
**UNIVERSITI PUTRA MALAYSIA**

***COMMUNITY READINESS TOWARDS SOLID WASTE SEPARATION AT SOURCE IN SERDANG, SELANGOR, MALAYSIA***

**NURUL FADILA BT FADHILLUDIN**

**FPAS 2015 1**

# COMMUNITY READINESS TOWARDS SOLID WASTE SEPARATION AT SOURCE IN SERDANG, SELANGOR, MALAYSIA

**By**

**NURUL FADILA BT FADHILLUDIN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science**

**April 2015**

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

**COMMUNITY READINESS TOWARDS SOLID WASTE SEPARATION AT SOURCE IN SERDANG, SELANGOR, MALAYSIA**

By

**NURUL FADILA BT FADHILLUDIN**

**April 2015**

**Chair: Assoc. Prof. Latifah Abd Manaf, PhD**

**Faculty: Environmental Studies**

Malaysia especially Selangor is facing the increase of solid waste generation. Thus, source separation at source is seeing as a great opportunity to counter this problem. In implementing this program, it is essential to assess the community readiness level to ensure it's successful. Hence the main objective of this study is to to study the community readiness towards solid waste separation at source in Taman Sri Serdang. The study will assess the leader opinion on his community readiness using Community Readiness Model; determine the community readiness towards this issue using questionnaire form; and propose a modified conceptual model for the community. The results show that leader of community in Taman Sri Serdang is in Preparation stage where he begin planning in earnest and community offers modest support of efforts. Using a set of questionnaire, six areas is being assessed; community efforts on solid waste separation at source, community knowledge in solid waste separation at source, community perception towards solid waste separation at source, community perception on leadership roles, awareness of available resources and community knowledge towards environment activity in their residential area. The results show that only half of the respondents are making an effort to separate their solid waste. Their knowledge in the issue is average and in their perception, solid waste separation at source activity is important. Their perception is solid waste is not an issue for the leader though some of them do recognize the efforts by the leader. Most of the community is also not aware on resources available for them. In addition, the community awareness on the environmental efforts and activities in their area is low. Thus, modified model is focusing on the community practice, attitude, knowledge sharing, law enforcement and incentives.

Keyword: solid waste, separation at source, community readiness, leadership, community perception

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Sarjana Sains

**KESEDIAAN KOMUNITI TERHADAP PENGASINGAN SISA PEPEJAL DI PUNCA DI SERDANG, SELANGOR, MALAYSIA**

Oleh

**NURUL FADILA BT FADHILLUDIN**

**April 2015**

**Pengerusi: Prof. Madya Latifah Abd Manaf, PhD**

**Fakulti: Pengajian Alam Sekitar**

Malaysia terutamanya Selangor menghadapi masalah peningkatan penjanaan sisa pepejal. Oleh itu, pengasingan sisa pepejal di punca dilihat sebagai langkah yang baik untuk mengatasi masalah ini. Tetapi untuk melaksanakan program ini, tahap kesediaan penduduk perlu dikaji untuk memastikan ianya berjaya. Oleh itu, objektif utama kajian ini adalah untuk menilai tahap kesediaan komuniti terhadap pengasingan sisa pepejal di Taman Sri Serdang. Kajian ini akan menilai pandangan Ketua terhadap tahap kesediaan komuniti beliau menggunakan Model Kesediaan Komuniti, menentukan tahap kesediaan komuniti menggunakan borang kaji selidik dan seterusnya mencadangkan model bagi aktiviti pengasingan sisa pepejal di punca. Hasil temu bual menunjukkan Ketua berada di tahap Persediaan. Tahap ini menunjukkan ketua aktif merancang dan sokongan komuniti adalah sederhana. Selain itu, set soal selidik mengkaji enam cabang iaitu usaha, pengetahuan dan persepsi penduduk terhadap pengasingan sisa pepejal di punca, persepsi terhadap tugas ketua, tahap kesedaran terhadap sumber yang ada dan kesedaran terhadap aktiviti alam sekitar di kawasan mereka. Hasil kajian menunjukkan hanya separuh daripada responden yang mengasingkan sisa pepejal mereka. Tahap pengetahuan berada di tahap sederhana manakala persepsi terhadap pengasingan sisa sebagai penting. Walau bagaimanapun, mereka berpandangan bahawa kitar semula tidak menjadi isu kepada ketua mereka walaupun masih ada penduduk yang sedar akan usaha yang dilakukan ketua mereka. Kebanyakan daripada komuniti juga kurang peka dengan sumber, usaha dan aktiviti alam sekitar yang berada di sekitar mereka. Oleh itu, model yang diubah suai memfokuskan kepada amalan, attitud, perkongsian ilmu, penguatkuasaan undang-undang dan insentif.

Kata kunci: sisa pepejal, pengasingan sisa pepejal di punca, kesediaan komuniti, ketua, persepsi komuniti

## ACKNOWLEDGEMENTS

*"In the name of God, the most gracious, the most compassionate."*

First and foremost, I would like to express my gratitude to Allah for blessing me with the patience, strong will and good health during the preparation of this project. My deepest appreciation to my supervisor, Assoc. Prof. Dr. Latifah Abd Manaf for her valuable time, guidance, ideas, comment, encouragement, and being the most understanding person throughout the course of this research. I would also like to thank my co-supervisor, Dr Sabrina Ho Abdullah for her advices, ideas, comments, and guidance.

Thank you for my dearest family for their endless support all the way since the beginning of my study and for believing on my path. I would also like to extend my thanks to my friends for the help during my research especially to Izaty Farehah Wahab, Fatma Sabariah Alias and Nurashida Saad.

Last but not least, thank you for those who have contributes to this research directly and indirectly. Thank you from the bottom of my heart.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the Master of Science. The members of the Supervisory Committee were as follows:

**Latifah Abd Manaf, PhD**
Associate Professor
Faculty of Environmental Studies
Universiti Putra Malaysia
(Chairman)

**Sabrina Ho Abdullah, PhD**
Senior Lecturer
Faculty of Environmental Studies
Universiti Putra Malaysia
(Member)

**BUJANG B. KIM HUAT, PhD**
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date :

**Declaration by graduate student**

I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any other institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and Innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- there is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software.

Signature: _____ Date: _____

Name and Matric No.: _____

**Declaration by Members of Supervisory Committee**

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

Signature: _____
Name of Chairman of Supervisory Committee: _____

Signature: _____
Name of Member of Supervisory Committee: _____

Signature: _____
Name of Member of Supervisory Committee: _____

Signature: _____
Name of Member of Supervisory Committee: _____

## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## LIST OF ABBREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ATOD | Alcohol, Tobacco and Other Drugs |
| CRM | Community Readiness Model |
| CTC | Communities that Care |
| EPSM | Environment Protection Society Malaysia |
| HIV | Human Immunodeficiency Virus |
| LA | Local Authority |
| MBM | Majlis Bandaraya Miri |
| MIPH | Minnesota Institute of Public Health |
| MPPP | Majlis Perbandaran Pulau Pinang |
| MPSJ | Subang Jaya Municipal Council |
| MSW | Municipal Solid Waste |
| NIDA | National Institute on Drug Abuse |
| ORC | Organizational Readiness for Change |
| PPOR | Perinatal Periods of Risk |
| SWM | Solid Waste Management |
| UPM | University Putra of Malaysia |

# CHAPTER 1

# INTRODUCTION

## 1.0 Introduction

Solid waste management is a major challenge throughout the world particularly in developing countries (Latifah et al., 2009). At present, the annual total solid waste generation is approximately 17 billion tons (Karak et al., 2012). This figure is expected to be increased to 27 billion tons in 2050 from 13 billion tons in the year 1990 as global municipal solid waste generated in 1997 was about 0.49 billion tons with an estimated annual growth rate of 3.2–4.5% in developed nations and 2–3% in developing nations (Karak et al., 2012). Thus, solid waste management become as one of the biggest problems facing by the developing country like Malaysia.

The development of Malaysia with total population of approximately 29.2 million currently, along with the economic growth, business activities and consumption rate, will accelerate the daily generation and volume rate of municipal solid waste (Iffah, 2013). Current situation of total Municipal Solid Waste (MSW) generation in Malaysia shows that the MSW generation has increasing about 18% between 2001 and 2005 where 5.91 million tonnes was generated in 2001 and this figure increased to 6.97 million tonnes in 2005 (Zamali et al., 2009). Moreover, the average per capita generation rate is also increased from 0.67 kg/capita/day in 2001 to 0.8 kg/capita/day in 2005 (Zamali et al., 2009). This figure translates to 17,000 tonnes of domestic waste generated per day in 2003 (Budhiarta, 2012), and this amount increased to 19,100 tonnes per day in 2006 (Abdul Jalil, 2010; Agamuthu et al., 2009) and expected to increase to 31,000 tonnes per day by the year 2020 (Iffah et al., 2013; Latifah et al., 2009; Kathirvale et al., 2003).

Therefore the challenge of municipal solid waste management has become a priority for governments all over the world especially in Malaysia (Ying et al., 2008). Keeping pace with the requirements of rapid economic development and continuing population growth, and because of its critical role in protecting the environment and public health, accomplishing effective and efficient MSW management should be a priority for cities in developing countries like Malaysia as inappropriate waste handling, storage, collection and disposal practices pose environmental and public health risks (Osman, 2009). Uncontrolled solid waste generation not only creates serious environmental problems and affects human and animal health, but also causes serious financial and socio-economic losses. Worsen is the remaining capacity at the existing landfills is critically low in Malaysia (Yahaya and Larsen, 2008).

In order to manage this increasing solid waste generation, waste separation at source is seeing as a great opportunity to counter this problem in Malaysia especially in Selangor. Waste separation is a critical component of a successful

integrated waste management system that increases the quality of produced compost and recyclables, and optimizes incineration (McDougall et al., 2001). It also enables better financing of waste management activities and minimizes the energy and labor inputs to any downstream processes (Murray, 1999). There is no doubt that recycling based on waste separation at source has been fairly successful in developed country cities and now being widely promoted in developing country cities as essential component of long-term solution to the solid waste problem. (Charuvichaipong and Sajor, 2006). Currently, Malaysia is also in their stage to promote waste separation at source as one of nation strategy to prolonged landfill longevity. However, to implement this step is not an easy task and cooperation from the community need to be gain first and therefore their readiness need to be assess in order to have the best plan to ensure this strategy is successful.

### 1.1 Problem Statement

Increasing of solid waste generation has always being a serious issue for most of the local authorities in Malaysia. This increasing of solid waste generation not only leads to the environmental problem but also can caused health problem and increase the management cost for Local Authorities (LAs). Landfill in Malaysia is also filling up to its brim capacity where most of the landfill will be full earlier than their expected lifespan due to this problem. LAs cost will increase in order to dispose their waste in other landfill which is further away from their jurisdiction area. Selangor is the most affected state of this issue as they are currently refuses to implement the new solid waste Act 672. As a consequence, the federal governments will not funding or helping LAs in Selangor regarding their solid waste management. Thus, Selangor LAs need to come up with their own strategy and plan to manage their solid waste issue.

One way to tackle this problem is by promoting solid waste separation at source. However, this is not an easy task as Malaysian has been very comfortable on their current practice of solid waste disposal where all of the waste is being disposed in one plastic bag without separating any of the waste. To change this lifestyle is a very challenging process and need to be planned properly to avoid wasted energy and resources. This has been proved by the recycling rate of Malaysian that has been way below the average levels at a mere 11% of the total solid waste being produced compared to 57% in Singapore and 66% in Germany (Ahmad Suhaili, 2013).

In present, Subang Jaya Municipal Council (MPSJ) is the only LA in Selangor that has implemented the solid waste separation at source program in their jurisdiction. Thus, Taman Sri Serdang has been chosen by MPSJ as the pilot area for this program. However, according to Chenayah et. Al. (2009), the recycling rate in Subang Jaya is estimated to be only 0.43% in 2004. In addition, an existing recycle centre in Taman Sri Serdang has also ceased its operation. Currently, this centre is only operating based on the request due to low participation of residents in Taman Sri Serdang. Hence, it is essential to identify and analyze the causes that will affect the community readiness towards solid waste separation at source as a first step in recycling. This is because research has shown that plan and programs implemented in a

community who isn't ready for it often lead to failure. A failure program will lead to waste of resources and energy. Especially without the help and fund from the Federal Government, MPSJ need to ensure their program is effectively taken into action among the community to conserve their limited resources. The knowledge on readiness of the community is essential to develop a proper plan on implementing such changes in community.

### 1.2 Research Objectives

The main objective is to study the community readiness towards solid waste separation at source in Taman Sri Serdang.

In order to achieve the general objective, a few of specific objectives were listed as below;

1. To assess the leader opinion on the community readiness towards solid waste separation at source in Taman Sri Serdang using Tri-ethnic Centre Community Readiness Model.
2. To determine the community readiness towards solid waste separation at source in Taman Sri Serdang using set of questionnaire.
3. To suggest and modify a community readiness conceptual framework towards solid waste separation at source activity in Taman Sri Serdang.

### 1.3 Significance of Studies

This study will benefits the local authority (LA) the most in planning for their municipal solid waste in their jurisdiction area as it provide current readiness level of the community towards waste separation at source particularly and other environment program as general. By knowing the community readiness it can help local authority to plan and manage properly their program in order to ensure their activity will be successful.

Through this research, the LA will also know current situation or problem regarding their jurisdiction residents' attitude towards solid waste management. Besides that, this research will be able to provide the communication status between LA and the community such as whether their program is known by the community or not. A successful program will resulted in decrement of solid waste generation. Thus it will reduce solid waste that is being sent to landfill and help the national government to preserve landfill capacity in Malaysia.

In addition, this study will help the LA to evaluate and assessing their policy on solid waste separation at source. It will help them to plan on implementing this policy as compulsory or plan for a suitable solution for Taman Sri Serdang. Besides that, it will also improve their management on the solid waste collection services as this research will help the LA to understand the community practice on handling their solid waste.

This study will also be beneficial for the community as it can be a medium for them to give their opinion regarding solid waste management activity and

program in their residential area. The survey will be also act as an education program to the community regarding solid waste management especially waste separation at source program in their area. Besides that, it is a platform to increase community knowledge about national and local authority plan and program for them. As a result, it may improve the communication between the community and their local authority.

## 1.4 Scope of Study

The scope of this study was focusing on community readiness towards waste separation at source in Taman Sri Serdang household. This household was bound only to the terrace type of residential. Medium rise buildings, business area and other type of waste were excluded from this survey.

The scope for survey respondents is residents live in the residential area. A representative from each household will be surveyed. Focus will be on the Malaysian residents only. Foreign residents were excluded as this study was to evaluated Malaysian readiness.

The interview was done using several relevance questions from the Community Readiness Model of Tri-ethnic Center. Additional questions were added to understand more of the leadership opinion of their community. The leader chosen for this survey were those who actively involved with the solid waste management program in Taman Sri Serdang. Survey questions focused on community readiness towards solid waste separation at source which includes their practice, knowledge, efforts, and perception.

Both methods covered a topic on existing community efforts, community awareness of program, leadership, community climate, community knowledge of the issue, and resources availability. Answers from both methods were used to develop a model of community readiness development.

## 1.5 Thesis Organisation

The organization of this study is divided into five chapters. Each chapter explained the research process from beginning until end. The chapters content were discussed as below.

Chapter 2 focused on the literature and background of the study in detailed. This includes the definition, factors and impact of solid waste management to the environment and community. Relevant past research will be reviewed for further understanding of the topic and research strengthen. Current situation of solid waste management in Selangor along with its evolution during past years will be described deeply in this chapter. This chapter will also discuss the methodology and model available to conduct this research and comparison will be made through review of reports and journal in order to choose the proper method for this research.

In Chapter 3 discussions was focussing on the method chosen for this study.

Discussion will be focusing on the selected community readiness model and its implementation. Besides that, further selection method of interview respondents and survey respondents will be discussed. Background of selected study area will also be presented for more understanding. In addition, analysis method of data collection will also be explained further in this chapter.

Focus of Chapter 4 was the presentation of research results based on the data collected through interview and survey. The results from the study will be discussed in detail along with explanation. It will also discuss the objectives achievement in this study. This chapter will provide a clear view of this research progress and achievement. Furthermore, it will also provide new information to the local authority, community and other researcher.

Finally, in Chapter 5, summary and conclusion for this study was discussed. Recommendation of the study was suggested for further research to gain more information and improve this research in future.

## REFERENCES


Abdul Jalil M., 2010, Sustainable Development in Malaysia: A Case Study on Household Waste Management. Journal of Sustainable Development, Vol. 3 No. 3, 1913-9063

Adrian Lai, 2013, Boosting Recycling Rates. New Straits Times, http://www2.nst.com.my/latest/boosting-recycling-rates-1.330549?cache=03%2F7.202804%2F7.203272%3Fpage%3D0%3Fpage%3D0%3Fpage%3D0%3Fpage%3D0%3Fpage%3D0%3Fpage%3D0%2F7.309700%2F7.682489%2F7.349015%2F7.155500%2F7.599438%2F7.796336, Accessed on 10th January 2014

Agamuthu P, Fauziah SH, 2006 MSW disposal in Malaysia: landfill management. In: Proceedings of the 2nd Expert Meeting on Solid Waste Management in Asia and the Pacific Islands, Kitakyushu, November 23–24, 2006

Agamuthu P., Fauziah S. H., and Kahlil K., 2009, Evolution of solid waste management in Malaysia : impacts and implications of the solid waste bill 2007. Journal Mater Cycles Waste Management, 11:96-103

Agamuthu, P., 2001, Solid waste: principles and management with Malaysian case studies. Kuala Lumpur: University of Malaya Press.

Ahmad Suhaili Idrus, 2013, Why aren't Malaysians recycling? http://www.freemalaysiatoday.com/category/business/2013/11/11/why-aren%E2%80%99t-malaysians-recycling/, Accessed on 4th January 2014

Al-Yaqout AF, Koushki PA, Hamoda MF., 2002, Public opinion and siting solid waste landfills in Kuwait. Resources Conservation and Recycling, 35:215–27

Arif I.M., Rosnanini M., Noraini M.N., Jamil A., and Mohd Jasmy A.R., 2011, Computer Self Efficacy: Teacher Readiness in Accepting Malaysian EduwebTV. World Applied Sciences Journal 14 (Learning Innovation and Intervention for Diverse Learners): 60-66

Behar L.B., and Hydaker W.M., 2009, Defining Community Readiness for the Implementation of a System of Care. Adm Policy Ment Health, 36:381–392

Budhiarta I., Siwar C., and Basri H., 2012, Current Status of Municipal Solid Waste Generation in Malaysia. International Journal on Advanced Science Engineering Information Technology, Vol 2 No. 2, 2088-5334

Chandana K.V., Samuel T.S.Y., and Sumith P., 2006, Municipal solid waste management in the Southern Province of Sri Lanka: Problems, issues and challenges. Waste Management 26, 920–930

Charuvichaipong C, Sajor E., 2006, Promoting waste separation for recycling and local gov- ernance in Thailand. Habitat International, 30:579–94

Chenayah, Santha, Agamuthu, P., Takeda, Eiji.,2009, Multicriteria Modelling on Recycling of Municipal Solid Waste in Subang Jaya, Malaysia Journal of Science, Volume 26, Issue 1

Cointreau SJ., 1982, Environmental management of urban solid wastes in developing countries: a project guide. Washington, D.C: Urban Development Department, the World Bank

Community Readiness in Indiana, 2009, The County Readiness Survey

Donnermeyer J. F., Plested B.A., Edwards R.W., Oetting J., and Littlethunder L, 1997, Community Readiness and Prevention programs. Journal of the Community Development Society, Vol 28, No 1

Edwards R.W., Plested B.A., Thurman P.J., Oetting E.R., and Swanson L, 2000, Community Readiness: Research to Practice. Journal of Community Psychology, Vol 28, No 3, 291-307

Hasnain Isa M., Faridah A.H.A., Azam R.N., Shamshad A., and Tan S.S., Solid waste collection and recycling in Nibong Tebal, Penang, Malaysia: a case study. Waste Management Research, 23; 565

Iffah F. R., Wan Azlina W.A.K.G, Dayang Radiah A.B, and Azni I., 2013, An application of the theory of planned behaviour to study the influencing factors of participation in source separation of food waste. Waste Management, 33, 1276-1281

Issam A. Al-Khatib a, Hassan A. Arafat b,*, Thabet Basheer c, Hadeel Shawahneh c, Ammar Salahat c, Jaafar Eid c, Wasif Ali c, 2007, Trends and problems of solid waste management in developing countries: A case study in seven Palestinian districts. Waste Management 27, 1910–1919

Itsumi K., Loran S., and Julie G., 2008, Readiness for Community-based Bicycle Helmet Use Programs: A Study Using Community-and Individual-level Readiness Models. Journal of Health Psychology, 13: 639

Japan International Cooperation Agency, 2006, The Study on National Waste Minimization in Malaysia. Ministry of Housing and Local Government Final Report, Volume 3

Kamran R., and Karin M.E., 2013, Assessing Incorrect Household Waste Sorting in a Medium-Sized Swedish City. Sustainability, 5, 4349-4361

Karak T, Bhagat R.M and Pradip B., 2012, Municipal Solid Waste Generation, Composition, and Management: The World Scenario. Critical Reviews in Environmental Science and Technology, 42:15, 1509-1630

Kathirvale, S., Muhd Yunus, M.N., Sopian, K., Samsuddin, A.H., 2003. Energy potential from municipal solid waste in Malaysia. Renewable Energy 29, 559– 567

Kelly K. J., Edwards R.W., Comello M.L.G., Plested B.A., Thurman P.J., and Slater M.D., 2003, The Community Readiness Model:A complementary approach to social marketing. Marketing Theory, 3: 411

Latifah A.M., Mohd Armi A.S and Nur Ilyana M.Z., 2009, Municipal Solid Waste In Malaysia; Practices And Challenge. Journal Waste Management 29: 2902-2906

Lott S. and Chazdon S, 2008, Readiness for Engagement: A Qualitative Investigation of Community Social Capacity. University of Minnesota Extension

Malakahmad A.,Muhammad Zaim Zaki C.M.N., Shamsul R.M.K., and Mohammed H. I., 2010, Solid Waste Characterization and Recycling Potential for University Technology PETRONAS Academic Buildings. American Journal of Environmental Sciences, 6 (5), 422-427

McCaffer, R. and Majid, M.Z.A, 1997, Discussion – assessment of work performance of maintenance contractors in Saudi Arabia. Journal of Management in Engineering, 13, 91.

McDougall, F.R., White, P., Franke, M., Hindle, P., 2001. Integrated Solid Waste Management: A Life Cycle Inventory. Blackwell Science, Oxford.

Ministry of Housing and Local Government, 2005, National Strategic Plan for Solid Waste Management, National report of Malaysia.

Mohamad, Z. F., & Keng, J. (2013). Opportunities and Challenges in Sustainable Waste Management Transition in Malaysia: A Multi-Level Socio-Technical Perspective. Globelics Seminar on Low Carbon Development 2013, 4-5 April 2013, Copenhagen, Denmark.

Murray, R., 1999. Creating Wealth from Waste. Demos, London, UK. Organization

Nadzri Yahaya, 2012, Solid Waste Management in Malaysia: The Way Forward. Ministry of Housing and Local Government.

Nancy L.Y., and Ellen J.H., 2007, The Community Readiness Model: Evaluating Local Smoke-Free Policy Development. Policy Politics Nursing Practice, 8: 184

Norkhadijah S.S.I., Hajar M., Irniza R., Emilia and Z. A., 2013, Commitment, Attitude and Behavioural Changes of Community towards Waste Segregation Program: A Case Study of Malaysia. Sustainable City, Putrajaya

Omran A, Mahmood A, Abdul Aziz H, Robinson GM. Investigating households attitude toward recycling of solid waste in Malaysia: a case study. Journal of Environmental Research 2009;3(2):275-288

Osman N.A., 2009, Comparison of old and new municipal solid waste management systems in Denizli, Turkey. Waste Management 29, 456–464

Pasang H., Graham A.M., and Guntur S., 2007, Neighbourhood-based waste management: A solution for solid waste problems in Jakarta, Indonesia. Waste Management 27, 1924–1938

Paula F., 2006, Community Readiness. Southwest Center for Applied Prevention Technologies

Plested B.A., Edwards R.W., Thurman P.J., 2009, Community Readiness Manual. Colorado State University

Plested B.A., Edwards R.W., Thurman P.J., Michael D.S., Kelly K.J., Maria L.G.C., Thomas J.K, 2005, Using Community Readiness Key Informant Assessments In A Randomized Group Prevention Trial: Impact Of A Participatory Community-Media Intervention. Journal of Community Health, Vol. 30, No. 1

Pothimamaka J., 2008, Community Learning Process: A Model of Solid Waste Reduction and Separation. EnvironmentAsia, 2,43-48

Qdais A., 1997, Analysis of residential solid waste at generation sites. Waste Management & Research, 15:395–406.

Ramayah T., Jantan M., and Suresh K.T., 2001, Job Satisfaction: Empirical Evidence for Alternatives to Jdi. National Decision Sciences Conference San Francisco, November 2001

Regulation 800: Comprehensive Solid Waste Regulations, Franklin County General Health District

Renbi B, Mardina S, 2002, The practice and challenges of solid waste management in Singapore. Waste Management 22, 557-567

Sakawi. Z., 2011, Municipal Solid Waste Management in Malaysia: Solution for Sustainable Waste Management, Journal of Applied Sciences in Environmental Sanitation, Vol 6, No. 1: 29-38

Scherer J.A., Joao B.F., Rebecca L.R., and Nuria H, 1999, Measuring Readiness for Change in Two Northern Border Mexican Communities. Enero-Junio, Vol VI, No 1

Sharifah Norkhadijah Syed Ismail and Latifah Abdul Manaf, 2013, The Challenge of Future Landfill: A case study of Malaysia. Journal of Toxicology and Environmental Health Sciences, Vol 5(6)

Sreenivasan J., Govindan M., and Chinnasamy M., 2012, Behavioural Determinants of Domestic Solid Waste Minimization-A Malaysian Perspective. 2nd International Conference on Social Science and Humanity IPEDR vol.31

Statistics Yearbook Malaysia, 2012, Department of Statistics Malaysia

Tadesse T., 2009, Environmental concern and its implication to householdwaste separation and disposal: Evidence from Mekelle, Ethiopia. Resources, Conservation and Recycling, 53, 183–191

Tchobanoglous, G., 1993. Integrated Solid Waste Management Engineering Principles and Management Issues. McGraw-Hill.

Tiew Kian-Ghee, Noor Ezlin Ahmad Basri, Hassan Basri, Shahrom Md Zain and Sarifah Yaakob, 2012, Implementation of Recycling Municipal Solid

Waste (MSW) at University Campus. Chapter 9 Waste Management- An Integrated Vision.

Tunmise A. Otitoju and Lau Seng, 2014, Municipal Solid Waste Management: Household Waste Segregation in Kuching South City, Sarawak, Malaysia. American Journal of Engineering Research, Vol 03, Issue 6.

Vaughn J., 2009, Waste Management: A Reference Handbook

Von L.L., 2004, Case Study on the Management of Waste Materials in Malaysia. Forum Geoökol, 15 (2).

Yahaya, N. and Larsen, I., 2008, Federalising Solid Waste Management in Peninsular Malaysia. Proceeding of International Solid Waste Association (ISWA) World Congress, Singapore.

Yamane, Taro. (1967). Statistics: An Introductory Analysis, 2nd Edition, New York: Harper and Row.

Yang L., Zhen S.L., and Hui Z.F., 2011, Model of Municipal Solid Waste Source Separation Activity: A Case Study of Beijing. Air & Waste Manage. Assoc.. 61:157–163

Ying Z., Song W.W., Yun L.W., Wei X.W., and Ying X.C, 2008, Source separation of household waste: A case study in China. Waste Management 28, 2022–2030

Yunus, M.N.M., Kadir, K.A., 2003. The development of solid waste treatment technology based on refuse derived fuel and biogasification integration. In: International Symposium on Renewable Energy. Kuala Lumpur, 14–17 September 2003

Zamali. T., Lazim. M.A., And Abu Osman. M.T., 2009, An Overview Of Municipal Solid Waste Generation In Malaysia. Jurnal Teknologi, 51(F), 1-15