



UNIVERSITI PUTRA MALAYSIA

**CONCEPTUAL MODEL FOR SUSTAINABLE SOLID WASTE
MANAGEMENT IN ABUJA, NIGERIA THROUGH ASSESSMENT OF
RELATED MUNICIPALITY OPERATIONS IN ABUJA, NIGERIA AND
PUTRAJAYA, MALAYSIA**

KADAFI ADATI AYUBA

FPAS 2014 9



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By

KADAFI ADATI AYUBA

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

August 2014

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DEDICATION

This work is dedicated to my parents Mr. & Mrs. Ayuba Kadafa, my husband Mr. Jama .D. Medan and my son Ayuba Jama Medan.



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UPM

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment
of the requirement for the degree of Doctor of Philosophy

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August 2014

Chair: Assoc. Prof. Latifah Abd Manaf, PhD
Faculty: Environmental Studies

Solid waste is one of the three major environmental problems in Nigeria, Malaysia and many other developing and even the developed countries are threatened by this. Waste management generally plays a significant role in the ability of nature to sustain life within its capacity and therefore an integral part of urban and environmental management in every city. Currently solid waste management is a globally challenging issue especially in developing countries, due to its adverse environmental effects. This research is a descriptive study using mixed method; survey and qualitative, aimed at using the integrated solid waste management system towards assessing the current state of solid waste management in Abuja and Putrajaya towards adopting a conceptual model for effective and sustainable waste management in Abuja. Residential and administrative questionnaire were used further supplemented with interviews and field observations toward obtaining a holistic assessment. The data obtained was analyzed using qualitative and quantitative methods; specifically descriptive, parametric and nonparametric statistics and theme analysis. The results obtain form the severity index analysis (Pj: Good $62.5 \leq SI < 87.5$ and Abj: Average $37.5 \leq SI < 62.5$) indicated Putrajaya has a better solid waste management system. With better waste management practices among the residents, a higher level (mean rank) of perception (Pj: 467.41 and Abj: 340.54), knowledge (Pj: 441.13 and Abj: 347.94) and satisfaction (Pj: 541.35 and Abj: 268.38) among residents. Although Abuja had a higher level of willingness (Abj:422.14 and Pj:382.95).The administrative parts of the assessment indicated more severe problems with solid waste management on the administrative level in Abuja but showed that problem did exist also in Putrajaya. In conclusion, Abuja showed a poor and unsustainable management of solid waste in the city, while the results of Putrajaya was indicative of a more definite waste management system but indicated the 3-R principal was not fully integrated in the current solid waste management system. A model was obtained toward improving the effectiveness and sustainability of solid waste management in Abuja based on issues that have been identified and determined from the assessment. In the correlation results for the

conceptual model, finance/admin and others dimension would increase the effectiveness and efficiency of the waste management model by a 99% confidence level: $r=0.623$, $p=0.003$ with relation to services; $r=0.602$, $p=0.005$ with relation to equipment and $r=0.711$, $p=0.001$ with relation to others. Also others dimension would increase the effectiveness and efficiency of the waste management model by a 99% confidence level: $r=0.618$, $p=0.004$ with relation to services; $r=0.675$, $p=0.001$ with relation to equipment and $r=0.711$, $p=0.001$ with relation to finance/admin.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

MODEL KONSEP UNTUK PENGURUSAN SISA PEPEJAL MAMPAN DI ABUJA, NIGERIA MELALUI PENILAIAN OPERASI PERBANDARAN BERKAITAN DI ABUJA, NIGERIA DAN PUTRAJAYA, MALAYSIA.

Oleh

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Ogos 2014

Pengerusi : Prof. Madya Latifah Abd Manaf, PhD
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Sisa Pepejal adalah salah satu daripada tiga masalah alam sekitar yang utama di Nigeria, Malaysia dan lain-lain negara membangun dan juga negara-negara maju turut diancam dengan masalah ini. Pengurusan sisa secara umumnya, memainkan peranan penting dalam memastikan alam semula jadi untuk mengekalkan kehidupan dalam kestabilan dan merupakan sebahagian daripada pengurusan bandar dan alam sekitar di setiap bandar. Perbandaran Pengurusan Sisa Pepejal adalah isu global yang mencabar terutamanya di negara-negara membangun, kerana ia memberi impak pada alam sekitar. Kajian ini merupakan satu kajian diskripsi yang menggunakan campuran metod;soal selidik dan kualitatif bertujuan untuk menggunakan Sistem Pengurusan Sisa Pepejal Bersepadu bagi menilai keadaan semasa Perbandaran Pengurusan Sisa Pepejal di Abuja dan Putrajaya ke arah mengamalkan model konsep bagi pengurusan sisa yang berkesan dan mampan dalam Wilayah Persekutuan Abuja. Soal-selidik dari kediaman dan pentadbiran telah digunakan dan di tambah dengan temu bual serta pemerhatian dari lapangan untuk mendapatkan penilaian yang holistik. Data yang diperolehi telah dianalisis dengan menggunakan kaedah statistik kualitatif dan kuantitatif khususnya analisa deskriptif, berparameter dan tak berparameter dan statistik tema. Keputusan yang diperolehi dari ujian severiti indeks (Pj: Bagus $62.5 \leq SI < 87.5$ dan Abj, Purata $37.5 \leq SI < 62.5$) menunjukkan Putrajaya mempunyai sistem pengurusan sisa yang lebih baik amalan pengurusan sisa yang teratur di kalangan penduduk, serta tahap yang lebih tinggi, pada persepsi(Pj: 467.41 dan Abj:340.54) , kesediaan, ilmu pengetahuan (Pj: 441.13 dan Abj: 347.94) dan kepuasan di kalangan penduduk (Pj:541.35 dan Abj: 268.38). Walaupun Abuja mempunyai tahap kesedaran yang tinggi (Abj:422.14 dan Pj:382.95). Taksiran bahagian pentadbiran menunjukkan masalah kurang efisien dengan pengurusan sisa berlaku di peringkat pentadbiran Abuja, masalah ini turut berlaku di Putrajaya. Kesimpulannya, Abuja menunjukkan pengurusan Sisa Pepejal Perbandaran yang lemah dan tidak mampan dikawasan bandarnya, manakala Putrajaya menunjukkan sistem pengurusan sisa yang lebih teratur tetapi amalan 3-R tidak bersepadu sepenuhnya dalam sistem pengurusan sisa pepejal ketika ini. Sebuah model telah dirangka kearah meningkatkan keberkesanan dan kemampunan Pengurusan Sisa

Perbandaran di Abuja berdasarkan isu-isu yang telah dikenal pasti dan ditentukan dari sekitar kajian. Pada dapatan korelasi untuk model konsep, kewangan/pengurusan dan dimensi lainnya akan meningkatkan efektif dan efisensi model pengurusan sisa sebanyak 99% aras keyakinan; $r=0.623$, $p=0.003$ dengan hubungan pada perkhidmatan; $r=0.602$, $p=0.005$ dengan hubungan pada kelengkapan dan $r=0.711$, $p=0.001$ dengan hubungan pada lain-lain. Dimensi lain-lain juga turut akan meningkatkan efektif dan efisensi model sisa pepejal sebanyak 99% aras keyakinan; $r=0.618$, $p=0.004$ dengan hubungan pada perkhidmatan; $r=0.675$, $p=0.001$ dengan hubungan pada kelengkapan dan $r=0.711$, $p=0.001$ dengan hubungan pada kewangan/pengurusan.



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I thank my husband for the encouragement towards fulfilling my dreams.

I certify that a Thesis Examination Committee has met on 8 August 2014 to conduct the final examination of Kadafa Adati Ayuba on her thesis entitled "Conceptual Model for Sustainable Solid Waste Management in Abuja, Nigeria Through Assessment of Related Municipality Operations in Abuja, Nigeria and Putrajaya, Malaysia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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Declaration by Graduate Student

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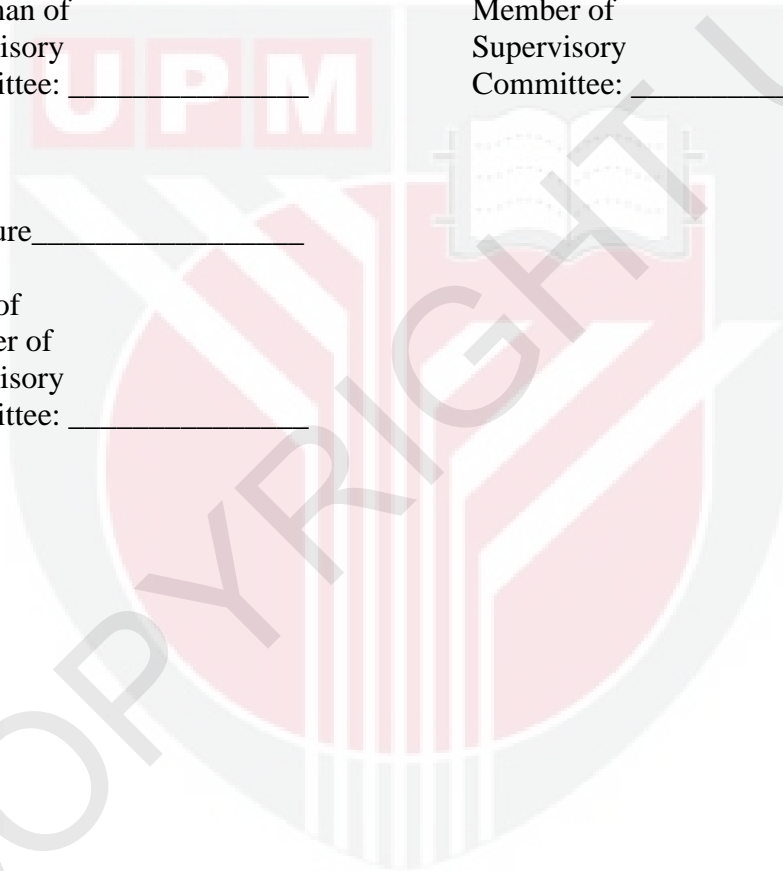


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