

**PARTICIPATION IN DOMESTIC SOLID WASTE
MANAGEMENT WITH ATTITUDE AS MEDIATING
FACTOR AMONG RADIO LISTENERS IN DAR ES
SALAAM CITY, TANZANIA**

BY

REHEMA TWAHIRY KILAGWA

**A thesis submitted in fulfilment of the requirement for the
degree of Doctor of Philosophy in Communication**

**AHAS Kulliyyah of Islamic Revealed Knowledge and
Human Sciences
International Islamic University Malaysia**

DECEMBER 2021

ABSTRACT

The issue of domestic solid waste management (DSWM) is a major concern in almost all municipalities at local and global levels, but it is more serious in the developing countries. Many scholars have compiled about solid waste management process (generation, storage, collection, transfer, and disposal) and elaborated on how poor management affects human capital, national economy, as well as the reputation of the whole country. Proper management of DSW is very important for the protection of human health and the environment. This can be achieved through active participation of various stakeholders, especially for local people; where this current study argues that knowledge and education are essential factors to effective management of DSW. In view of a wide usage of radio in Tanzania, it should be an important medium to educate the local community about DSWM. As such, this study aims to examine factors influencing participation in DSWM among heads of households and radio listeners in Dar es Salaam, Tanzania. Specifically, it aims to identify the general uses of radio in Dar es Salaam city; to examine the extent of radio usage in obtaining DSWM information among heads of households in the city; to determine the levels of awareness, perception, attitude, and participation in DSWM among heads of households radio listeners in the city; to analyse the relationship between awareness, perception, attitude, and participation in DSWM in the Dar es Salaam city; and to test the mediating effect of attitude on the relationship between awareness and perception on participation in DSWM. This study was based on the Development Communication Theory (the DeveCom-Theory) in disseminating information regarding DSWM issues through radio programmes. This study employed a quantitative research design using a survey for data collection. A total of 392 heads of households from Temeke municipality participated in this study. The findings of this study found that radio plays a great role in Dar es Salaam city by offering several programmes from different sectors, for example religion, health, business, and environment. Majority of the respondents agreed that they listen to radio to obtain information concerning DSWM issues as well. In addition, the results showed positive and significant levels of radio usage, awareness, perception, attitude, and participation in DSWM. Participation in DSWM was highly rated compared to radio usage, awareness, perception, and attitude. Apart from that, the findings revealed a positive relationship existed among all variables. Furthermore, attitude was found to fully mediate the relationship between awareness and participation in DSWM and attitude also was able to partially mediate the relationship between perception and participation. Finally, the study results support the positive aspects of the theory that the more frequent households listen to DSWM programmes, their level of understanding, perception and attitude towards the issues will also increase. In turn, this will influence individual's participation in DSWM. This study recommends that future studies should apply mixed method approach to give a clear picture of what is happening around DSWM context site. Also, it will help to enrich the information and results of the future studies.

خلاصة البحث

تعتبر قضية إدارة النفايات الصلبة المنزلية (DSWM) مصدر قلق كبير في جميع البلديات تقريبًا على المستويين المحلي والعالمي، ولكنها تبدو أكثر خطورة في البلدان النامية. لقد أبلغ العديد من العلماء عن عملية إدارة النفايات الصلبة (التوليد والتخزين والجمع والنقل والتخلص) وكيف تؤثر الإدارة السيئة على رأس المال البشري والاقتصاد الوطني وكذلك على سمعة البلد بأكمله. تعتبر الإدارة السليمة لقطاع الرعاية الصحية المنزلية مهمة جدًا لحماية صحة الإنسان والبيئة. ويمكن تحقيق ذلك من خلال المشاركة النشطة لمختلف أصحاب المصلحة وخاصة السكان المحليين؛ حيث تجادل الدراسة بأن المعرفة والتعليم هما عاملان أساسيان للإدارة الفعالة لـ DSW. في ضوء الاستخدام الواسع للراديو في تنزانيا، يجب أن يكون وسيلة مهمة لتثقيف المجتمع المحلي حول DSW. على هذا النحو، تهدف هذه الدراسة إلى دراسة العوامل التي تؤثر على المشاركة في DSW بين مستمعي راديو الأسر المعيشية في دار السلام، تنزانيا. على وجه التحديد، يهدف إلى التعرف على الاستخدامات العامة للإذاعة في مدينة دار السلام؛ لفحص مدى استخدام الراديو في الحصول على معلومات DSW بين أرباب الأسر في مدينة دار السلام؛ لتحديد مستويات الوعي والإدراك والمواقف والمشاركة في DSW بين مستمعي راديو الأسر المعيشية في مدينة دار السلام؛ لتحليل العلاقة بين الوعي والإدراك والموقف والمشاركة في إدارة النفايات الصلبة في مدينة دار السلام؛ واختبار التأثير الوسيط للموقف على العلاقة بين الوعي والإدراك في المشاركة في DSW. اعتمدت الدراسة على نظرية الاتصال التنموي (نظرية DevCom) في نشر المعلومات المتعلقة بقضايا DSW من خلال البرامج الإذاعية. استخدمت الدراسة تصميم بحث كمي باستخدام مسح لجمع البيانات. شارك في هذه الدراسة ما مجموعه 392 رب أسرة من بلدية تيمبكي. وجدت نتائج الدراسة أن الراديو يلعب دورًا كبيرًا في مدينة دار السلام من خلال تقديم العديد من البرامج من مختلف القطاعات مثل الدين والصحة والأعمال والبيئة. اتفق غالبية المستجيبين على أنهم استخدموا الراديو للحصول على العديد من المعلومات المتعلقة بقضايا DSW أيضًا. بالإضافة إلى ذلك، أظهرت النتائج مستويات إيجابية

ومعنوية لاستخدام الراديو والوعي والإدراك والمواقف والمشاركة في DSWM . تم تصنيف المشاركة في DSWM بدرجة عالية مقارنة باستخدام الراديو والوعي والإدراك والسلوك. بصرف النظر عن ذلك، أظهرت النتائج وجود علاقة إيجابية بين جميع المتغيرات. علاوة على ذلك، تم العثور على الموقف للتوسط الكامل في العلاقة بين الوعي والمشاركة في DSWM بينما كان الموقف قادرًا على التوسط جزئيًا في العلاقة بين الإدراك والمشاركة. أخيرًا، تدعم نتائج الدراسة الجوانب الإيجابية للنظرية القائلة بأنه كلما زاد عدد الأسر التي تستمع إلى برامج إدارة النفايات الصلب، زاد مستوى فهمهم وإدراكهم وموقفهم تجاه القضايا. وهذا بدوره يؤثر على مشاركة الفرد في DSWM . توصي الدراسة بأن تطبق الدراسات المستقبلية نهجًا مختلفًا لإعطاء صورة واضحة لما يحدث حول موقع DSWM . كما أنه سيساعد على إثراء المعلومات ونتائج الدراسة.



APPROVAL PAGE

The thesis of Rehema Twahiry Kilagwa has been approved by the following:

Saadah Wok
Supervisor

Zeti Azreen
Co-Supervisor

Syed Arabi Syed Abdullah Idid
Internal Examiner

Faridah Ibrahim
External Examiner

Othman Omran Khalifa
Chairman

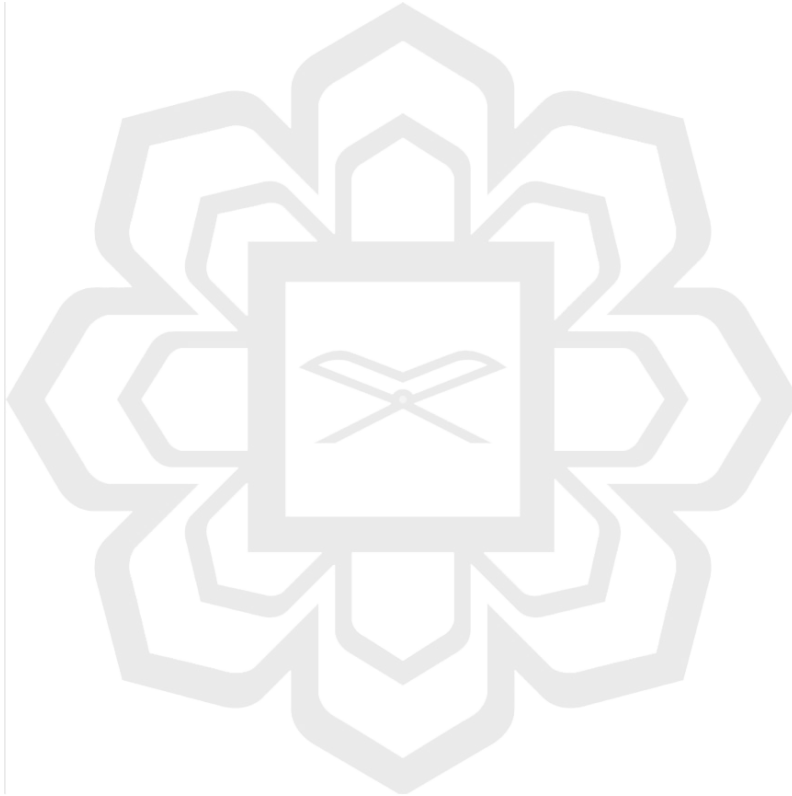
DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Rehema Twahiry Kilagwa

Signature

Date



INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

**DECLARATION OF COPYRIGHT AND AFFIRMATION OF
FAIR USE OF UNPUBLISHED RESEARCH**

**PARTICIPATION IN DOMESTIC SOLID WASTE
MANAGEMENT WITH ATTITUDE AS MEDIATING FACTOR
AMONG RADIO LISTENERS IN DAR ES SALAAM CITY,
TANZANIA**

I declare that the copyright holders of this dissertation are jointly owned by the student and IIUM.

Copyright © 2021 Rehema Twahiry Kilagwa and International Islamic University Malaysia. All rights reserved.

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below

1. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgement.
2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.
3. The IIUM library will have the right to make, store in a retrieved system and supply copies of this unpublished research if requested by other universities and research libraries.

By signing this form, I acknowledged that I have read and understand the IIUM Intellectual Property Right and Commercialization policy.

Affirmed by Rehema Twahiry Kilagwa

.....
Signature

.....
Date



*This thesis is dedicated to my late Grandparents for laying the foundation of what I
turned out to be in life.*

Ibrahim M. Kilagwa

Johary M. Mwilongo

ACKNOWLEDGEMENTS

Alhamdulillah. All praise be to Allah (SWT) for His grace, care, and love and for giving me this opportunity to utilize my potential and serve the community through research.

First and foremost, I would like to express my heart of gratitude to my main supervisor, Prof. Dr. Saodah Wok, for her support, challenges, and valuable critique she gave me on the process of writing this thesis. I am forever grateful to her.

I would also owe a deep sense of gratitude to my co-supervisor, Dr. Zeti Azreen Ahmad, for her willingness to share her diverse knowledge, valuable comments and suggestions that benefited me in the completion of this research.

My deepest appreciation goes to Prof. Dato' Sri Dr. Syed Arabi bin Syed Abdullah Idid, Associate Prof. Dr. Che Mahzan, Dr. Aini Maznina A. Manaf, Dr. Nerawi Sedu, Dr. Tengku Siti Aishah Tengku Mohd Azzman, Dr. Aida Mokhtar, Dr. Norbaiduri Ruslan, and all lecturers at Department of Communication who have taught or assisted me throughout my writing journey.

I am grateful to the authority of Temeke municipality especially to Mr. Robert Hamis, the Municipal Environmental Official, for providing me the required information and contacts and in allowing me to conduct this study in Temeke municipality.

In addition, I would like to thank the lecturers from Muslim University of Morogoro, Prof. Hamza Njozi, Dr. Halid Lyeme and Dr. Abdallah Suleiman Hamad, as well as the Managing Editor of UHURU newspaper, Mr. Ramadhani I. Mbwaduke for intellectual advice, assistance, and encouragement throughout this study.

Not to forget, my friends who have motivated me to finish my study on time. Among them are Souhaila, Mariam, Hasnah, Nur Hafifah, Sikujua, Ola, Habib, Issa, Ari, and Tan. I pray that this friendship will remain forever so we can always inspire each other at all times.

Above all, very special thanks to my father, Eng. Twaha Twahiry Kilagwa, and my mother, Debora Omar Ibu, my step-mother, Auda Ponela as well as my aunt, Amina Kilagwa for their prayers, motivation and inspiration which I can never forget and repay them back. They are always there when things went wrong, and they are the first to smile when I am able to achieve even the slightest success in my life. Finally, special and profound thanks to my siblings: Winfrida Kilagwa, Godwin Kilagwa, Edwin Kilagwa, Johary Kilagwa and Baraka Kilagwa as well as my cousins: Farijala Ngole and Irene Mwasomola for their endless prayer and trust in me.

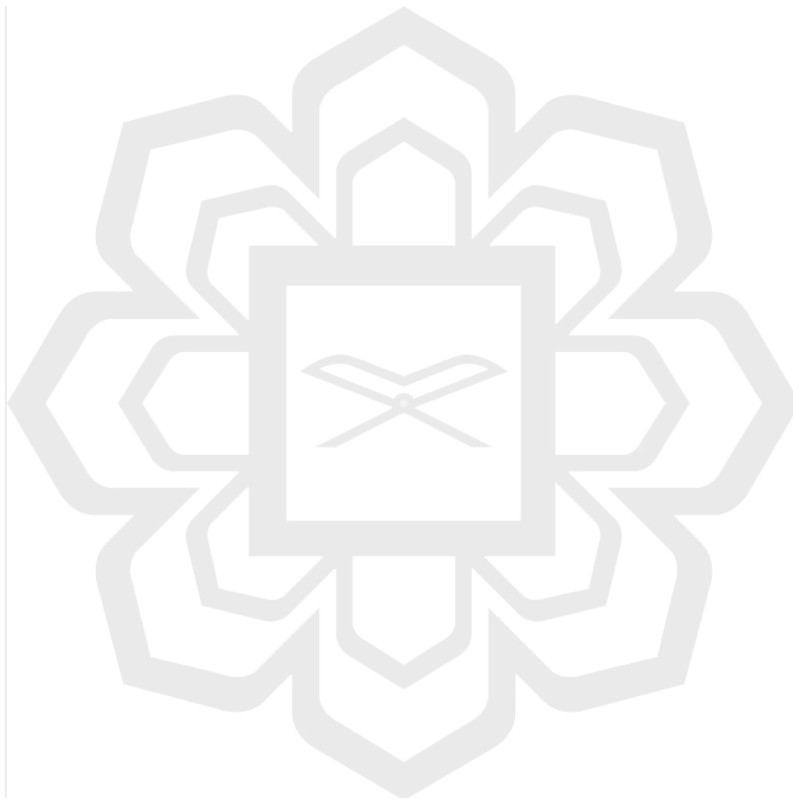
TABLE OF CONTENTS

Abstract	ii
Abstract in Arabic	iii
Approval Page.....	v
Declaration	vi
Copyright Page.....	vii
Dedication	vii
Acknowledgements	ix
Table of Contents	x
List of Tables	xiv
List of Figures	xv
List of Abbrevission.....	xvi
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.2 Statement of the Problem.....	4
1.3 Research Questions.....	6
1.4 Research Objectives.....	7
1.5 Significant of the Study	7
1.6 Scope of the Study	10
1.7 Definitions of the Key Terms	10
1.8 Chapter Outline.....	12
1.9 Chapter Overview	13
CHAPTER TWO: LITERATURE REVIEW.....	15
2.1 Introduction.....	15
2.2 Radio Usage.....	15
2.2.1 Radio Use in Developing Countries.....	16
2.2.2 Radio Usage in Tanzania	18
2.2.3 The Role of Radio in Promoting Solid Waste Management.....	20
2.3 Awareness on Domestic Solid Waste Management	21
2.4 Perception on Domestic Solid Waste Management.....	22
2.5 Attitude towards Domestic Solid Waste Management.....	23
2.6 Domestic Solid Waste Management.....	25
2.6.1 Solid Waste	25
2.6.2 History of Domestic Solid Waste Management.....	26
2.6.3 Management of Domestic Solid Waste.....	28
2.7 Participation in Domestic Solid Waste Management	30
2.7.1 Relationships between Participation in DSWM with Awareness and Perception.....	32
2.7.2 Relationship between Attitude with Awareness, Perception and Participation in DSWM	34
2.8 Theoretical Framework.....	37
2.8.1 Authoritarian Theory.....	38
2.8.2 Libertarian Theory	39
2.8.3 Social Responsibility.....	40
2.8.4 Soviet-Totalitarian	41

2.8.5 Development Communication Theory	42
2.9 Study Conceptual Framework	44
2.10 Summary of the Hypotheses	45
2.11 Summary of the Knowledge Gap	46
2.12 Chapter Summary	47
CHAPTER THREE: METHODOLOGY.....	48
3.1 Introduction.....	48
3.2 Research Design	48
3.3 Locality of the Study	49
3.4 Population of the Study	51
3.5 Sampling Procedures and Sample Size	52
3.5.1 Sampling Procedures.....	52
3.5.2 Sample Size.....	55
3.6 Research Instrument	56
3.6.1 Translation of the Instrument.....	60
3.7 Research Measurement and Operational Definition.....	61
3.7.1 Research Measurement	61
3.7.2 Operational Definition	61
3.7.2.1 Independent Variables	62
3.7.2.1.1 Awareness on DSWM.....	62
3.7.2.1.2 Perception on DSWM.....	62
3.7.2.2 Mediator Variable.....	62
3.7.2.2.1 Attitude towards DSWM	62
3.7.2.3 Dependent Variable	63
3.7.2.3.1 Participation in DSWM.....	63
3.8 Validity and Reliability	63
3.8.1 Validity.....	63
3.8.2 Reliability.....	64
3.9 Data Collection	66
3.9.1 Pilot Study.....	66
3.9.2 Actual Study.....	66
3.10 Data Analysis Techniques	67
3.10.1 Normality of Data	68
3.10.2 Descriptive Analysis	69
3.10.3 Parametric Analysis	70
3.10.3.1 One Sample T-Test.....	70
3.10.3.2 Correlation Coefficient.....	71
3.10.3.3 Multiple Regression.....	72
3.11 Chapter Summary	73
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION	74
4.1 Introduction.....	74
4.2 Normality of Data.....	74
4.3 Descriptive Analysis.....	76
4.3.1 Demographic Information of the Respondents	76
4.3.2 Solid Waste Management Information	79
4.3.3 Radio Usage	81
4.3.3.1 Information Related to Radio Use	81
4.3.3.2 Radio Station Used for DSWM Programmes.....	84

4.3.3.3	Types of Radio Programmes Associated with DSWM	85
4.3.3.4	General Uses of Radio.....	87
4.3.3.5	Radio Usage for Obtaining Information on DSWM	89
4.4	Levels of Selected Variables	93
4.4.1	Level of Awareness on Domestic Solid Waste Management	93
4.4.2	Level of Perception on Domestic Solid Waste Management	96
4.4.3	Level of Attitude towards Domestic Solid Waste Management...	99
4.4.4	Level of Participation in Domestic Solid Waste Management	102
4.5	Hypotheses Testing.....	105
4.5.1	Zero-Order and Partial Correlations	106
4.5.1.1	Direct Effect of the Relationship among Awareness, Perception, Attitude, and Participation in DSWM.....	106
4.5.1.1.1	Relationship between Awareness and Participation in DSWM	107
4.5.1.1.2	Relationship between Perception and Participation in DSWM	108
4.5.1.1.3	Relationship between Attitude and Participation in DSWM	108
4.5.1.1.4	Relationship between Awareness and Attitude towards DSWM	109
4.5.1.1.5	Relationship between Perception and Attitude towards DSWM	110
4.5.1.1.6	Relationship between Awareness and Perception on DSWM	111
4.5.1.2	Indirect Effect of the Relationship between Awareness and Perception on Participation in DSWM where Attitude is the Mediating Variable.....	112
4.5.1.2.1	Attitude Mediates the Relationship between Awareness and Participation in DSWM.....	112
4.5.1.2.2	Attitude Mediates the Relationship between Perception and Participation in DSWM.....	113
4.5.1.3	Summary of the Relationship among Variables	114
4.5.2	Hierarchical Regression	115
4.5.3	Hypotheses Testing Summary	121
4.6	Summary of the Chapter.....	122
CHAPTER FIVE: CONCLUSION AND SUGGESTIONS.....		123
5.1	Introduction.....	123
5.2	Conclusions of the Study	124
5.3	Contributions and Implications of the Research.....	126
5.4	Challenges and Limitations of the Study	127
5.5	Suggestions for Future Research	128
REFERENCES.....		132
APPENDICES		160
Appendix A:	Consent Letter	160
Appendix B:	Questionnaire for English Version	162
Appendix C:	Questionnaire for Swahili Version (Dodoso Ya Kiswahili).....	173
Appendix D:	Letters from the Relevant Authorities.....	184

Appendix E: Conference Presentation (Certificate).....	187
Appendix F: Journal Article.....	188
Appendix G: CV for the Expert from Environmental Field	189
Appendix H: CV for the Experts from Language Field.....	192
Appendix I: CV for the Experts from Communication Field	196



LIST OF TABLES

Table 3.1 Population Details of Temeke Municipality	54
Table 3.2 Sample Size Distribution of Households in Temeke Municipality	56
Table 3.3 Variable Measurement of Survey Questionnaire	58
Table 3.4 Variable Measurement of Survey	65
Table 3.5 Rea and Park's of Correlation Strength	72
Table 4.1 Normality of Data for all Variables	75
Table 4.2 Demographic Characteristics of The Respondents	76
Table 4.3 Solid Waste Management Information	79
Table 4.4 Radio Station Preferred by Respondents	81
Table 4.5 Information Related to Radio Usage	82
Table 4.6 Radio Station Used to Listen to DSM Programmes	84
Table 4.7 Types of Radio Programmes Associated with DSWM	86
Table 4.8 General Radio Uses	87
Table 4.9 One Sample T-Test for Radio Usage for Obtaining Information on DSWM	90
Table 4.10 One Sample T-Test for Awareness on DSWM	93
Table 4.11 One Sample T-Test for Perception on DSWM	96
Table 4.12 One Sample T-Test for Attitude towards DSWM	99
Table 4.13 One Sample T-Test for Participation in DSWM	102
Table 4.14 Zero-order and Partial Correlation Between Awareness, Perception, Attitude and Participant in DSWM	107
Table 4.15 Summary of the Hypothesis Testing Results for Correlation Analysis	114
Table 4.16 Hierarchical Regression Analysis for Participation in DSWM with Awareness and Perception with Attitude as Mediator	119
Table 4.17 Hypothesis Testing Summary	121

LIST OF FIGURES

Figure 2.1 Conceptual Framework for Factors Influencing Participation in DSWM ⁴⁵	
Figure 3.1 Map of Tanzania Showing Some of the Regions including Dar es Salaam	50
Figure 3.2 Map of Dar es Salaam City Showing Oome Municipalities (Ilala, Kinondoni and Tekeme)	51
Figure 3.3 Formula for Sampling Calculation	55
Figure 4.1 Hypotheses Model Testing of the Relationship between Awareness, Perception, Attitude and Participation in DSWM	109
Figure 4.2 Hypotheses Model Testing Relationship between Awareness, Perception and Attitude towards DSWM	111
Figure 4.3 Hypothesis Model Testing Relationship Between Awareness and Perception on DSWM	112
Figure 4.4 Attitude towards DSWM mediates the Relationship between Awareness and Perception on Participation in DSWM	114
Figure 4.5 Direct Relationship between Participation in DSWM (Y) with Awareness (X1) and Perception (X2)	116
Figure 4.6 Direct Relationship between Attitude (M) with Awareness (X1) and Perception (X2)	116
Figure 4.7 Direct Relationship between Attitude (M) and Participation in DSWM (Y)	117
Figure 4.8 Indirect Relationship between Participation in DSWM (Y) and Awareness (X1)	117
Figure 4.9 Indirect Relationship between Participation in DSWM (Y) and Perception (X2)	118
Figure 4.10 Hierarchical Regression Model for Participant in DSWM with Awareness, Perception and Attitude	121

LIST OF ABBREVISSION

BORDA	Bremen Overseas Research and Development Association
CBOs	Community Base Organizations
DCC	Dar es Salaam City Council
DevCom	Development Communication Theory
DSW	Domestic Solid Waste
DSWM	Domestic Solid Waste Management
EPA	Environmental Protection Agency
EMA	Environmental Management Act
GWM	Globalization and Waste Management
HH	Households
ISMW	Intergrated Sustainable Waste Management
LGA	Local Government Authority
MCT	Media Council of Tanzania
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
MP	Member of Parliament
MUM	Muslim University of Morogoro
NBS	National Bureau of Statistics
NEMC	National Environmental Management Council
NGOs	Non-Government Organizations
OCGS	Office of Chief Government Statistician
PPP	Private/Public Partnership
RCC	Residents Collection Charges
SEM	Structural Equation Model
SPSS	Statistical Package for Social Sciences
SWM	Solid Waste Management
SWR	Solid Waste Recycling
TCRA	Tanzania Communications Regulatory Authority
TMF	Tanzania Media Fund
TPB	Theory of Planned Behaviour
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USEPA	United States Environmental Protection Agency
WC	Ward Councilor
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

This study presents the issues of domestic solid waste management (DSWM) as a major challenge in Tanzania cities, specifically Dar es Salaam, and examines the role of radio in influencing public participation in DSWM using the Development Communication Theory. Domestic Solid Waste (DSW) is the useless, unwanted, and discarded materials resulting from day-to-day household activities such as food preparation, cleaning, fuel burning, old clothes and furniture, obsolete utensils and equipment, packaging, newsprint, and garden wastes (Solomon, 2011). Its proper management involves several processes such as sorting, collecting, transferring, treating, and disposing of all unwanted products from the households (Omolawal & Shittu, 2016).

A proper domestic waste management is a major issue in many developing countries and Tanzania is not excluded. This study was conducted in Dar es Salaam as the largest city in Tanzania. Literature has affirmed several factors that contributed to a poor DWM in Tanzania that include a rapid population growth, lack of infrastructure, lack of adequate governmental funding, and low levels of public awareness on waste management issues. According to Dar es Salaam City Council [DCC] (2015) inadequate budget, unsophisticated technology, and lack of practical ideas on how to manage environmental issues including the DSW as to protect human from negative environmental implications were among factors that contributed to a poor DSWM in the country. All these factors contribute to the extent of inappropriate waste collection, separation, storage, and disposal, especially in slums and rock hill areas. At present, Tanzania produces more than 10,000 tons of solid waste per day, but only 40% of the total solid waste generated are properly collected and disposed of (NBS, 2017). Yoda et al. (2014) reported that improper management of DSW causes all sorts of pollutions such as to the air, water, and land/soil. These problems pose a risk to humans' health, economic and environmental impacts such as loss of manpower, damage to the tourism

sector, as well as decrease the value of the land (Asamoah, 2012; Palfreman, 2015). As reported by Alam and Ahmade (2013), more than 20 human diseases such as low birth weight, cancer, degraded water and soil quality, neurological diseases, chemical poisoning) were identified by the U.S. Public Health Service as being associated with improper management of DSW.

Most solid waste management literature highlighted that efficient and sustainable management of DSW requires an effective participation of different stakeholders like; NGOs', companies, government organizations and institutions affiliated with environmental issues, media institutions, as well as household members. In this context, each stakeholder has a role to play to ensure the effectiveness of DSWM. For example, the government has a role of creating and enforcing waste management policies, motivating public/households' participation, and creating awareness about proper waste collection, storage, and disposal procedures. The mass media has a potential role of disseminating information concerning the DSWM issue, influence individuals' perception, attitude and change public behaviour. Household members have the role of participating fully in all DSWM activities, such as paying waste collection fees, collecting, storing, and sorting their wastes in special containers. This helps the waste collection contractors (e.g., City Council, Community Based Organizations (CBOs), or companies) to easily serve them by collecting, transferring, and disposing of waste. Therefore, if there is no active participant from household members on several DSWM activities such as cleanliness, waste collection, waste separation, and not engaging on 3R waste management programmes (reduce, reuse, recycle), it will contribute to poor management of DSW.

Thus, this study presents factors that influence public participation in DSWM, specifically in the largest city in Tanzania, Dar es Salaam. In the context of this study, public participation means how household members contribute to the waste management process for it to be efficient and sustainable managed. A good practice of DSWM is possible when people understand their responsibilities concerning DSW management process. Public participation in DSWM is only achievable if household members are well informed on the benefits of a proper waste management effort, know how to conduct proper management and use appropriate management tools (Kasala, 2014), as well as positive perception and attitude towards environmental issues

(Gabriel, 2015). This study highlights the importance of radio in educating the public on the importance of DSWM in view of its huge benefit in Tanzania.

Studies on solid waste management in Dar es Salaam focus on various issues such as waste management and recycling (Palfreman, 2015), improving solid waste management (Maziku, 2014), assessment of community participation in privatised DSWM (Kibonde, 2011), as well as factors influencing solid waste generation and composition in urban areas (Senzige et al., 2014). Additionally, Kasala (2014) conducted a critical analysis of the challenges of solid waste management. However, none of the studies conducted in Tanzania focus on the role of mass media in educating and influencing perception and attitude change of the public on DSMW. Thus, this research aims to examine the factors (awareness, perception, and attitude) that influence participation in DSWM among household radio listeners in Dar es Salaam city. This study focuses on Dar es Salaam because it is the largest city in Tanzania which has the population of more than 4.3 million people, but 70% of the population is living in unplanned settlements where effective management of DSW becomes difficult.

This study assumes that mass media, particularly the radio, has great potential to bring development sectors, including the environment sector, as it provides information, raise public awareness, as well as influences perception, attitude and behaviour change towards the issue. Radio was chosen because it is the most economical option, quickest and has the widest coverage among all mass media channels. In Tanzania, 96.5% of the population listen to the radio (Tanzania Media Fund [TMF], 2015). Additionally, as one of the traditional mediums, radio is assumed to report truthfully and is noted to be more credible than social media (Hussain et al., 2018).

In Tanzania, most of the legislations on governing solid waste management such as the Environment Management Act (EMA) of 2004, Solid Waste Management Regulations (2009) and the Solid Waste Management Regulations (2009) focus more on the providers of solid waste management services, while for the service receivers like households, the roles have been made silent (Breeze, 2012; Chengula et al., 2015). Proper management of DSW necessitates full participation of several stakeholders (providers and service receivers). Unfortunately, the effective public participation in DSWM is only achievable if they are well informed on the benefits of managing waste

into proper containers, separating waste to serve as recycling activities, or even paying waste collection fees (Kasala, 2014). This study assumes that media has a great role to play in promoting a proper practice of DSWM in Tanzania.

1.2 STATEMENT OF THE PROBLEM

Improper DSWM contributes to serious environmental issues that could affect people globally. Similar to other developing countries, Tanzania is also facing a serious problem regarding DSWM. In Tanzania, literature affirmed that major factors that contribute to poor management of DSW is due to urbanisation, poor infrastructure, low level of public awareness on DSW and poverty (Kasala, 2014; Lubwama, 2017; Yhdego & Kingu, 2016). These factors contributed much to the creation of illegal dumping sites, low knowledge, poor skills, and lack of waste collection and storage instruments relating to DSWM in the cities in Tanzania. Whereas in a big city such as Dar es Salaam, it has been reported that about 40% of households use rubbish pits, 32.8% use garbage bins, and 25.5% of households dump their waste into water sources, valleys, pit latrines or other drainage areas (Abalo et al., 2017; Niekerk & Wegmann, 2017).

In avoiding the negative implications of improper DSWM, active households' participation in the management process is crucial by keeping their households and surroundings clean, storing waste in appropriate dustbin/container, paying waste collection fee, as well as participating in waste minimisation process i.e., reducing, reusing, and recycling. This requires a positive attitude, perception, and clear understanding of DSW management activities, such as proper collection and sorting of waste, even reusing and recycling programmes.

Several studies on waste management reported a low level of public awareness on waste management issues (DCC, 2015; John, 2015; Lubwama, 2017; Msimba & Sanga, 2016), contributing to poor participation in DSWM. Similarly, Jones and Mkoma (2013) concurred that the success of DSW management depends on public awareness regarding the whole management process, and this starts from households' level up to the government authority. Palfreman (2015) stated that Dar es Salaam was reported as one of the dirtiest cities in the world, thus, this affect the country's reputation and economic activities since Dar es Salaam is a commercial hub and well known for its tourist attractions.

Numerous initiatives have been taken by the government under the Ministry of State in the Vice President Office for Union Affairs and Environment, and other stakeholders including development partners, non-governmental organization (NGOs), Community-Based Organizations (CBOs) and private-sectors to increase public awareness on the solid waste management issues. This includes awareness campaigns, seminars, and workshops to educate street leaders and small entrepreneurs (Kalwani, 2016). The Minister of State in the Office of the Vice President have also introduced a “cleanliness day”, where the public are encouraged to make the first Saturday of every month as the day to clean up their entire environment from 6:00 A.M. to 10:00 A.M. No businesses should be operating during this cleaning time (Mesomapyra, 2015).

Furthermore, to avoid more environmental pollution, the government banned the production, sale and use of plastic bags since July 2019. Despite all these attempts, DSWM continues to be a challenge in Dar es Salaam. The public does not have sufficient knowledge on how to manage solid waste effectively (DCC, 2015). Also, they are not aware of the impact of improper management and some even think that the government is solely responsible for DSWM and thus, refuse to pay solid waste collection fees (DCC, 2015; Lubwama, 2017). Moreover, most perception and attitude towards DSWM services seem to be negative; most of them are not happy with the quality of the DSWM services as characterised with irregularity and poor collection system (John, 2015; Mgimba, 2016).

If this situation continues, it will lead to more harmful conditions including the spread of diseases due to environmental pollution. In this regard, the United Nations Industrial Development Organization (UNIDO) in 2019 reported on diseases related to waste management such as cholera, typhoid, dysentery, diarrhoea, malaria, and intestinal worm infections. This also led to the negative impact in economic activities such as tourism, fishing, transportation, and business (Maziku, 2014). The outbreak of diseases affects human capital, national economy as well as the reputation of the whole country (UNIDO, 2019). As supported by the report from the United Nations Environment Programme (UNEP,2016) the majority the urban areas in Tanzania are still affected by communicable diseases (i.e., cholera, malaria, and dengue fever) due to the dirty environment and the use of poor-quality dustbins and improper disposal of household waste. For instance, most of the people living in unplanned areas dump their waste in the street, on vacant land, into drains, streams, or in water sources.

In order to solve this problem, Yhdego (2017) argued that participation of local citizens with DSWM is very important, as they are the producers of domestic solid waste. Jones and Mkoma (2013) highlighted that by imposing solid waste collection fee, it will help force people to participate in DSWM process. Apart from that, people should be well-informed on how effective management of solid waste should be, such as the proper way of collecting waste, sorting (waste separation), and know the appropriate instruments for DSW storage. At the same time as, UNEP (2016, 2017) reported that in order to have effective management of the solid waste, the city solid waste management (SWM) system should effectively play its role and involve citizens in decision making, as well as changing their perception, attitude and behaviour on environmental issues.

Thus, this study examines the role of mass media, particularly the radio, towards influencing the public participation in DSWM, especially Dar es Salaam city. In this context, the radio sector must work hand-in-hand with other DSWM actors, especially local people (household members) and government agencies to ensure the effective and sustainable management of DSW. However, currently few literatures have addressed the role of radio in promoting DSWM in Tanzania. Therefore, this study focuses on examining the factors that influence participation in DSWM among household radio listeners in Dar es Salaam city.

1.3 RESEARCH QUESTIONS

The overarching research question from this study is what are the factors influencing participation in DSWM among household radio listeners in Dar es Salaam, Tanzania?

This question is further broken down into five specific research questions:

- 1- What are the general uses of radio in Dar es Salaam city?
- 2- To what extent do the households use radio to obtain DSWM information in Dar es Salaam city?
- 3- What are the levels of awareness, perception, attitude, and participation in DSWM among households' radio listeners in Dar es Salaam city?
- 4- What are the relationships between awareness, perception, attitude, and participation in DSWM in Dar es Salaam city?

- 5- To what extent does attitude mediate the relationship between awareness, perception, and participation in DSWM?

1.4 RESEARCH OBJECTIVES

This study aims to examine factors influencing participation in DSWM among household radio listeners in Dar es Salaam city, Tanzania. This study seeks to address the following specific objectives:

- 1- To identify the general uses of radio in Dar es Salaam city;
- 2- To examine the extent of radio usage in obtaining DSWM information among the households in Dar es Salaam city;
- 3- To determine the levels of awareness, perception, attitude, and participation in DSWM among household radio listeners in Dar es Salaam city;
- 4- To analyse the relationship between awareness, perception, attitude, and participation in DSWM in Dar es Salaam city; and
- 5- To test the mediating effect of attitude on the relationship between awareness and perception on participation in DSWM.

1.5 SIGNIFICANCE OF THE STUDY

The current study examines the factors influencing participation in DSWM among radio listeners in Dar es Salaam city. This study is expected to offer several contributions: theoretical, practical and policy implications. Theoretically, this research hopes to fill the gaps in empirical studies conducted by utilising the Development Communication Theory (DevCom), given that Tanzania is among the third world countries where more than 80% of its people have access to electronic media, particularly radio to obtain information on different issues. However, few DSWM studies have used the DevCom-Theory as a guiding theoretical framework in the field of communication, where they mostly focus on applying environmental and psychological theories like the Ecological Theory, Integration Theory, and Theory of Planned Behaviour (TPB) but neglected the

use of the communication theories like DevCom- Theory to see the great contribution that media has in solving any environmental issue, including the DSWM. Thus, this study will bring theoretical insight since there is scarce literatures that use the DevCom-Theory as a guiding framework in the communication and environmental field, while also providing a better understanding on how the media can affect public participation in DSWM in developing countries.

Additionally, this study will contribute to the environmental communication field as no environmental studies conducted in Tanzania applied this theory in the context of evaluating the role of mass media in promoting effective participation in DSWM. Within the field of communication, this study will add to the current literatures as it examines on how public awareness, perception and attitude can be one of the critical factors for influencing households' participation in DSWM. This study will also help the public to learn how attitude can mediate the relationships between awareness, perception, and participation in DSWM. This research may benefit future researchers from multiple fields such as environmental science, environmental sociology, environmental communication, and development communication as there is inadequate literature on media use (radio) to influence effective participation in DSWM. Hence, the findings from this study may be used to broaden the knowledge and understanding on how sustainable solid waste management practices include the role of mass media, as this study focuses on one of the neglected areas in media studies.

The practical implications of this research will provide empirical support to media training institutions in assessing their curricula (programme of study) and to make sure that the institutions train journalists to be more competent in covering and reporting environmental issues, including DSWM as one of the development challenges. Moreover, the generated data of this study will also help to provide direction to policymakers and relevant institutions such as the national environment management council, Dar es Salaam city council, Community-Based Organizations (CBOs) and companies on the viability of the radio as a medium for raising awareness and changing negative perception and attitude of the people on environmental issues, including DSWM.