questionnaire. Step 3 involved the use of quantitative method. [11] and [12] highlight five research styles: experiment, survey, action research, ethnographic research and case study. A detailed literature review, including a Web-based search and a review of academic and industrial literature, was undertaken. There is no definite rule as to which one to select when doing research. It all depends on the nature and scope of the thesis, the sources of the data, the research questions and hypotheses or proposal, and constraints and scope of the research [13] & [14]. In relation to this, [15] cites that while quantitative research is concerned with issues such as how much, how often and how many, qualitative research on the other hand is concerned with identifying certain phenomena based on an in-depth exhaustive investigations and analysis. Researchers adopting a qualitative perspective are more concerned to understand individuals' perceptions of the world, where they seek insight rather than statistical analysis [16-18].

As for the quantitative method involve mostly with the random survey of the field data. A quantitative method approach such as doing a survey is good for probing the general patterns and common properties as a whole but would not be effective in generating the explanation behind what, why and how things are done. Therefore, this research is to show the tabulation and provide knowledge on percentages and figures for decision-making and more reportage in nature as in the quantitative method approach.

3.0 RESULTS AND DISCUSSION

The results based on the empirical investigations. First, a brief descriptive analysis of the data on the sample of 40 respondents which serve to reflect the characteristic of the population at Desa Ilmu, Kota Samarahan, Sarawak. In this study, the SPSS (*Statistical Package for Social Science*) is used. The sample is described by giving the basic statistics of the respondents and ventures under study. Second, trying to answer questions pose earlier using simple data tabulation, cross tabulation and chi square test in cross tabulation.

At earlier stage, the uses of descriptive statistics, frequencies and cross tabulation are best and most common solution to detect any abnormalities or mistake during the process of data key in. In addition, the data is organised and information is displayed accordingly for meaningful illustration. It is illustrated in Table 1.

Penerbit Akademia Baru

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

Table 1: Process of Data Collection

Descriptive analysis (Frequencies)
- Gender of respondent
- Age
- Race
- Education level
- Marital status
- Number of family
- Profession
- Salary scale
- Customer activities

4.1 Details of Respondents

Table 2: Details of Respondents

Number	Information	Data
1.	Gender	Man - 55% Woman - 55%
2.	Age of Respondent	41-50 Years - 37.5% 21-30 Years - 25% > 51 Years - 20% 31-40 Years - 17.5%
3.	Race of Respondent	Malay - 72.5% Iban - 17.5% Others - 7.5% Chinese - 2.5%
4.	Level of Education	Secondary School - 50% Bachelor - 20% Primary School - 17% Diploma - 8% Master and Above - 5%
5.	Marital Status	Married - 60% Bachelor - 40%
6.	Number of Family	8-9 - 22.5% 6-7 - 22.5% > 10 - 20% 4-5 - 20% < 3 - 15%
7.	Salary Scale	RM 1001- RM1500 - 47.5% RM 501 - RM 1000 - 17.5% RM 1501 - RM 2000 - 15% <RM 500 - 15% <RM3001 - 5%
8.	Home Cooking (Days)	Everyday - >80% Others - <20%
9.	Quantity of Garbage (KG)	1-3 Kg - 50% 4-6 Kg - 20% 7-10 Kg - 20 % Others - 10%

Penerbit Akademia Baru

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

Table 3: Descriptive Statistic Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
A. Frequency of service is satisfactory	40	1	4	2.13	.966
B. Service is according to the schedule	40	1	4	2.25	.870
C. No remaining waste after collection	40	1	4	2.18	.844
D. Garbage bin is at it original position after collection	40	1	5	2.55	1.037
E. Garbage bin is in a good condition after collection	40	1	4	2.85	.949
F. Rubbish/waste is scattered around after collection	40	1	5	3.33	1.228
G. Problem of waste liquid dropping after collection	40	1	5	3.53	1.664
H. Waste/rubbish is crammed in front of our house or business premises	40	1	5	2.75	1.149
I. Size of the contena is not appropriate/ waste overflow	40	1	5	3.63	1.148
J. Illegal dumping	40	1	5	2.98	1.250
K. Blocked drain	40	1	5	3.40	1.008
L. Problem of foul smell/stinking	40	1	5	3.73	1.377
M. Problems with rodent and wild animals	40	1	5	3.55	1.176
N. Sour eye view/aesthetic value problem	40	1	5	3.70	1.244
O. Facilities being vandalised	40	1	4	2.93	.971
P. Incurred high management cost	40	2	5	3.58	.747
Q. Location of the contena is not suitable	40	1	5	3.20	.823
R. Failure to collect waste according to the schedule	40	2	5	4.30	.883

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

The descriptive analysis was for the respondent background which includes gender, age, race, education level, marital status, number of family, profession, salary scale and their activities as shown in table 1 and 2. Based on the chart below, majority of respondent are male 55% and female 45% in which most of them are at the age of 41 to 50 years old of cohort. Most probably by that age most of the respondents are already married and either already bought a house or renting it. Then majority of the respondents are Malay 72%, Iban 17.5% and follow by others. While in term of education basically most of them obtain secondary school education. Additionally, due to the fact that most of the respondents are SPM holders, thus it is quite obvious most of them worked as a clerk or general workers with salary range from RM1001 to RM1500. In other side, the data also shows the activities of respondents in term of dinner outing, frequency of home cooking and the average of quantity of garbage that they produce. It can be seen from the data that whether they cook or having inner outside, most of them produce an average of 1-3 kilo of garbage. Then Table 3 show the descriptive statistical analysis by using the SPSS.

Based on Table 3, the descriptive statistics showed that the overall mean for A to E, H and J is about 2 to 3. It can be deduce that factors from A to E, H and J that majority of the respondent disagree with the statement given and thus it reflect that most of them are not satisfied with the frequency of the services given and the contract are not based on schedule. In addition, remaining waste is still a problem after collection. In addition, when the activities are not properly managed by the local governments, the negatives impact as flooding are imminent and it will cause hazards to society, economy and environment [19] & [20]. However, the respondent responded that there is no major issue on crammed rubbish or illegal dumping within the vicinity. On the other hand, for factors F to G, I and K to R showed that the overall mean is about 3 above to 4 plus. Thus, majority of the respondent agree that there is a lot of problem associated with waste management issues such as waste residue, foul smell, rodent and wild animals, and others as stated in Table 3. It is an indication that the municipal have to improve on their waste management especially in term of service frequency and adhering to the schedule. For the next publication discussion will basically discuss the elaboration of the descriptive statics of Table 3. The data also implied the same issues as being discussed earlier.

Daily collection of waste not only requires a larger work force with a weekly collection system, but also has a significant impact on equipment and its maintenance. The activities involve in waste handling and separation is linked to the management of waste before they deposited in storage container for collection later. Management is comprises of the progress of loading containers to the point of collection [21] & [22]. Processing begins with the recovery (separation) from the resources and ready to be treating or ends at their destined users.

As such, access to waste collection points varies greatly according to the respondent. Collection of waste from sites or premises located in inaccessible streets and alleys is problematic, and this is accentuated in localities like villages and squatter settlements with narrow or unformed roads and poorly developed collection systems or even for those places which are not favourable to the services providers. The disposal of items that are spoilt, degraded, expended or simply no longer of use to the owner has become an increasingly important issue. If solid wastes are not managed properly, many risks and hazards for human welfare can result, although the relative importance of each depends on local conditions. In addition, a treat to environment is a serious global problem and must be dealt urgently [23]. Moreover, it is quite clear from the survey result that frequency of collection of waste also an important issue, especially those in further up the town of Kota Samarahan whereby collection are not based on schedule and most of the times respondent are not happy with their services.

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

4.0 CONCLUSION

Generally, conditions of waste management in Kota Samarahan, Sarawak, Malaysia can be considered similar to those in many developing countries within the tropical climates. However, the problems associated with open dumping of waste are still at large. As such, open refuse dumps are most commonly located at the perimeter of major hosing areas in Kota Samarahan. In rural areas of Kota Samarahan, there are basically limited vehicles for collection hence uncontrolled dumping occurs within the built up areas - with all its attendant health hazards and negative environmental impact. There are a number of relevant waste management principles that contribute to reduce waste volumes; however, it is questionable whether their values have been realized. The analysis of the current situation reveals key knowledge deficit areas including the following:

- Experiences with resource mobilization for solid waste management at Desa Ilmu are still lacking due to the facts that most respondent are not satisfied with their services from all perspectives.
- For as long as people have been living in settled communities, the accumulation and dumping of rubbish, or garbage, has been a significant issue especially in Desa Ilmu now with rapid development and are going for an education hub.

In addition, based on the respond by the respondent it can be deduce that:

- Uncollected wastes block drains can cause flash floods, generate insanitary conditions, and are a visual annoyance;
- Unwanted cans and tyres encourage the breeding of flies, mosquitoes and other vectors that spread disease;
- Uncollected or inappropriately dumped or decomposing waste attracts rodents that cause damage and spread disease, and aerosols and dust spread fungi and pathogens;

Therefore, waste services are needed to be upgraded. Thus, a proper waste management system could be implemented. After all, Desa Ilmu, Kota Samarahan can only be a better place to live in provided that sound waste management is evidenced.

ACKNOWLEDGEMENT

The author would like to thank Ministry of Education (MOE), Office of Research, Innovation, Commercialisation and Consultancy (ORICC), UTHM, for supporting this research under the Research Acculturation Collaborative Effort (RACE: No.1517) Grant Scheme Universiti Tun Hussein Onn Malaysia and also Faculty of Technology Management & Business.

REFERENCES

[1] UNDP. Governance for Sustainable Human Development. UNDP, 1997.

[2] Mohamed, Sulzakimin, Seow Ta Wee, and Goh Kai Chen. "Participation in Acquiring Knowledge towards Sustainable Development at Malaysian Local Government." International Review of Management and Business Research 3, no. 3 (2014): 1325.

[3] Seow, Ta Wee. "New perspective of integrated solid waste management in Malaysia." (2012).

[4] Abas, Muhamad Azahar, and Seow Ta Wee. "Municipal Solid Waste Management in Malaysia: An Insight Towards Sustainability." Available at SSRN 2714755 (2014).

[5] Moh, Yiing Chiee, and Latifah Abd Manaf. "Overview of household solid waste recycling policy status and challenges in Malaysia." Resources, Conservation and Recycling 82 (2014): 50-61.

[6] Mbeng, Lawrence O., Paul S. Phillips, and Roy Fairweather. "Developing sustainable waste management practice: application of Q methodology to construct new strategy component in Limbe–Cameroon." The Open Waste Management Journal 2 (2009): 27-36.

[7] Nagapan, Sasitharan, Ismail Abdul Rahman, and Ade Asmi. "Construction waste management: Malaysian perspective." (2012).

[8] Seow, Ta Wee. "New perspective of integrated solid waste management in Malaysia." (2012).

[9] Manaf, Latifah Abd, Mohd Armi Abu Samah, and Nur Ilyana Mohd Zukki. "Municipal solid waste management in Malaysia: Practices and challenges."Waste management 29, no. 11 (2009): 2902-2906.

[10] Mohamed, Sulzakimin. "Preliminary concept of knowledge transfer practices towards sustainable development for local governments." (2015).

[11] Babbie, Earl R. The practice of social research. Nelson Education, 2015.

[12] Bryman, Alan. "Integrating quantitative and qualitative research: how is it done?." Qualitative research 6, no. 1 (2006): 97-113.

[13] Masrom, MD Asrul, Martin Skitmore, and Adrian Bridge. "Determinants of contractor satisfaction." Construction Management and Economics 31, no. 7 (2013): 761-779.

[14] Murphy, Kevin. "The social pillar of sustainable development: a literature review and framework for policy analysis." Sustainability: Science, Practice, & Policy 8, no. 1 (2012).

[15] Yilmaz, Kaya. "Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences."European Journal of Education 48, no. 2 (2013): 311-325.

[16] Wilson, Robert E., Samuel D. Gosling, and Lindsay T. Graham. "A review of Facebook research in the social sciences." Perspectives on psychological science 7, no. 3 (2012): 203-220.

[17] Yates, Simeon. Doing social science research. Sage, 2003.

[18] Babbie, Earl R. The practice of social research. International Thomson Publishing Services, 1998.

[19] Mohamed, Sulzakimin, Ta Wee Seow, Kai Chen Goh, and Md Asrul Nasid Masrom. "The framework of knowledge transfer towards sustainable development in the process of planning approval stage at Malaysian local government." (2014): 1-7.

[20] Seow, Ta Wee. "New perspective of integrated solid waste management in Malaysia." (2012).

[21] Nagapan, Sasitharan, Ismail Abdul Rahman, and Ade Asmi. "Construction waste management: Malaysian perspective." (2012).

Journal of Advanced Research in Social and Behavioural Sciences
ISSN (online): 2462-1951 | Vol. 4, No. 1. Pages 81-89, 2016

[22] Mohamed, Sulzakimin, Seow Ta Wee, and Goh Kai Chen. "Participation in Acquiring Knowledge towards Sustainable Development at Malaysian Local Government." International Review of Management and Business Research 3, no. 3 (2014): 1325.

[23] Yaakop, MR Mohd. "Greening Economy and Governance in Malaysia." Journal of Advanced Research in Social and Behavioural Sciences 3, no. 1 (2016): 13-19.