ECONOMIC EFFECTIVENESS OF MUNICIPAL WASTE MANAGEMENT PRACTICES

CASE STUDY OF IGANGA MUNICIPALITY

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DECLARATION

I Muwaya Brian hereby declare that this is my original report submitted to the Faculty of Natural Resources and Environmental Science in partial fulfillment for the award of bachelors' degree in Natural Resource Economics of Busitema University and all the information in this report is rightfully obtained and is of my own knowledge and effort put in.

Signature....

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Date 15th, 07, 2017.....

APPROVAL

This is to certify that I have read through and analyzed the content in this report submitted by Muwaya Brian a student of Busitema University under the faculty of Natural Resources and Environmental Science. Therefore I approve that the report has been successfully completed under the supervision of;

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Signature	
Date	

DEDICATION

I would also like to dedicate this field report to my family members especially my dad Mr. Wakabi James, my mum Mrs. Jessica Wakabi, my brothers and sisters, for their financial support and the care they shown me. I also dedicate this report to my course mates, my supervisor and the students of Busitema University.

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LIST OF ACRONYMS AND ABBREVIATIONS

DEO District Environmental Officer

KCCA Kampala Capital City Authority

MSW Municipal Solid Waste

NEMA National Environment Management Authority

NGO Non Government Organization

NRO Natural Resources Officer

SPSS Statistical Package for Social Science

SSWRS Sustainable Sanitation & Water Renewal Systems

SWM Solid Waste Management

UNEP United Nations Environment Program

SW Solid Waste

WTP Willingness To Pay

WTA Willingness To Accept

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ABSTRACT

Solid waste management is both an urban and rural problem. Every person is a potential generator of solid waste and thus a contributor to this problem. The rate of solid waste generation is increasing at a very high rate and this is due to the increasing rate of urbanization and population growth rate. Poor solid waste management results into environmental degradation due to wastes such as polythene bags which are non-bio degradable and it also affects human health.

The study was carried out in the central division of Iganga Municipality with the major aim of generating information on the most cost effective techniques that can be applied in Iganga municipality to ensure efficient solid waste management. The main objective of the study was to assess and evaluate the economic implication of poor solid waste management in Iganga municipality. This is to ensure that people attach economic value to the wastes from their households or business enterprise. The specific objectives of the study included; establishment of the types of wastes generated by the business enterprises, institutions and households, some of the challenges faced by the municipality as regards to solid waste management, the techniques of solid waste management and the willingness to pay for cost effective solid waste management

Data was obtained by use of questionnaires, face to face interview and observation. Data was analyzed using Excel and SPSS, bar graphs and pie charts were used to present the results because they are easy to interpret and understand.

Polythene is the major solid waste type generated, majority of the residents store their solid wastes in nylon sacks. There is limited utilization of the solid wastes generated because of residents' ignorance about the benefits of solid waste sorting. Residents' willingness to pay for effective solid waste management is low and the municipal council were considered not to be effective by most of the residents.

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CHAPTER ONE

1.0 INTRODUCTION

1.1. Back ground of study

1.1.1. Definition of solid waste

According to Harris et al (2001) a material is only a waste if it is useless but as soon as it is usable it becomes a resource. The European Union (2008) defines solid waste as any substance or object which the holder discards, intends to discard or is required to discard. Municipal solid waste refers to waste in solid state generated by human activities in municipal centers and residential. It includes both organic and inorganic solid wastes.

1.1.2. Global perspective of municipal solid waste generation, composition and management

Municipal solid waste is the abridgment of the solid waste generation from domestic, commercial and construction activities by persons that is collected and treated by the municipalities (chen et al, 2010). Exponential growth of population and urbanization and the development of social economy coupled with the improvement of the living standards have resulted into an increase in the amount of municipal solid wastes generation throughout the world. On average the developed countries typically generate 521.95-759.2kg per person per year and 109.5-525.6kg per person typically by developing countries (Mugaga, 2006). According to Hoornweg (1999) recent estimates suggest that the municipal solid waste generation globally exceeds 2billion tons per year, which is a potential threat to the environmental dilapidation. Therefore municipal solid waste management (MSWM) seems to be one of the key topics for environmental protection in present days and also in the future.

REFERENCES

- Anjum, R. (n.d.). Willingness to Pay for Solid Waste Management Services: A Case Study of Islamabad, (3),
- Division, K., & Report, F. (2011). Solid Waste, (October).
- Eight, C. (n.d.). Types of wastes, 170-194.
- For, C., & Development, S. (2014). Report on the Public Engagement Process on Municipal Solid Waste Charging, (December).
- Lober, D. J. (1996). Municipal solid waste policy and public participation in household source reduction, 125–143.
- Madinah, N., Boerhannoeddin, A., Noriza, R., & Raja, B. (2014). Sustainable Management of KCCA Mpererwe Landfill: History, present, future possibilities and solutions. A qualitative study, 8(11), 87-95.
- Management, S. W., Fronti, S., & Poor, P. (1994). Chapter 7 Solid waste management, 105-120.
- No Title. (2002), (June).
- Rules, M. S. W., Ngo, I., & Open, A. (n.d.) Management of Municipal Solid Waste in Delhi and Suggested Action plan.
- Sabiiti, P. E. N. (n.d.). Evaluation of The Urban Solid Waste Management System in.

Town, K. (2009). Master thesis Public Participation in Solid Waste Management: Challenges and Prospects., (December).

Tukahirwa, J. T. (n.d.). Solid waste management in kampala under the transformation process.

Waste, S., Arrangements, M., & Division, K. (2011). Briefing Paper, (October).

Afroz R, Hanaki K, Hasegawa-Kurisu K (2009) Willingness to pay for waste management improvement in

Dhaka city, Bangladesh. Journal of Environmental Management 90: 492–503. <u>Google ScholarMedline</u>

Alhassan M, Mohammed J (2013) Households' demand for better solid waste disposal services: Case

study of four communities in the new Juaben Municipality, Ghana. Journal of Sustainable Development 6: 16–25. Google Scholar

Altaf MA, Deshazo JR (1996) Household demand for improved solid waste management: A case study of

Gujranwala, Pakistan. World Development 24: 857-868. Google Scholar

Arekere DM (2004) Examining solid waste management issues in the City of Bryan. Doctoral dissertation,

Texas A&M University, University. Available at: http://hdl.handle.net/1969.1/3190 (accessed28

April 2015). Google Scholar

Ayalon O, Aynimelech Y, Shechter M (1999) Issues in designing an effective solid waste policy: The Israeli

experience, In: Sterner T (ed.) The Market and the Environment: The Effectiveness of Market

based Instruments for Environmental Reform. UK: Edward Elgar. Google Scholar

Banga M, Lokina BR, Mkenda AF (2011) Households willingness to pay for improved solid waste

collection services in Kampala City, Uganda. The Journal of Environment & Development 20:

428-448. Google Scholar Abstract

Baxter, P., 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice

Researchers. The Qualitative Report, 13(4), pp.544-559.

UNEP (2013). Municipal solid waste: Is it garbage or gold?, 2011(October), 1-9.
Olukanni, D.O., Adeleke, J.O. and Aremu, D.D. (2016). A Review of Local Factors Affecting Solid Waste Collection in, 2(3), 339-356. https://doi.org/10.7508/pj.2016.03.008