

## Assessment of Waste Management Service Delivery by Employees and Communities of Ngaka Modiri Molema District Municipality

S. G. Moshoele<sup>1</sup> and O. I. Oladele<sup>2</sup>

<sup>1</sup>*Graduate School of Business and Government Leadership, <sup>2</sup>Department of Agricultural Economics and Extension, North-West University, Mafikeng Campus, South Africa*

<sup>2</sup>*E-mail: oladimeji.oladele@nwu.ac.za,*

**KEYWORDS** Waste Management. Service Delivery. Communities. Attitudes

**ABSTRACT** This study examines the assessment of waste management service delivery among employees and community members of Ngaka Modiri Molema District Municipality. The population of the study is employees and the community. Sixty employees were selected randomly from employees and community members to give a sample of 120. Data were collected using structured questionnaire which was subject to analysis using SPSS. Frequency count and percentages were used to describe the data, while t-test statistics was used to compare the attitude of employees and community towards service delivery. Also correlation was used to test for relationship between attitude and constraints of employees and community. The results show that 90% employees are male and female makes 10%. Age shows that 55% of the employees are between 31-40 years, whereas 23% of the employees are between 41 -50 years. Eighty-six percent of the employees have acquired educational qualifications that are below Grade 11, the results further shows that 11% of the employees has acquires Matric/ Grade 12 certificate. Sixty percent of the employees have skill towards their job and while 40% are unskilled towards their daily tasks. The results of community, equal 50% of male female and on age it reflects that most dominate age on community is between 20-30 years at 27%, 23% are between 31-40 years. 27% of the community members on educational qualification have qualification that are below grade 11, and 25% of the community has at least obtained Matric/ Grade 12 certificate. 83% of the community is skilled towards their job and result further shows that 60% are staying in urban area and 30% of the community have more than 15 – 20 years residing in the area. 30% are unemployed and 45% of the community is youth. The results of the multiple regression analysis show significant determinants of the employee age group ( $t=2.227$ ), Time schedule of waste collection in place ( $t=2.197$ ), and Time schedule for street sweepers ( $t=2.532$ ), shows there is strong correlation between independent variable and age group, time schedule of waste collection in place and time schedule for street sweepers.

### INTRODUCTION

Waste generation, both domestic and industrial, continues to increase world-wide in tandem with growth in consumption. In developed countries, per capita waste generation increased nearly three-fold over the last two decades, reaching a level five to six times higher than that in developing countries (Palczynski 2002). Africa has a varied historical and political background of waste management (AISA 2012). In Nigeria, municipal solid waste management is a major responsibility of state and local government environmental agencies. The agencies are charged with the responsibility of handling, employing and disposing of solid waste generated. The state agencies generate fund from subvention from state governments and internally generated revenue through sanitary levy and stringent regulations with heavy penalties for offenders of illegal dumping and littering of refuse along streets (Ogwueleka 2003).

In South Africa, a district municipality or Category C municipality executes some of the functions of local government for a district. The Local Government municipal structures section 19 (2) provides that a municipality council must annually review the needs of the community, prioritise those needs and set up plans to meet them by involving the community, through its organisational and delivery mechanism aimed at achieving the community development objectives as stated in the constitution of South Africa section 152. It is stipulated Chapter 5 section 83 that a district municipality must seek to achieve integrated, sustainable and equitable social and economic development of its areas as a whole by ensuring integrated development planning, promoting bulk infrastructural development, building the capacity of local municipality in its area to perform their functions and exercise their powers where such capacity is lacking and promoting the equitable distribution of resources between the local municipalities in its

area so as to ensure appropriate levels of municipal services within the area. In the same vein the Constitution of SA, act of 1996, section 153 reiterated that the municipality must structure and manage its administration, budgeting and planning processes to give priority to the needs of the community and also promote the social and economic development of the community, and to participate in national and provincial development programmes with the objectives of providing democratic and accountable government for local communities, ensure the provision of service to communities in sustainable manner, promote social and economic development, encourage the involvement of communities and organisations in the matters of local government and to promote safe and healthy environment. An Act specifically related to promoting a safe and healthy environment is the National Environmental Management Waste (Act 59 of 2008) provides that everyone has the constitutional right to have an environment that is not harmful to his or her health and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation, secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

However, Gildenhuys (1997) asserted that for the municipality to fulfil its functions, a local government must render typical line function service to the public. And in rendering these services, specific activities must be undertaken which are responsibilities of employees of some members of staff of the municipality. One of these activities is the environmental health activities which involve night soil removal, sewage removal from septic tanks, street cleaning, removal and disposal of carcasses, pest control, inspection of premises for health hazards, and food inspection. This is done with the objectives of protecting the public against all kinds of natural and human made disasters; provide opportunities for the development of each citizen's social welfare, and to provide opportunities for the development of the economic welfare of each citizen.

Although it is entrenched in the South African Constitution and other legislation as explained in the fore, the local government must provide communities with impartial, reasonable

and continued basic services, which include waste management. Nevertheless the financial and fiscal policy brief on solid waste management indicated that majority of municipalities and cities in South Africa face serious economic, social and environmental challenges associated with solid waste management (AISA 2012). This study attempts to examine the waste management service delivery from the perspective of employees in Ngaka Modiri Molema District Municipality offices and community members who receive services from the municipality. The main objective is to assess waste management service delivery by employees and communities of Ngaka Modiri Molema district municipality. The specific objectives are to: identify personal characteristics of the employees in waste management, determine waste management constraints on service delivery by the employees and community members, assess perceived constraints to service delivery by the employees and community members and determine attitude towards service delivery on waste management by employees and community members

## METHODOLOGY

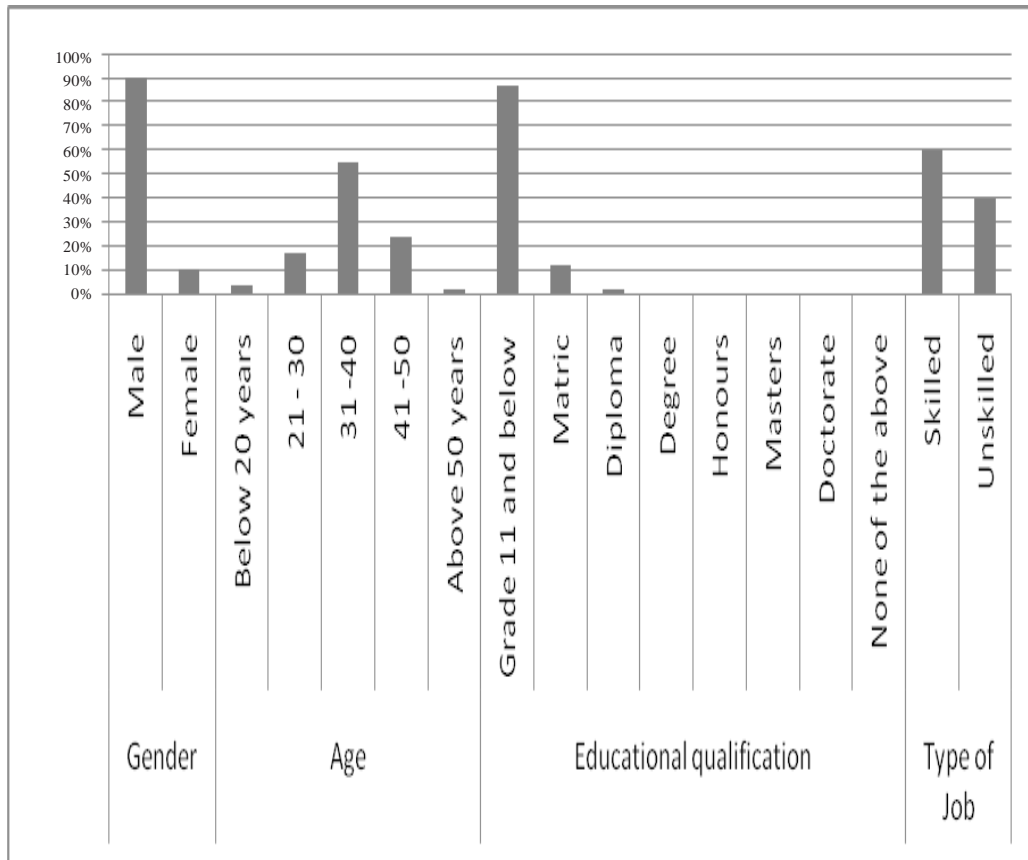
Ngaka Modiri Molema District municipality is the provincial capital of the North West Province. It is situated in the North West Province. It is a Category B municipality established in line with section 12 of the municipal structures (Ngaka Modiri Molema District Municipality 2012). The total area of NMMDM is approximately 31039 km<sup>2</sup>, divided into 28 wards consisting of 102 villages and suburbs. The population of the municipality is estimated at 290 288 people. Approximately 75% of the area is rural (Mafikeng Local Municipality 2012). The population of the study is Waste Management employees and community members of Unit 12 Mmabatho area. According to Mafikeng Local Municipality (2011), there are 171 employees, a simple random technique was used to select sixty (60) from each group of employees. According to Department of Statistics South Africa (2011), there are 2128 community members in Unit 12 Mmabatho, a simple random technique was used to select a sixty (60) community members. Therefore the sample for the study is 120.

Data were collected using structured questionnaires which were made of three sections namely: personal characteristics, constraints and

attitude of employees and community. The section on personal characteristics of the community elicited information on variables such as gender, age, educational level, type of job, residential area, years leaving in the area, present work situation and present membership in the community. The scale on constraints that are faced by the community consists of 27 items anchored on Yes, No, Very Severe, Severe and Not Severe. While the scale on attitude consists of 21 items anchored on 5 point Likert type scale of Strongly Agree (5), Agree (4), Undecided (3), disagree (2) and Strongly Disagree (1). Data collected were subject to analysis using a computer aided programme, SPSS. Frequency count and percentages were used to describe data. T-test statistics, Regression analysis and Chi-square were used to compare constraints and attitude of community and employees.

**Personal Characteristics of Employees**

Figure 1 indicated that that 90% of employees were males, and about 10% were females. Males are more involved in waste management services in the municipality may be because most of the tasks in waste management practices are laborious. Age distribution shows that 55% of employees are between 31 -40 years, which implies that most of the employees in the waste management section in the municipality were still young and fit particularly in terms of the energy demand of the job. Twenty-three per cent of the employees are between 41 -50 years. It was also revealed in Figure 1 that 68% of the employees have acquired educational qualifications that is below Grade 11, 11% of employees have acquire Matric/ Grade 12 certificate. This indicates that



**Fig. 1. Personal characteristics of the employees**

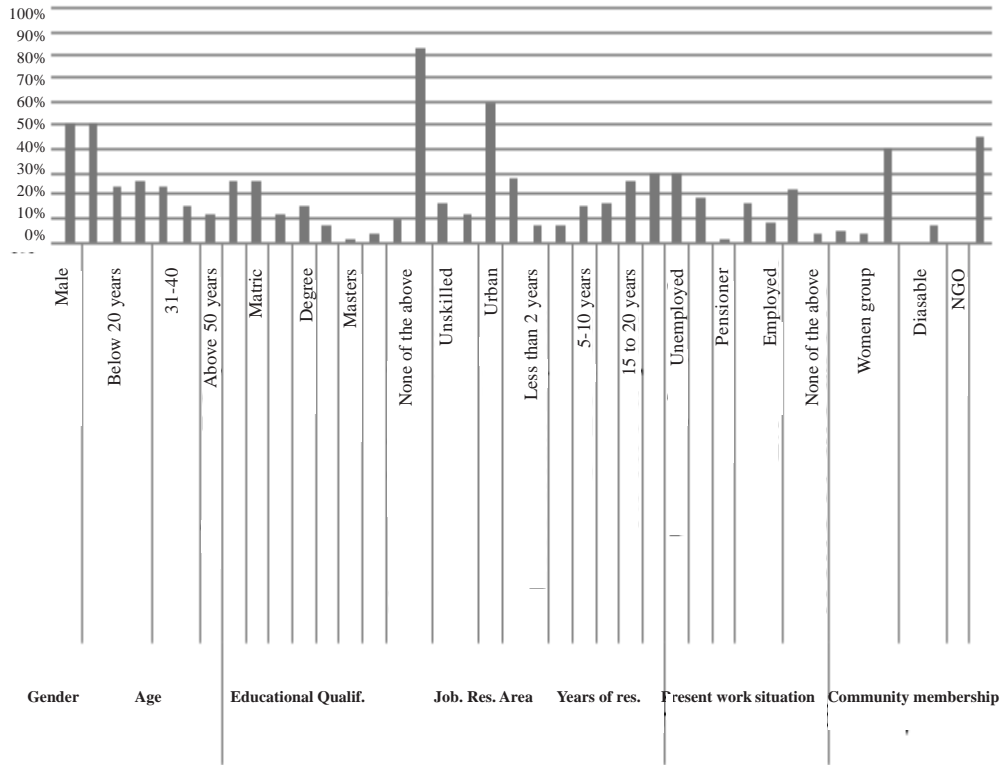


Fig. 2. Distribution of personal characteristics of the community members

most of these employees have basic education which is a good platform to initiate in-service training to capacitate these employees and improve their skills. This finding is similar to Bhola (1997) that adult education should become inherently lifelong learning. The results further show that from the study it was revealed that 60% of employees have skills needed for their job or training has been provided to improve their performance, while 40% are unskilled towards their daily tasks.

**Personal Characteristics of Community Members**

Figure 2 represent personal characteristics of community members, the results on gender distribution reveals that both males and females are 50% respectively. It is also revealed in Fig-

ure 1 that 27% of the community members were between 20-30 years old. This revealed that a good percentage of the respondent fall into the youth category. The result further shows that 23% of the community members are between 31-40 years. Twenty-seven percent of community members have education qualification that is below grade 11. Twenty-five percent of community members have obtained Matric/ Grade 12 certificate as it is required for employment or tertiary education requirement. The results further indicate that 83% of community have needed skills for their job. It is also revealed in Figure 2 that 60% of the respondents stay in urban area while 30% of the community members have been residing in the area for more than 15 – 20 years. Thirty percent are unemployed still searching for a job while 45% of the community members are youth.

### Constraints Faced by Employees on Waste Management Service Delivery

Table 1 shows types of constraints faced by the employees towards service delivery. The scale is made of 29 items covering internal and external environmental factors that affect employees. Employees indicated their responses which ranges from Very severe, Severe and Not severe. The score of items on the internal and external environment scale should be at least 50% to be satisfactory. Eighty-five percent of the employees agreed that waste management record is kept. Record keeping is important because it will assist the municipality to know quantity of waste collected on daily basis from house-

hold and industrial areas, how many tons are disposed, and how many tons are exported to generate income for the municipality. It was shown that 78% of employees indicated that record keeping is severe; this may be because record keeping is implemented in terms of rule and regulations of record management.

Sixty-six percent of employees reveal that budget allocation is insufficient and because of this waste management unit needs, are not fully addressed because of the insufficient budget. Having sufficient budget will help the organisation in achieving its goals and objectives. These findings are similar to the findings of Godfrey et al. (2013) on main barriers to implementing good waste management practice which he reported

**Table 1: Constraints faced by employees towards service delivery**

<i>Constraints</i>	<i>Yes</i>	<i>No</i>	<i>Very severe</i>	<i>Severe</i>	<i>Not severe</i>
Waste management record keeping	51 (85)	9 (15)	2 (3.3)	47 (78.3)	11 (18.3)
Limited budget on waste management	20 (33.3)	40 (66.7)	15 (25)	19 (31.7)	9 (15)
Time schedule for waste collection in place	54 (90)	6 (10)	20 (33.3)	17 (28.3)	5 (8.3)
Time schedule for street sweepers	57 (95)	3 (5)	15 (25)	19 (31.7)	6 (10)
In short of truck drivers	11 (18.3)	49 (81.7)	15 (25)	19 (31.7)	6 (10)
Lack capacitated workers on solid waste management	47 (78.3)	13 (21.7)	18 (30)	18 (30)	5 (8.3)
Lack of waste collection strategies (new ideas)	49 (81.7)	11 (18.3)	19 (31.7)	18 (30)	5 (8.3)
Lack of proper landfill sites	7 (11.7)	52 (86.7)	20 (33.3)	18 (30)	4 (6.7)
Lack of proper routes	34 (56.7)	26 (43.3)	21 (35)	15 (25)	5 (8.3)
Poor policy implementation	55 (91.7)	5 (8.3)	16 (26.7)	19 (31.7)	6 (10)
Poor administration on waste management (lack of service delivery)	59 (98.3)	1 (1.7)	20 (33.3)	17 (28.3)	4 (6.7)
Lack of working quality tools	54 (90)	6 (10)	17 (28.3)	19 (31.7)	5 (8.3)
Lack of health inspectors (Waste)	24 (40)	36 (60)	20 (33.3)	18 (30)	20 (33)
Lack of skills transfer	56 (93.3)	4 (6.7)	15 (25)	18 (30)	7 (11.7)
Lack salary administration or adjustments	55 (91.7)	5 (8.3)	19 (31.7)	17 (28.3)	4 (6.7)
Lack of waste collection vehicles	58 (96.7)	2 (3.3)	19 (31.7)	19 (31.7)	2 (3.3)
Services are affordable to costumers	42 (70)	18 (30)	21 (35)	15 (25)	5 (8.3)
Lack of security for street sweepers	60 (100)	0 (0)	15 (25)	21 (35)	5 (8.3)
Poor recruitment of the waste management personnel	54 (90)	6 (10)	17 (28.3)	18 (30)	6 (10)
Poor internal control measures	56 (93.3)	4 (6.7)	14 (23.3)	23 (38.3)	4 (6.7)
No proper institutional setup for solid waste management service	33 (55)	27 (45)	17 (28.3)	18 (30)	5 (8.3)
Poor corporation by the public	54 (90)	6 (10)	15 (25)	21 (35)	5 (8.3)
Public campaign on waste management is effective	52 (86.7)	8 (13.3)	18 (30)	17 (28.3)	6 (10)
Is national municipality waste regulation/ law or policies followed?	32 (53.3)	27 (45)	16 (26.7)	13 (21.7)	11 (18.3)
Is there any policy in place for waste management?	13 (21.7)	47 (78.3)	19 (31.7)	16 (26.7)	6 (10)
Standardised policies for vehicle and other equipments	32 (53.3)	28 (46.7)	17 (28.3)	13 (21.7)	11 (18.3)
Poor implementation of goals and objectives of the municipality	54 (90)	6 (10)	19 (31.7)	8 (13.3)	13 (21.7)
Poor reengineering of waste management models	50 (83.3)	10 (16.7)	12 (20)	15 (25)	12 (20)
Lack rehabilitation on existing dumpsite	50 (83.3)	10 (16.7)	13 (21.7)	13 (21.7)	14 (23.3)

to include insufficient funding and result lack of resources (equipment and personnel). Ninety percent of the employees agreed that the time schedule for waste collection is in place, appropriate time for waste collection that suits the employees and the community members as well will enhance good waste management delivery service. Ninety-five percent of the employees revealed that it is true that time schedule of street sweepers is in place; it will assist in good monitoring of these sweepers particularly to check absenteeism at work. The study further reveals that 81% of employees indicated that there is no shortage of truck drivers, which implies that the organisation have enough drivers to drive their vehicles, an implication that logistic as it affect waste collection is adequately taken care of.

Employees indicated that 78% agreed that the workers are not capacitated for the job they perform; this may be due to poor or non-existence of in-service training. Waste classification was a problem for employees. Eighty-two percent of employee has indicated that there is lack of waste collection strategies which affect the overall performance of the waste management function. While 87% agreed that there was lack of proper landfill site. Fifty-seven percent of employees have indicated that lack of proper routes may deprive the waste collectors to perform their daily task. Ninety-two percent of employees indicated that there is poor policy implementation at Ngaka Modiri Molema District municipality. This may be because implementation procedures are not properly followed or waste policies are not reviewed. These findings are almost similar to the findings of Akinboade and Mokwena (2013) which submitted that government should ensure that all allegations of corruptions and maladministration are speedily and transparently dealt with, without fear and favour. Ninety percent of the employees indicated that lack of working quality tools may hamper their daily performance. Sixty percent of employees reveal that there is no lack of Health inspectors. Ninety three percent of the employees expressed their concern on lack of skills transfer among staff members particularly from those who have expertise in waste management. Ninety two percent of employees revealed that there was poor salary administration in their fields, salary administration will enhance efficiency among waste management employees, and this should be reviewed annually. This finding is similar to the

finding of Agunwamba (1998) that stimulation of the interest of workers through provision of adequate financial remunerations and proper incentive will attract needed manpower as well as reduce labour mobility from waste management sector to other areas of the private sector.

Ninety-seven percent of employees indicated that there is lack of waste collection vehicles, while 70% of the employees agreed that service are affordable to customers This is an indication that every class in the community can afford to pay for the service. It is shown in Table 1 that 93% of the respondents agreed that there is poor internal control measures, 90% expressed that there is poor recruitment of waste management personnel. Ninety-three percent of the respondent agreed that there is no proper institutional setup for solid waste management services while 90% of the employee agreed that public attitude towards disposal is very poor. Eighty-seven percent of the respondents revealed that the public campaigns on waste management are effective to communities maybe due to reduction on waste or littering on the streets. Fifty-three percent of the respondents indicated that National municipality law or policies on waste regulation are not followed. Fifty-three percent of employees revealed that the standardised policies for vehicle and other equipment are in place. Ninety percent of the respondents said poor implementation of goals and objectives of the municipality may affect the whole ideas that need to be implemented and that consultants are needed for guidance, and monitoring process, which will assists the municipality on analysing progress and plan of waste management for the future. This finding is similar to that of Nahman and Godfrey (2010) on development of capacity in in waste management organisation, for administration, monitoring, enforcement of instruments of illegal dumping, and billing of services to enable recovery. It is also revealed that 83% of the respondent agreed that there was poor re-engineering of waste management while 83% of the employee agreed that there was lack of rehabilitation on existing site.

#### **Constraints Faced by Community Members towards Waste Management Service Delivery**

Table 2 shows that 80% of the community members have knowledge about waste management, which maybe knowledge on recycling and



reduction of waste. The results further indicated that 55% of the community members were not satisfied with the service delivery. These findings are similar to the findings of Akinboade and Mokwena (2013) on it is important for the South African government to carry out urgent interventions aimed at the efficient and effective functioning and service delivery of municipalities, and improving socio-economic conditions of the communities. Seventy percent of community members results indicated that service are affordable maybe they are on middle class economic scale.

Fifty-seven percent of the community members revealed that there is no council meeting maybe due to non-availability of councillor. It is also shown in Table 2 that 68% of the community members agreed that waste collectors are reliable as to time and day fixed for waste collection. Sixty-two percent of the community mem-

bers revealed that there are inadequate waste collector trucks. This may be because they could not keep up with the schedule and they failed to show up or waste is not well collected. Fifty-seven percent of community members agreed that lack of proper routes may deprive the waste collectors from adequately performing their daily task.

It was found out that 67% community members indicated that there is poor waste collection; this may be because the community members did not put waste in the available waste containers. It was found that 62% of community members indicated that poor planning and poor time schedules maybe due to lack of supervision in the waste management unit. The results further indicated that 78% of the community members indicated that there is lack of capacitated workers in the waste management field, while 87% of community members have indicat-

**Table 2: Distribution table of on constraints faced by community members towards service delivery**

<i>Constraints</i>	<i>Yes</i>	<i>No</i>	<i>Very severe</i>	<i>Severe</i>	<i>Not severe</i>
Any knowledge about waste management	48 (80)	12 (20)	20 (33.3)	24 (40)	8 (13.3)
Service delivery is satisfactory	27 (45)	33 (55)	21 (35)	19 (31.7)	11 (18.3)
Are the municipal services affordable?	49 (70)	11 (18.3)	15 (25)	18 (30)	20 (33.3)
Are the tariffs set by the municipality affordable?	38 (63.3)	22 (36.7)	18 (30)	19 (31.7)	15 (25)
No council/ ward meetings	34 (56.7)	26 (43.3)	21 (35)	17 (28.3)	18 (30)
Reliable waste collection time/ day	41 (68.3)	19 (31.7)	25 (41.7)	15 (25)	16 (26.7)
Lack of health inspectors (waste)	45 (75.0)	15 (25.0)	32 (53.3)	14 (23.3)	10 (16.7)
Lack of waste collector trucks	37 (61.7)	23 (38.3)	21 (35)	16 (26.7)	18 (30)
Lack of proper routes	41 (68.3)	16 (26.7)	23 (38.3)	18 (30)	13 (21.7)
Poor waste collection	40 (66.7)	17 (28.3)	18 (30)	20 (33.3)	18 (30)
Poor planning of time schedule	37 (61.7)	19 (31.7)	19 (31.7)	17 (28.3)	18 (30)
Lack of capacitated workers on solid waste management	44 (73.3)	14 (23.3)	19 (31.7)	24 (40.0)	12 (20)
Lack of proper landfill sites	46 (76.7)	13 (21.7)	23 (38.3)	17 (28.3)	15 (25)
Mishandling of waste by municipal workers	40 (66.7)	19 (31.7)	22 (36.7)	17 (28.3)	15 (25)
Poor corporation by community	36 (60)	22 (36.7)	14 (23.3)	23 (38.3)	4 (6.7)
Poor Public education	42 (70)	17 (28.3)	29 (48.3)	17 (28.3)	10 (16.7)
Lack of working tools	45 (75)	14 (23.3)	26 (43.3)	13 (21.7)	17 (28.3)
Poor supervision of waste personnel	42 (70)	18 (30)	28 (46.7)	21 (35)	6 (10)
Queries on waste management attended by the municipality	49 (81.7)	11 (18.3)	27 (45)	19 (31.7)	6 (10)
Limited information about waste management	43 (71.7)	17 (28.3)	22 (36.7)	19 (31.7)	11 (18.3)
Are waste collectors always on time?	25 (41.7)	35 (58.3)	29 (48.3)	17 (28.3)	10 (16.7)
No information about reduce, recycle, reuse	41 (68.3)	16 (26.7)	27 (45)	17 (28.3)	12 (20)
No defined integrity and staff rules	46 (76.7)	10 (16.7)	22 (36.7)	27 (45)	8 (13.3)
No proper evaluation of waste management	44 (73.3)	13 (21.7)	29 (48.3)	14 (23.3)	10 (16.7)
Inadequate service coverage (some people not given services)	42 (70)	15 (25)	23 (38.3)	18 (30)	11 (18.3)
Complains in the ward meeting not met	47 (78.3)	12 (20)	20 (33.3)	17 (28.3)	15 (25)
Are waste collectors corporative	23 (38.3)	37 (61.7)	24 (40)	19 (31.7)	7 (11.7)
Service quality met	22 (36.7)	37 (61.7)	0 (0)	0 (0)	0 (0)

ed that there is no lack of proper landfill site and that risks are associated with waste disposal as landfill. Sixty-seven percent of community members indicated that there was poor handling of waste management by municipal workers and this resulted in waste being scattered on the streets which can lead to environmental pollution, like water pollution, which cause harm to animals and also pose a threat to human health. Ninety percent of the community members also indicated that poor cooperation by the public causes litter to be scattered on the fields and streets despite the availability of waste bins at strategic positions on the streets. Seventy percent of community members have revealed that there is poor public education on waste management maybe as deduced from the proportion of unmanageable waste from households. This is similar to the findings of Nahman and Godfrey (2010) which asserted that education and awareness should be seen as the priority among business and communities, to encourage waste minimisation and recycling and to enable acceptance of instruments. Seventy-five percent of commu-

nity members revealed that there is lack of working tools may be due to employees' misplacement of working tools. There is need for municipality to put in place strict control measures and procedure to recover lost tools. Seventy percent of the community members revealed that Poor supervision of waste management personnel maybe due to uncleanness of streets and town. It is also shown in table 2 that 82% of queries on waste management are attended to by the municipality as requested by the community. Seventy-two percent of community members indicated that there is limited information about waste management to the community; maybe mass media campaign will play a major role on advancing knowledge of the community about waste management. These findings revealed that 68% of the community members have no information about reduction, recycling and reuse of waste therefore the community need more education campaign on waste in these domains of waste management practices. These findings are almost similar to the findings of Hahman and Godfrey (2010) on infrastructure

**Table 3: Attitude of the employees towards service delivery**

<i>Services</i>	<i>SA</i>	<i>A</i>	<i>U</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Waste collection	7 (11.7)	24 (40)	9 (15)	5 (8.3)	10 (16.7)	1.61	1.20
Debris removal on roads	8 (13.3)	33 (55)	2 (3.3)	17 (28.3)	0 (0)	2.96	1.55
Removal of dead animals	8 (13.3)	38 (63.3)	3 (5)	9 (15)	2 (3.3)	3.51	1.09
Grass cutting along the roads	8 (13.3)	43 (71.7)	3 (5)	4 (6.7)	2 (3.3)	3.53	1.04
Solid waste management service to domestic premise	7 (11.7)	43 (71.7)	3 (5)	5 (8.3)	2 (3.3)	3.68	0.99
Solid waste management service to office premise	8 (13)	43 (71.7)	5 (8.3)	2 (3.3)	2 (3.3)	3.85	0.86
Daily street sweeping	8 (13.3)	25 (41.7)	4 (6.7)	21 (35)	2 (3.3)	3.8	0.87
Removal of garden waste	10 (16.7)	37 (61.7)	1 (1.7)	9 (15)	2 (3.3)	4.01	0.67
Removal of bulk waste e.g. fridges, TV's and old cars	7 (11.7)	41 (68.3)	1 (1.7)	9 (15)	2 (3.3)	3.88	0.80
Removal of trees or unnecessary trees	7 (11.7)	29 (48.3)	2 (3.3)	21 (35)	1 (1.7)	3.26	1.17
Collection of bulk waste for reuse and recycling	5 (8.3)	20 (33.3)	1 (1.7)	32 (53.3)	2 (3.3)	3.68	1.12
Separation of waste containers	8 (13.3)	32 (53.3)	3 (5)	1 (1.7)	1 (1.7)	3.7	0.97
Public education on waste management	8 (13.3)	46 (76.7)	3 (5)	3 (5)	0 (0)	3.33	1.12
Are waste collectors always on time	7 (11.7)	45 (75)	4 (6.7)	3 (5)	1 (1.7)	2.9	1.16
Landfill monitored	8 (13.3)	31 (51.7)	1 (1.7)	18 (30)	2 (3.3)	3.46	1.15
Tree cutters	4 (6.7)	21 (35)	2 (3.3)	31 (51.7)	1 (1.7)	3.98	0.62
Separation of waste collected e.g. plastics from bottles	8 (13.3)	34 (56.7)	4 (6.7)	14 (23.3)	0 (0)	3.9	0.72
Organising special campaigns about waste management	7 (11.7)	40 (66.7)	4 (6.7)	8 (13.3)	1 (1.7)	3.41	1.15
Reduction of waste	8 (13.3)	38 (63.3)	4 (6.7)	7 (11.7)	2 (3.3)	2.88	1.16
Recycling of waste	6 (10)	37 (61.7)	5 (8.3)	8 (13.3)	3 (5)	3.6	0.99
Reuse of waste	14 (23.3)	16 (26.7)	2 (3.3)	17 (28.3)	10 (16.7)	3.73	0.89
Reduce environmental impact/damage	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3.66	1.11



for extension of basic waste services, improvement in existing services, and the enhancement of the convenience of recycling. Seventy-seven percent revealed that there is no defined integrity and staff rules, maybe the municipality will have to do in house induction to waste management staff. Seventy-three percent of community members revealed that there is no proper evaluation of waste management services maybe because there is no feedback from the community members. Seventy percent of community members revealed that there is inadequate service coverage maybe because some community members encountered problems on waste management services provided by the municipality. It is also shown in Table 2 that 78% of the community members indicated that complains in the ward meetings are not met maybe due to differences in political inclinations or other disagreement that arise in the ward meetings. Sixty-two percent of community members have revealed that waste collectors were not cooperative. Sixty-two percent of community members revealed that service quality are not met.

#### **Employees' Attitude towards Waste Management Service Delivery**

Table 3 shows that 40% of employees were positive that waste should be collected. Fifty-five percent of the employee also agreed that debris removal may reduce disasters in the community such as flooding which unclear debris in waterways or gutter can cause. It is revealed in Table 2 that 28% disagreed on debris removal. Sixty-three percent of employees agreed that removal of dead animals is not part of their daily routine maybe as a result of not wanting to be prone to diseases. The findings also revealed that 72% of employees agreed that grass cutting along the verge of roads ensure safety and convenience.

It is also revealed in Table 2 that 42% of employees agreed on sweeping the street daily, while 35% of employees had negative disposition towards daily street sweeping. Sixty-two percent of the employees agreed that removal of garden waste is effective. Sixty-eight percent of the employees also agreed on removal of bulk waste, for example, fridges, TV's and old cars, 48% of the employees agreed on the removals of unnecessary trees but 35% of the employees were negative on removal of trees serving no

useful purpose or that is old and may pose a great risk in the neighbourhood. About 33 percent of the employees agreed on collection of bulk waste for reuse and recycling, while 53% of employees disagreed on collection of bulk waste for reuse and recycling. The findings of the study show that 53% of employees agreed that separation of waste containers and separation of waste bins as necessary before sending waste to dump site. The findings show that 77% of employees were positive on public education maybe public education on waste management will be effective and efficient for community which is not knowledgeable about waste and can play an important role on building our local environment.

Fifty-two percent of the employees agreed that landfill should be monitored while 30% disagreed. The finding of the study has revealed that 35% of employees agreed on tree cutting as part of their daily duties because trees can be a threat to motorists and also can damage tarred roads while 52% disagreed on tree cutting, mean and standard deviation revealed (3.98). The findings also revealed that 57% of employees agreed on separation of waste collected that is, plastics are to be separated from bottles on daily basis while 23% disagree on waste separation, standard deviations revealed (3.9). Sixty seven percent of employees agreed that organising special campaigns about waste management may reduce littering on the streets. These finding is similar to the one of Agunwamba (1998) on study of the dependence of psychological and socio-cultural factors on attitude towards waste matters with a view to evolving more sustainable and effective environmental education programs, and the existing social clubs and age grades should be mobilised to achieve greater success in environmental education.

Sixty-three percent of employees agreed on reduction of waste. Waste education may play an important role in achieving this. Sixty two percent of employees agreed that recycling of waste may reduce waste on the streets and that there is also need for community and municipality to partner and work together on waste reduction, mean and standard deviation reveals (3.6). Twenty seven percent of employees agreed on reuse of waste, while 28% disagreed on reuse of waste, mean and standard deviation revealed (3.73).

**Table 4: Attitude of community towards service delivery**

<i>Attitude</i>	<i>SA</i>	<i>A</i>	<i>U</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Services are cost effective	20 (33.3)	15 (25)	12 (20)	8 (13.3)	3 (5)	1.95	1.09
Community has a role to play in assisting the municipality to manage waste	31 (51.7)	14 (23.3)	4 (6.7)	6 (10)	4 (6.7)	3.58	1.38
Waste collection service is above optimum level (satisfactory)	15 (25)	10 (16.7)	9 (15)	14 (23.3)	11 (18.3)	3.98	1.37
Waste bins are correctly returned to a correct yard	9 (15)	13 (21.7)	18 (30)	10 (16.7)	9 (15)	3.01	1.52
Meetings are conducted by politicians	13 (21.7)	19 (31.7)	11 (18.3)	13 (21.7)	2 (3.3)	2.76	1.46
Lack of interest on ward meetings	13 (21.7)	17 (28.3)	17 (28.3)	4 (6.7)	8 (13.3)	3	1.32
No proper agreements on meetings	14 (23.3)	21 (35)	11 (18.3)	9 (15)	4 (6.7)	3.36	1.31
Political rivals on ward meeting	20 (33.3)	13 (21.7)	7 (11.7)	14 (23.3)	4 (6.7)	3.33	1.34
No waste separation containers	14 (23.3)	19 (31.7)	14 (23.3)	9 (15)	3 (5)	3.48	1.28
Incorrect billing methods	16 (26.7)	19 (31.7)	9 (15)	8 (13.3)	7 (11.7)	3.41	1.48
Unreliable trucks	22 (36.7)	15 (25)	6 (10)	8 (13.3)	8 (13.3)	3.48	1.24
No removal of dead animals	19 (31.7)	15 (25)	6 (10)	11 (18.3)	7 (11.7)	3.43	1.40
No removal of debris on kerbs of the road	22 (36.7)	14 (23.3)	4 (6.7)	10 (16.7)	8 (13.3)	3.53	1.51
No removal of Garden waste	29 (48.3)	15 (25)	6 (10)	5 (8.3)	4 (6.7)	3.36	1.59
No street sweeping	23 (38.3)	17 (28.3)	8 (13.3)	6 (10)	5 (8.3)	3.43	1.59
No removal of bulk waste, for example, fridges and old cars	19 (31.7)	15 (25)	8 (13.3)	12 (20)	5 (8.3)	3.95	1.34
No environmental initiatives	20 (33.3)	22 (36.7)	4 (6.7)	6 (10)	6 (10)	3.73	1.37
No defined integrity and staff rules	13 (21.7)	6 (10)	12 (20)	16 (26.7)	10 (16.7)	3.46	1.41
Is waste collection satisfactory	10 (16.7)	11 (18.3)	7 (11.7)	16 (26.7)	15 (25)	3.63	1.46
Information is available to cover waste management issues	14 (23.3)	16 (26.7)	2 (3.3)	17 (28.3)	10 (16.7)	2.78	1.53

### Attitude of Community Members towards Waste Management Service Delivery

Table 4 reveals the attitude of community towards waste management service delivery. At least 17 variables are positive while 3 are negative. The study has revealed that 33% of community members strongly agreed that services are cost effective; maybe they can afford the set tariff by the municipality and 20% of community members were undecided. The findings in Table 4 also revealed that 52% of community members strongly agreed that they have a role to play in assisting the municipality to manage waste maybe by ensuring that waste is separated before being sent to the street for collection. It is

also revealed that 25% of community members show positive attitude, while 23% show negative attitude to waste collection. Twenty-two percent of the community members show positive attitude to waste bins that are returned to the correct yard, while 30% show negative disposition towards it.

Thirty-two percent of community members show positive attitude to the meetings conducted by politicians, while 22% show negative attitude. The study has revealed that 28% of community members lost interest in ward meeting. Thirty-five percent of community members strongly agreed on improper meeting agreements. Thirty-three percent of community strongly agreed that political rivalry at ward

**Table 5: Independent sample test**

	<i>Variance</i>	<i>N</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error mean</i>	<i>T</i>	<i>Df</i>	<i>Sig (2 tailed)</i>
<i>Constraints</i>	Community	60	104.1667	18.76001	2.42	2.369	118	0.019
	Employees	60	93.05	31.13635	4.01			
<i>Attitude</i>	Community	60	72.4833	13.93993	1.79964	-1.147	118	0.254
	Employees	60	75.35	13.43386	1.7343			

**Table 6: Multiple regression analysis of the determinants of employees' attitude towards waste management services**

Variables	Unstandardised coefficients		Standardised coefficients	T	Sig
	B	Std. error	Beta		
Gender	-2.329	5.202	-0.052	-0.448	0.656
Age group	4.366	1.961	0.254	2.227	0.03
Highest education qualifications	7.829	3.971	0.236	1.972	0.054
Type of job	0.092	3.037	0.003	0.03	0.976
record keeping	7.752	4.261	0.208	1.819	0.075
Limited budget	4.838	3.12	0.171	1.55	0.127
Time schedule	11.145	5.072	0.251	2.197	0.033
Time schedule for street sweepers	18.371	7.255	0.301	2.532	0.014
F	5.074				
R	.666b				
R square	0.443				

meetings may be responsible for poor progress in ward meetings, while 23% disagreed with it.

Thirty-one percent of community members agreed that there should be no waste separation containers while 23% is undecided. The findings also show that 32% of the community members agreed that there were cases of incorrect billing method. Thirty-seven percent of the community members agreed trucks used were unreliable. Thirty-two percent of community members also agreed that there were cases of non-removal of dead animal. Thirty seven percent of the respondent reported that there was non-removal of debris on kerbs of the road. About 48% of the community members agreed that there was non-removal of garden waste. It is shown in table 4 too that 38% of the community member reported that there were cases of non-street sweeping. Thirty-three percent agreed that there was non-removal of bulk waste, for example fridges and old cars.

Seventy percent of the community members agreed that there was no display of initiative on environmental safety by the employees. It is revealed in Table 4 that 27% of the community members disagreed that there was no defined integrity and observation of staff rules by employees. Twenty-seven percent of community members have shown positive attitude on waste collection, mean and standard deviation has shown (3.63). The findings have shown that 27% of community members agreed that there was availability of information on cover waste management issues while 28% disagreed.

### Comparison of the Constraints and Attitude between Employees and Community Members

Table 5 show the results of comparison of constraints and attitude between employees and community. A higher mean was recorded on perceived constraints to waste delivery services by the community (104.16) while the employees mean is 93.05 and standard deviation (31.13) reflects that data is more reliable. There is a significant difference on the constraints of the community and the employees ( $t = 2.369, p < 0.05$ ), this may be due to the community and the employees don't perceive things the same way

On attitude the mean score of the community is 72.48 while the mean for the employees is 75.35 There is no significant difference between the community the community members attitude to waste management delivery service and the employees attitude ( $t = -1.147, p > 0.05$ )

### Multiple Regression Analysis of the Determinants of Employees' Attitude towards Waste Management Services

The result of the multiple regression analysis showing the determinants among employees is presented by Table 6. The independent variables were significantly related to the employees' attitude to service delivery. The F value = 5.074, shows that there is a strong correlation between the independent variable and service delivery among the employees. Also R value of 0.666 while R square is 0.443 this implies that the independent variables predict 44% of the dependent variable. The significant determi-

nants are age group ( $t=2.227$ ), Time schedule of waste collection in place ( $t=2.197$ ), and Time schedule for street sweepers ( $t=2.532$ ). There is a strong relationship between these independent variables and employees' attitude to waste management services.

Age group, time schedule of waste collection in place and time schedule for street sweepers influence their attitude towards service delivery.

These findings on age group agree with the results of Cleveland and Shore (1992) which affirms that chronological age continuous to be an important predictor of work variables.

### CONCLUSION

The majority of employees were males, within the age group of 31 -40 years with an educational qualification that is below grade 11. Most of the employees in the waste management service were male with few females. There is a significant difference on the attitude of the employees and the community members to waste management services, the significant determinants of employees attitude to waste management are their age, time schedule for waste collection and the time schedule for street sweepers. In the sampled community members gender distribution is equal between male and female, with majority of the people in the age group of 20-30 years. Many of these community members have been resident in the area of study for between 15-20 years.

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