

**ECONOMIC VALUATION OF COMMUNITY SOLID WASTE MANAGEMENT  
PRACTICES IN JINJA MUNICIPALITY; IMPLICATIONS FOR MUNICIPAL  
SOLID WASTE MANAGEMENT**

**BY  
JAYA ERNEST  
BU/UP/2015/419**



**A DISSERTATION SUBMITTED TO THE  
FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
AWARD OF A BACHELORS OF SCIENCE IN  
NATURAL RESOURCE ECONOMICS OF  
BUSITEMAUNIVERSITY**

## DECLARATION

I hereby declare that the work presented in this research report is original and has not been submitted to any university or any other institution of higher learning for any academic award.

Signature..........

Date.....5/07/2019.....

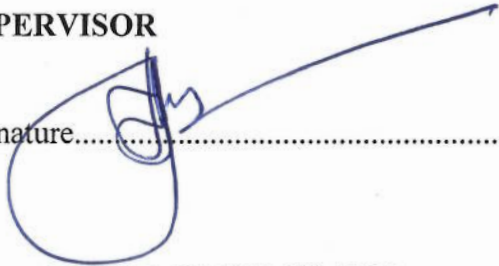
**JAYA ERNEST**

## APPROVAL

This is to certify that **JAYA ERNEST** did research and this report is a true representation of the findings, I therefore recommend that this report be submitted to the Faculty of Natural Resources and Environmental Sciences of Busitema University.

**SUPERVISOR**

Signature.....



DATE .....

11/07/2019

MR. KIFUMBA DAVID NSAJJU

## DEDICATION

I dedicate this report to my family (Ms Atori Elizabeth, Mr Mafabi John and brother Bonyo Ambrose), thank you for the sacrifice and every support you rendered to me throughout my education journey may God bless you.

## ACKNOWLEDGEMENT

I greatly thank the management of Busitema University Namasagali campus especially my supervisor Mr. Kifumba David Nsajju due to supervision in the execution of duties during the period of research that enabled me to successfully complete the proposal, data collection, data analysis and report writing. I also thank my fellow students who assisted me throughout the whole course, thank you so much.

I would like to extend my sincere appreciation to my family especially my mother Atori Elizabeth for their spiritual, moral, and financial endeavours all throughout my academic and social life.

Finally, I thank my Almighty God who gave me the gift of life, wisdom and courage that made me strong during my whole studies and research. I will always worship and praise you forever and ever AMEN.

## ACRONYMS/ABBREVIATIONS

EPA	Environmental Protection Agency
WHO	World Health Organization
UN	United Nations
LG	Local Government
JMC	Jinja Municipal Council
SW	Solid Waste
MSW	Municipal Solid Waste
UNEP	United Nations Environmental Protection Agency
CPCB	Central Pollution Control Board
OECD	Organization for Economic Development
WBCSD	World Business Council for Sustainable Development
WTP	Willingness to Pay
WTA	Willingness to Accept
CBD	Central Business District

## LIST OF FIGURES

Figure 1.1: conceptual framework.....	7
Figure 4.1: gender demographics of the population .....	27
Figure 4.2: comparison of type of solid waste storage material by gender .....	28
Figure 4.3: comparison of gender by location of storage container .....	29
Figure 4.4: comparison of reasons for the location of the storage containers by gender. ....	30
Figure 4.5: Education level of the respondents.....	31
Figure 4.6: comparison of material of type of storage container by education level.....	32
Figure 4.7: marital status of the respondents .....	33
Figure 4.8: Comparison of type of material of storage container BY marital status.....	34
Figure 4.9: occupation of the respondents .....	35
Figure 4.10: Possession of storage containers .....	36
Figure 4.11: Types of materials for solid waste collection.....	37
Figure 4.12: Reasons given for possession of that particular material .....	38
Figure 4.13: Comparison of reasons for possession of the kind of materials of storage containers by marital status.....	39
Figure 4.14: mode of acquisition of containers for solid waste collection. ....	40
Figure 4.15: Location of the storage containers.....	41
Figure 4.16: Source of the solid waste storage container .....	42
Figure 4.17: benefits attached to the solid waste collection facility .....	43
Figure 4.18: Comparison of benefits attached to the solid waste collection facility by education level .....	44
Figure 4.19: problems attached to the solid waste collection site.....	45
Figure 4.20: Activities respondents were willing to support for improvements in solid waste services.....	46
Figure 4.21: Comparison of activities respondents were willing to pay for their improvement by marital status .....	47
Figure 4.22: willingness to pay for the monthly solid waste collection fees.....	48
Figure 4.23: willingness to accept payment for solid waste management services.....	49
Figure 4.24: comparison of willingness to pay for solid waste collection services by gender	50
Figure 4.25: comparison of willingness to accept payment for solid waste management by gender.....	51
Figure 4.26: comparison of willingness to pay towards Solid waste management by education level.....	52
Figure 4.27: comparison of willingness to accept handling own solid waste by education level .....	53
Figure 4.28: comparison of willingness to pay for solid waste services by marital status.....	54
Figure 4.29: comparison of willingness to accept handling own solid waste by marital status .....	55

# TABLE OF CONTENTS

DECLARATION .....	ii
APPROVAL .....	iii
DEDICATION .....	iv
ACKNOWLEDGEMENT .....	v
ACRONYMS/ABBREVIATIONS.....	vi
LIST OF FIGURES .....	vii
TABLE OF CONTENTS.....	viii
ABSTRACT.....	xii
CHAPTER ONE.....	1
1.1. INTRODUCTION.....	1
1.2. Background .....	1
1.2.1. Evolving Management of Urban Solid Waste Services.....	1
1.2.2. Problems of Solid Waste Collection in Developing Countries.....	1
1.4. General Objective.....	6
1.4.1. Specific Objectives .....	6
1.5. Conceptual framework.....	6
1.6. Justification .....	7
1.7. Significance of the study .....	8
1.8. Limitations to the study.....	8
CHAPTER TWO .....	10
2.0. LITERATURE REVIEW.....	10
2.1. What is solid waste?.....	10
2.1.1. Municipal solid waste .....	12
2.2. Solid waste management.....	12
2.2.1. Solid Waste Management and Role of Actors in the Service Chain .....	13
2.2.2. Urban solid waste collection services.....	14
2.2.3. Problems associated with solid waste management in developing countries....	14
2.3. Challenges related to MSWM.....	15



2.4.	Willingness to pay for solid waste collection.....	17
2.5.	Legal framework related to solid waste management in Uganda .....	19
CHAPTER THREE .....		21
3.0.	METHODS OF STUDY .....	21
3.1.	Introduction .....	21
3.1.1.	Pilot study .....	21
3.1.2.	Description of the study area .....	21
3.1.3.	Topography .....	22
3.1.4.	Climate.....	22
3.1.5.	Main Economic Activities .....	22
3.3.	Sampling size and procedure.....	23
3.3.1.	Sampling size.....	23
3.3.1.	Sampling procedure .....	24
3.4.	Data types and data collection methods .....	24
3.4.1.	Primary data.....	24
3.4.2.	Secondary data.....	25
3.5.	Ethical considerations .....	25
3.6.	Data entry .....	25
3.6.1.	Data analysis and interpretation.....	25
3.3.1.	Frequencies .....	25
3.3.1.	Comparison analysis .....	26
CHAPTER FOUR .....		27
4.0.	PRESENTATION OF RESULTS.....	27
4.1.	Demographics of respondents .....	27
4.1.1.	Gender of the respondents .....	27
4.1.2.	Comparison of type of material of storage container used by gender .....	28
4.1.3.	Comparison of location of the storage containers by gender.....	29
4.1.3.	Comparison of the reasons for the location of the storage containers by gender	
	30	
4.1.4.	Education level of the respondents .....	31
4.1.5.	Comparison of material of type of storage container by education level .....	32
4.1.6.	Marital status of the population .....	33

4.1.7.	Comparison of type of material of storage container by marital status.....	34
4.1.8.	Occupation of the respondents.....	35
4.2.	Reasons for the household methods of managing the solid waste generated.....	36
4.2.1.	Possession of storage containers.....	36
4.2.2.	Types of materials used for solid waste collection.....	37
4.2.3.	Reasons as to why they had their storage containers made of that particular material	38
4.2.4.	Comparison of reasons for possession of the kind of materials of storage containers by marital status .....	39
4.2.5.	Acquisition of the storage containers.....	40
4.2.6.	Location of the storage containers.....	41
4.2.7.	Source of solid waste storage container.....	42
4.3.	Ascertaining the socioeconomic problems arising from.....	43
4.3.2.	Comparison of benefits attached to the solid waste collection facility by education level.....	44
4.3.3.	Problems attached to the solid waste collection facility .....	45
4.4.	Residents' willingness to pay for solid waste collection services.....	46
4.4.1.	Activities that the respondents are willing to pay for solid waste improvements	46
4.4.2.	Comparison of activities respondents were willing to pay for their improvement by marital status.....	47
4.4.3.	Willingness to pay for monthly solid waste collection services.....	48
4.4.4.	The amount in (SHS) of what the respondents were willing to accept for them to handle the solid waste that they generate .....	49
4.4.5.	Comparison of willingness to pay for solid waste collection services by gender	50
4.4.6.	Comparison of willingness to accept payment to handle own solid waste by gender	51
4.4.7.	Comparison of willingness to pay for solid waste collection services by education level.....	52
4.4.8.	Comparison of willingness of to accept by education level .....	53
4.4.9.	Comparison of willingness to pay by marital status.....	54
4.4.10.	Comparison of willingness to accept payment for own handling of solid waste by marital status.....	55
CHAPTER FIVE	.....	56

5.0. DISCUSSION OF RESULTS.....	56
5.1. Introduction.....	56
5.1.1. Household methods for management of the solid waste that they generate.....	56
5.1.2. Materials for solid waste collection.....	56
5.1.3. Acquisition of the storage containers.....	56
5.1.4. Who should provide the storage/collection containers.....	57
5.2. Socioeconomic aspects related to the nature of the solid waste collection facility...59	
5.2.1. Benefits people attach to the solid waste collection site.....	59
5.2.2. Problems associated with the solid waste collection facility.....	61
5.3. Willingness to pay for solid waste collection services.....	62
5.3.1. WTP.....	62
CHAPTER SIX.....	64
6.0. CONCLUSIONS AND RECOMMENDATIONS.....	64
6.1. Introduction.....	64
6.1.1. Conclusions.....	64
6.2. Recommendations.....	65
6.3. Areas of further research.....	66
REFERENCES.....	68
APPENDICES.....	70

## ABSTRACT

Developing Countries are still struggling with solid waste collection and management; Uganda is no exception. Solid waste is waste generated and discarded as useless or unwanted from activities in homes, institutions, public and commercial places, industries, though it is also a resource for reuse, recycle, and recovery.

Respondents in Jinja municipality were interviewed from the three divisions but central division with 30 respondents because it is the busiest and major solid waste generator

The objectives were; to analyze the reasons for household methods of managing the solid waste that they generate, to analyse the social and economic problems arising from the nature of solid waste facilities at the locations for solid waste collection in residential and business centres, to determine the residents' willingness to pay for collection services of solid waste generated in their homes.

Non probability sampling techniques purposive, accidental and convenience sampling were used in obtaining interview respondents, inclusive of contingent valuation method where respondents were asked their willingness to pay through the interview guides

Data was analysed using excel analysis where comparisons were presented using clustered bar graphs that described the relationships between the dependent and independent variables.

99% of the respondents possessed storage containers, and 44.5% used plastic made containers, while 37.5% of the representative population located the containers in their compounds giving reasons of preventing bad smell with 23.5% responding to the case. 72.9% of interviewed respondents had a view that the municipal council should provide the storage containers but 62.9% of them had storage containers bought by self. 18.7% of the

respondents said that the solid waste collection site was a source of employment and 20.69% of them responded to the stench problem as the major challenge affecting the collection site.

80% respondents were willing to pay between shs.2000-5000 for the monthly solid waste collection services whilst 50% of them were willing to accept payment for handling own solid waste of above shs.150000

# CHAPTER ONE

## 1.1. INTRODUCTION

### 1.2. Background

#### 1.2.1. Evolving Management of Urban Solid Waste Services

Many Developing Countries are still struggling with solid waste collection and management (Wilson, 2007), and Uganda is no exception. Solid waste is waste generated and discarded as useless or unwanted from activities in homes, institutions, public and commercial places, and industries, though it is also a resource for reuse, recycle, and recovery (Tchobanoglous et al.,1993). Solid waste collection in developing countries, especially in Africa, is a real challenge to the public sector. Given the level of investment, the running cost of solid waste management, and the competing priorities including water, health, education, roads, and energy, of national governments, the public sector alone could not deliver the solid waste services. The private sector is partnering with the public sector to provide the needed resources for the solid waste service delivery. But for this arrangement to have impact on total service coverage and environmental cleanliness, it will depend on the formal rules and enabling policy, legal and regulatory environment created and maintained by the local and central governments to provide the needed incentives for more investment, improved service quality, and regular price adjustment (OECD, 2000).

#### 1.2.2. Problems of Solid Waste Collection in Developing Countries

##### **Solid waste problems**

Despite the private sector involvement in solid waste management in developing countries in the past two decades, there are still problems with solid waste management services. The

## REFERENCES

- Murad, M.W., Raquid, M.A., and Siwar, C (2007). Willingness of the poor to pay for improved access to solid waste collection and disposal services. *The Journal of Environment and Development*, Vol. (16), Nov 1, 84-101.
- Thewodros Bekele Tolera, "Occupational Hazards In Construction Industry: Case Studies From Housing And Construction Workers At Addis Ababa, Ethiopia" *International Journal of Research - Grantha alayah*, Vol. 4, No. 9 (2016): 84-96
- R. Afroz, K. Hanaki, and K. Hasegawa-Kurusu, "Willingness to pay for waste management improvement in Dhaka city, Bangladesh," *Journal of Environmental Management*, vol. 90, no. 1, pp. 492–503, 2009, <https://www.sciencedirect.com/science/article/pii/S0301479707004148>. View at Google Scholar
- A. Niringiye and D. Omortor, "Determinants of willingness to pay for solid waste management in Kampala city," *Current Research Journal of Economic Theory*, vol. 2, no. 3, pp. 119–122, 2010, <http://maxwellsci.com/print/crjet/v2-119-122.pdf>. View at Google Scholar
- OJ. Ojok , M.K. Koech , M. Tole, J.Okot-Okumu "Households' Willingness to Pay for Improved Municipal Solid Waste Management Services in Kampala, Uganda" *Science Journal of Environmental Engineering Research*, Volume 2013, Article ID sjeer-143, 8 Pages, 2012. doi: 10.7237/sjeer/143
- Jin, J., Wang, Z., and Ran, S. (2006). Comparison of contingent valuation and choice experiment in solid waste management programs in Macao. *Ecological Economics* 57, 430-441.

Kibwage, J.K. (1996). Toward the Privatization of Household Solid Waste Management Services in the City of Nairobi. M. Phil, Moi University.

Tchobanoglous, G. et al.: Integrated solid waste management – Engineering principles and management issues, MC Graw-Hill, New York et al. 1993, p. 43