

FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES DEPARTMENT OF NATURAL RESOURCE ECONOMICS INFLUENCE OF ENVIRONMENTAL EDUCATION ON SOLID WASTE MANAGEMENT PRACTICES.

CASE OF BAROGOLE WARD - LIRA CITY WEST DIVISION, LIRA CITY

 \mathbf{BY}

KONI JOSHUA

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DECLARATION

I KONI JOSHUA, the undersigned declare that this work is my original compilation and has never
been presented to any university as partial fulfillment for the award of bachelor's degree.
SIGNATURE DATE
KONI JOSHUA
BU/UG/2020/2439
(Candidate)

APPROVAL

This work has been thoroughly supervised and approved to have fulfilled the requirements for the
award of a degree of Bachelor of Sciences in Natural Resource Economics of Busitema University.
SIGNATURE DATE
Mr. KIFUMBA DAVID NSAJJU
(Supervisor)

DEDICATION

This research project is specially dedicated to my beloved Mother Mrs. Lillian Adongo and my brothers and sisters.

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Specials thanks goes to my mum Mrs. Adongo Lilian for her words of encouragement throughout my education career. My gratitude also goes to my brothers and sisters for their support and love.

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LIST OF ACRONYMS

CBOs Community Based Organizations

LCC Lira City Council

LCCA Lira City Council Authority

LCW Lira City West Division

NEMA National Environment Management Authority

NGOs Non-Governmental Organization

QOL Quality of Life

SDGs Sustainable Development Goals

SWM Solid Wast Management

UNEP United Nations Environment Programs

UNESCO United Nations Educational, Scientific and Cultural Organization

MOWE Ministry of Water and Environment.

ABSTRACT

Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

The general objective of the study was to assess the impact of environmental education on solid waste management practices in Lira City West division -Lira City. The objectives of the study were to establish reasons for methods of solid waste management practiced by residents of different social status in lira city west division; to find out the reasons for views of the community about the solid waste management practices exhibited in the city and to find out the reasons for different skills used in managing of the different types of solid waste generated in Lira city by the community.

A cross sectional survey research was employed and the study employed both qualitative and quantitative methods. The sample size comprised of 100 respondents selected from the cells in Bar-Ogole Ward using simple random sampling techniques and the data collected was analyzed using excel.

The study found out that the community members have positively changed their attitude towards solid waste management and this is as a result of environmental education. Environmental education is also improving waste management in the city.

The residents are using the simple emptying methods of solid waste management including collection their waste in the sacks and then taking it for dumping at the collection point, there is solid waste sorting carried out with the reason to keep the environment clean though some are

doing it in order to get the recycling materials to sale for money. The study also found out that the community is sorting and segregating solid waste in order to reduce on the solid waste that ended up in the land fill and to get some money out of it for sale.

Education on making compost from organic waste is still need to continue this is because organic waste constitutes 50% of the solid waste generated in the city. Composting of solid waste would reduce on the quantity of waste that end up in the landfills and it would also improve on the quality of our environment as well as reduce on the cost of managing the solid waste.

CHAPTER ONE

1.0. INTRODUCTION

1.1. Background.

1.1.1. Definition of terms

Solid waste.

Describe as any discarded or abandoned material that is used by one person or another and can be liquid or gas. It encompasses a wide array of items generated by human activities, such as household garbage, industrial waste, construction debris, and agricultural refuse (ALAM, 2013).

These materials can be solid, semi-solid, or even contained within containers like bottles, cans, and packaging. Waste management involves the generation, collection, transportation and disposal of waste, be it solid, liquid or gaseous waste. In industrial settings, solid waste might include manufacturing byproducts, such as scrap metal, chemicals, or leftover materials from production processes (ALAM, 2013). Improper handling of wastes can lead to environmental pollution, health hazards, and the depletion of natural resources.

Environmental education.

This is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment (mabilisi, 1990). As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions (*pers. Comm*).

REFERENCES

- (2000). Retrieved from https://www.google.co.ug/books/edition/Environmental_Science_6e_paper/nC7WQqqB wboC?hl=en&gbpv=1&dq=(pfeffer+2000)+information+on+environmental+education&pg=PA699&printsec=frontcover
- (2002). JRST. doi:https://doi.org/10.1002/tea.10025
- (2002). Retrieved November 2023, from https://books.google.co.ug/books?hl=en&lr=&id=wcsntD5V-aoC&oi=fnd&dq=ecology+of+environmental+education+influence+on+solid+waste+ma nagement&ots=110DAZd3mT&sig=7zF-DY0NMd7HXZGjBkI5a8MGDUw&redir_esc=y
- (2008). *solid waste factors*. Retrieved 8 23, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008
- (2011). Retrieved from https://doi.org/10.1016/j.habitatint.2011.03.003
- (2012). John Wiley & Sons. Retrieved November Thursday , 2023, from https://www.google.co.ug/books/edition/Integrated_Solid_Waste_Management_A_Life/mqUSBwAAQBAJ?hl=en&kptab=editions&sa=X&ved=2ahUKEwjn5K6dzdeCAxVIcvEDHaeICXcQmBZ6BAgCEAo
- (2013). MCSER-CEMAS-Sapienza University of Rome. doi::10.5901/mjss.2013.v4n5p119
- (2013). Asian Development Bank. doi:9789292542337, 9292542338
- (2013). MCSER-CEMAS-Sapienza University of Rome. doi:10.5901/mjss.2013.v4n5p119
- (2015). IGI Global. doi:9781466697249, 1466697245
- (2016). Springer. Retrieved November friday, 2023, from https://link.springer.com/chapter/10.1007/978-94-017-7622-6_4
- (2019). Retrieved from Sustainable Solid Waste Collection and Management
- (2020). Retrieved from https://doi.org/10.1155/2020/6807630
- (2023). Retrieved from https://www.intechopen.com/chapters/1143012
- (2023). Retrieved November Friday, 2023, from https://d1wqtxts1xzle7.cloudfront.net/99670191/Building_Libraries_for_The_Promotion_of_Environmental_Education-libre.pdf?1678456826=&response-content-disposition=inline%3B+filename%3DBuilding_Libraries_for_The_Promotion_of.pdf&Expires=1700738493&Signature
- ALAM, P. (2013). IMPACT OF SOLID WASTE ON HEALTH AND THE ENVIRONMENT. 10.

Asma. (2012).

- Bamisaiye. (1984). Solving the food crisis in Africa: The role of higher education. Retrieved November Friday , 2023, from https://www.proquest.com/openview/73f08ab630183b15c9685c2a8c97e2c8/1?pq-origsite=gscholar&cbl=1821477
- Barton, P. (n.d.). Effectiveness and cost effectiveness of cardiovascular disease prevention in whole populations: modelling study. 2011. doi: https://doi.org/10.1136/bmj.d4044
- Ebele, F. U. (2017). Impact of Environmental Education on Solid Waste. Retrieved from https://casirmediapublishing.com/wp-content/uploads/2019/10/Pages-1-28.pdf
- Erika Pénzesné Kónya. (2021). Environmental Sustainability Education for a Changing World. (J. K. Erika Pénzesné Kónya, Ed.) Springer International Publishing. Retrieved November Thursday , 2023, from https://www.google.co.ug/books/edition/Environmental_Sustainability_Education_f/X38 0EAAAQBAJ?hl=en&kptab=editions&sa=X&ved=2ahUKEwjz5o210deCAxUaQfEDH Q1-CpQQmBZ6BAgGEAc
- Filatov. (2018). Socio-environmental aspects of the waste recycling organization. *Journal of Biosciences*. Retrieved November Friday , 2023, from https://web.s.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=c rawler&jrnl=13079867&AN=134567515&h=1aEcP%2fCB3vh%2bjG0QEqaQ4TwaF9k 9DDaNocdv9Ao10%2b2VcMPdx4SBU%2b%2fqzdLDO8CIC6Q8HYLRSWJ9KKL4M meWkQ%3d%3d&crl=c&resultNs=AdminWebAuth&resu
- Gruenewald. (2004). Leadership for Green Schools. doi:9781134737611, 1134737610
- Hogan. (2001). Approaches toward sustainable urban solid waste management: Sahakaranagar Layout.

Hogan. (2002).

Hogan. (2002). New multimedia resources for ecological resilience education. esa.

Hogan. (2002). New multimedia resources for ecological resilience education. esa.

Hoornweg, D. (2012). A Global Review of Solid Waste Management, vol. 15,.

Marshall. (2013).

- mbalisi. (2021). Retrieved from https://kyuspace.kyu.ac.ug/bitstream/handle/20.500.12504/465/ONGIA%20Joel%20%e2 %80%93%20OWINY%20GMAG%202021.pdf?sequence=1&isAllowed=y
- McDougall. (2001). *Integrated Solid Waste Management*. John Wiley & Sons. Retrieved November Friday , 2023, from https://books.google.co.ug/books?id=Mcq-hYQSOwAC&dq=McDougall,+2001+on+waste+collection&lr=&source=gbs_navlinks_

 \mathbf{S}

- Miller. (1999).
- MoWE. (2010). he 2010 Joint Government of Uganda-Development Partners Sector Review Report, Water and environment sector, Kampala, Uganda, 2010.
- MOWE. (2020). Retrieved from https://doi.org/10.1155/2020/6807630
- Nathanson, j. A. (2023). *Basic Environmental Technology solid waste management* (2015 ed.). Basic Environmental Technology. doi:9780132840149
- New York, N. U. (2019). Retrieved from https://reliefweb.int/report/uganda/eight-dead-hundreds-displaced-flash-floods-hit-kampala.
- Olukanni, D. O. (2020). Retrieved from file:///C:/Users/user/Downloads/recycling-05-00008.pdf Pakpour,Zeidi. (2014).
- Pasang, H. (2007, December). Neighbourhood-based waste management: A solution for solid waste problems in Jakarta, Indonesia. *Waste Management*. doi:https://doi.org/10.1016/j.wasman.2006.09.010
- Rousta K. (2017).
- Sharholy. (2007, 3 23). *skiverser*, 6. Retrieved november 23, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008
- Sharholy. (2008). *waste manangement*. Retrieved 7 23, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008
- Sharholy. (2008). Retrieved from https://doi.org/10.1016/j.wasman.2012.09.008
- Sharholy. (2008). Retrieved 6 12, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008
- Srivastava, P. (2010). *Handbook of Research on Safe Disposal Methods of Municipal waste*. Retrieved November Thursday , 2023, from https://www.google.co.ug/books/edition/Handbook_of_Research_on_Safe_Disposal_Me/1HnLEAAAQBAJ?hl=en&gbpv=1&dq=smith+2010+environmental+education+on+solid+waste+management&pg=PA293&printsec=frontcover
- Sujauddin. (2008). american journal on waste managemenet. Retrieved november 30, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008
- Susanth. (2021).
- Troschinetz, A. M. (2000). Sustainable recycling of municipal solid waste in developing countries. SWM UNEP. doi:https://doi.org/10.1016/j.wasman.2008.04.016
- UNESCO. (2016). *policy and social responsibility for waste management*. Malaysia . Retrieved November thursday , 2023, from https://www.google.co.ug/books/edition/Environmental_Sustainability_and_Educati/ajul DwAAQBAJ?hl=en&gbpv=1&dq=United+nation+educational+scientific+cultural+organ

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Vidanaarachchi. (2008). solid waste management factors. *saolid waste management*. Retrieved 6 23, 2023, from https://doi.org/10.1016/j.wasman.2012.09.008