

Practical Working Activity of Solid Waste Handling, Collecting, Hauling and Proper Customer Handling

Massreshaw Assnakew Abebe

Addis Ababa city Cleansing Management office, Addis Ababa, Ethiopia

Abstract— A gap which was showed at stakeholders on solid waste collection, holding and transporting system were my main cause to conduct this study and Use different type of sampling methods because of for the variation of stakeholders (target group) even though taken 10% of total population by the selection method of using systematic random sampling as well as different sampling size to different target group and the study design of descriptive cross sectional method. MSW enterprises in lideta subcity averegically gave a proper service for 70% of subcity community according to the standards as well as they were worked harmoniously with community. Every enterprise used or going to HH by holding collecting material to collect solid waste.40% and 30% of them used wooden cart and steel cart respectively to transport (transfer) solid waste to the temporary transferring place and 85% of MSW enterprise consumed 4-5 hr to fill one plate (about 10 m³). Almost all RC cleaned the whole road Km daily.40% of RC susceptible to problem related with traffic and 20% of them blame by pedestrian with out there fault. In a subcity 90% of HH holder there solid waste by covered materials, only 7.8% of them separate solid waste by two materials. The HH who have good relationship with MSWC have a number of interval or repetition to pick their solid waste than the HH who have less interaction with MSWC. The more literated one has good knowledge than the illiterate. 100% of subcity health institutes use different types of containers for hazardous and non-hazardous solid waste and gave decomposable and non-infectious waste to MSWC. Although as a recommendation solid waste holding practice of HH must be consistent and need improvement especially separating by two materials (to decomposable and non-decomposable) also MSWC who used their back to transfer solid waste should improve their practice and the subcity cleansing management office try to fund or afforded by themselves to use an improved transferring material as well as creating an awareness about the side effect of transferring solid waste by their backside and musculo-skeletal disorder on them. In a subcity mainly department of division have a great roll on solid waste management system therefore; vehicle and human resource must be properly and systematically managed (allocated).

Keywords— Solid waste, handling, collecting, hauling, proper customer handling.

I. INTRODUCTION

This research was made to conduct the information on the overall solid waste collection, handling and transporting system and customer handling during service delivering in lideta subcity. In many developing countries solid waste management system are complex and difficult to properly manage due to lack of technology, good governance and strategies. therefore; this study mainly focused on these point which were presented in lideta subcity from different angle this means the questioner was prepared to HH, MSWC ,RC , officers ,other sectors ,driver ,assister ,head of division class and institutions and tried to trace the problem related with solid waste management system and customer handling in subcity.

Waste is unavoidable byproduct of human activities. Economic development, urbanization and improving living standards in cities, have led to an increase in the quantity and complexity of generated waste. In the world the number of town increases from time to time. Now a day half of world population their life depended on the towns.at 2050 expected that 86% and 64% people of developing and developed countries will live in the town respectively (UNPD, 2012).

Urbanization is not necessarily a new phenomenon on the continent of Africa, as shown by urban centers like Addis Ababa, Cairo, Kano, and Timbuktu (Onibokun and Kumuyi, 2003). What is noteworthy about contemporary urbanization in Africa is its fast pace. Although Africa is presently among

the least-urbanized regions of the world, it is recording the highest rates of urbanization. For example, Africa and Asia recorded urban growth of 4.9% and 4.2%, respectively, between 1990 and 1992. However, urban growth in Europe and North America in this period was only 0.7% and 1.0%, respectively (United Nations, 1995). Furthermore, it has been observed that only two cities in Africa (Cairo and Lagos) attained populations of 1 million in 1950; by 1970, the number of cities in this category had increased to eight. By 1990, it had increased to 24 (Sha 'Ato et al., 2006; Onibokun, et al., 2003).

Solid waste means any garbage, refuse, sludge and other discarded solid materials, including solid wastes resulting from industrial, commercial, and agricultural operations, and from many community activities, but does not include solid or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial waste water effluents, dissolved materials in irrigation return flows or other common water pollutants. Solid waste is "an image of the society" because it collection, handling and disposal system reflect the life style, economy, history of that society. In most of the developing countries like Ethiopia, the increasing amount of solid waste generation resulted from rapid urbanization and population booming. Likewise, the quantity of waste generated in Addis Ababa is increasing because of rapid population growth and urbanization. This has outpaced the financial and manpower

resources of municipalities to deal with the provision and management of services of solid waste (AASBPDA, 2003). In India there According to lideta subcity there are 36 micro enterprise MSWC serving the community by house to house collection, hauling to the plates (primary disposal or transfer place) about 309 m³ solid waste also they keep the cleanness of their zone and have contribution on awareness creation on the community. As well as about 220 RCs covered 109 k.m roads per day by cleaning. 67 officers also give awareness to the community.

II. METHODS AND MATERIALS

A. Source of Data

Our source of data was included primary and secondary data source. We used directly the primary data collected by questionniior, observation during collection, handling, hauling and photo from the worker of cleansing management office, households and others and for secondary data we used different types of PDF studies from internet web, and graduating paper for master program mostly in the literature review part.

B. Study Design

Waste collection and holding -by households:- Solid waste collection -By MSWC, Customer handling relation b-the between sub city household and MSWC, Road cleaning -By road cleaner, Solid waste hauling to temporary disposing place by MSWC, Solid waste hauling to reppi -By drivers by MSWC

C. Study Method

a. Sample size and selection method

As different documents indicated our study sample was selected from the total source, as well as when the sample size was increased, the result of the study becomes reliable and representative. I was included different types of data source therefore our sample size and selection method was varied from source to source. Additionally I took information from half health, educational and religious institution of the districts. As well as we included main six heads of woreda other sectors office who work in collaboration with cleansing management office.

b. Selection criteria

I included 3334 household sample from 33336 total household. The distributed sample size expressed on the below table. We followed sample selection method for woreda level seen as an example woreda 1 and the other woredas also followed like them. Total household of woreda 1 is 3508 the sample size of household is 351(10%) as a woreda I selected these sample size by using systematic random sampling method. Total number of household of woreda 1 divided to the sample size (3508/351=10) resulted number is ten this number represented the gap interval between two household when I took sample therefore when sample took one sample from one household and then jump 10 household after that take the second sample. For samples other than household and selected their sample by using quota and lottery method Sample selected the place where sample taken from institution 10% of sample as well as 10% from household that where around the channel and rivers and the remaining from other parts of woreda. To be achieved those followed systematic sampling method.

TABLE 1. Which was show the sample size of target group and there selection method.

S.no	Source of data	Total number	Sample size	Sample size selection	Reason to sample size selection	Remark
1	Household	33,336	w1=3508	w1=351	Systematic random sampling method	Easy and it was not need Sampling frame
			w2=1506	w2=151		
			w3=4764	w3=476		
			w4=4794	w4=479		
			w5=6084	w5=608		
			w6=2980	w6=298		
			w7=4000	w7=400		
			w8=1565	w8=157		
			w9=1295	w9=130		
			w10=2840	w10=284		
2	MSWC	419	40(10%)	Quota	The sample evenly distributed to every districts	
3	Road cleaner	220	20(10%)	Quota		
4	Sub city	drive	8	4(50%)	Lottery method	
		assist	15	7(50%)	Lottery method	
5	Officers	67	10(15%)	Quota	The sample evenly distributed to every districts	
6	Heads of cleansing mgt office	10	5(50%)	Lottery method		
Total		36818	3696			

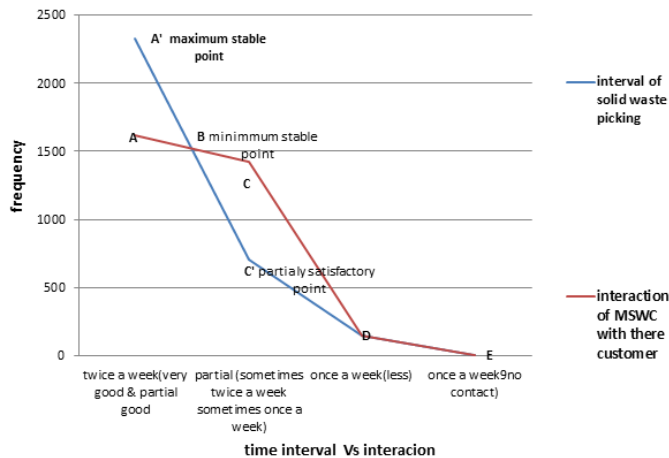
III. RESULT AND DISCUSSION

A. Households

From the total 3334 households participated in this study constituting response rate of 95.1 percent. We will be seen below the respondents' answers step by step. From the above graph most self and government employer gate average

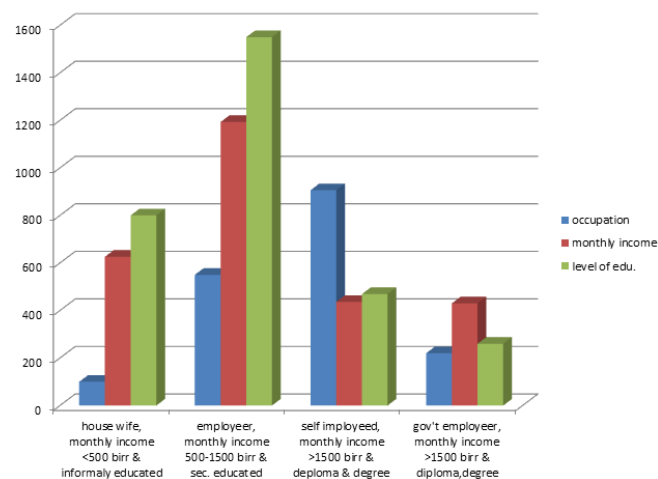
monthly income >1500 also they are litrated although self-employer and house wife who are informally litrated gate 500-1500 and 500 birr respectively From the total participant of households the schedule of solid waste collecting by MSWC to HH responded that 222(6.9%) of HH said MSWC pick daily, 734(22.9%) of them said three times a week, 890(27.9%) said twice a week, 1242(38.9%) said once a week

and only 109(3.4%) said once in two week as well as 1619(50.6%) of HH have very good relationship with MSWC, 1420(44.4%) of them have good and only 160(5%) of them have less relationship



Graph 1. Which was shown the interaction of solid waste picking interval and MSWC interaction with their customer (customer handling with service delivery), at 2015.

From the graph we considered that:-point A and A' similarly was shown that positive idea on good interaction of MSWC and HH and timely solid waste picking respectively, the intersection point B shown that the minimum boarder point which standard of solid waste picking and good interaction was stable, point C and C' were partially satisfactory point to the interaction of MSWC with HH and solid waste picking schedule respectively, point D and E were not satisfactory point to the interaction of MSWC with HH and solid waste picking schedule and as a general the graph shown that HH who have good relation with MSWC have a number of interval or repetition to pick their solid waste than the HH who have less interaction with MSWC 2865(89.5%) of respondents holded there solid waste by covered material, 53(1.7%) placed on open land and 248(7.8%) of them separate there holding material for decomposed and non-decomposed solid waste.



Graph 2. The graph which shown the relationship b/n SEC of the HH.

2837(88.9%) of participant responded that MSWC sweep the place where they were taken solid waste although

362(11.1%) of them said that MSWC are not swept the place where they were taken solid waste. from them they reason out as followed which expressed by graph.

From the graph:-Point A and C Indicate the reason of HH on the practice of MSWC during solid waste collection From the positive angle 1257(38%) of HH said that the road cleaner swept the road properly, 838(25.4%) said that they never blower dust on pedestrians, 808(24.5%) said that we observed them wearing of protective materials How many meters are mandatory to keep it sanitation out of your fence (cleaning village)? 46(1.4%) HH said less than 5 meters, 633(19.8%) said from 5 up to 10 meters, 2002(62.6%) said up to 20 meters, 360(11.2%) said according to the wildness of village and only 156(4.8%) of HH said we don't have acknowledge.

TABLE 2. SEC of households in lideta subcity, 2008E.C.

S.no	Variables	Indicators	Frequency	Percent	Remark	
1	Occupation	House wife	1626	50.8		
		Self employeer	906	28.3		
		Government employeer	400	12.5		
		Others	266	8.4		
2	Monthly income	<500 birr	626	19.6		
		500-1500 birr	1193	37.3		
		>1500	436	13.6		
		Others	Pension	290	9.2	
			Non voluntaries	206	6.5	
	No income	443	13.8			
3	level of education	Informal edu.	953	29.8		
		10 edu. Completer	770	24		
		20 edu. Completer	780	24.3		
		Diploma	316	9.8		
		Degree	153	4.8		
		Others	230	7.2		

Chi-square test 1

I try to see the association of knowledge and educational status by using 2*2 table chi-square test methods.

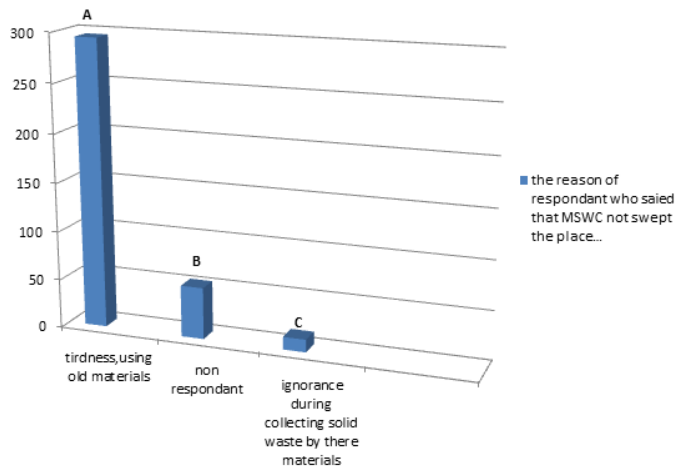
$$X^2 = \frac{((ad-bc)-N/2)^2 N}{(a+b)(c+d)(a+c)(b+d)}$$

Where Df=1, x^2 critical=3.84, and $\alpha=0.05$

$$X^2 = \frac{(((1397*578)-(622*605))-3202/2)^2 3202}{(2019)(1183)(2002)(1200)} = 102.96$$

Because the calculated $x^2(102.96)$ does exceed the critical value (3.84), therefore knowledge of community about solid waste highly related with their educational status. From onsite observation 3011(94.1 %) of household keep the cleanness of their village 188(6.9 %) of them were not

From the below graph we understand the HH who have good knowledge about solid waste have good practice of clean their village than the HH who have little knowledge, therefore practice of community on environmental sanitation related with their knowledge, but not may necessarily. 1847 (58.7 %) of respondent said that when we go on the road we placed a small types of solid waste in the dust bin, 590 (18.7%) said we taken it in our pocket temporarily and then discarded in the proper place but 709(22.6 %) of them said we discarded it at any place. Respondent Compared recent solid waste management system with former one 3002 (93.8%) of them said It is best (house to house solid waste picking twice a week, payment system) and only 197(6.2%) of them said the same (there is no difference between them)



Graph 3. The reason of HH why some MSWC not clean the place where they take solid waste.

TABLE 3. Knowledge of HH to standard meter on cleaning village.

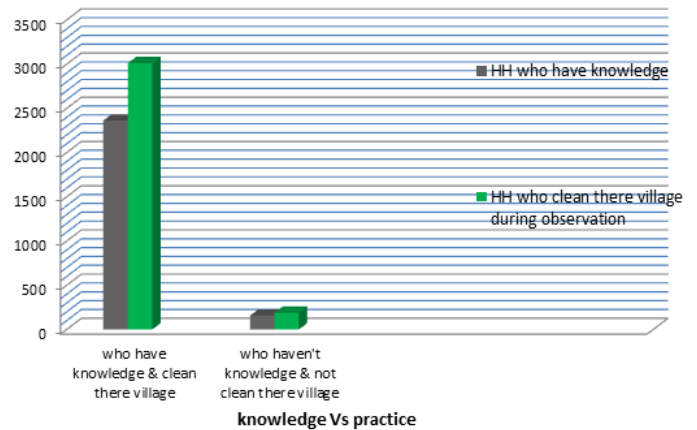
Edu. Level	Yes	No	Total
Literate	1397	622	2019
Illiterate	605	578	1183
Total	2002	1200	3202

B. MSWC

From the total number of MSWC in the subcity we took 40 (10%) sample and asked some question and they responded as follow: - 31(75.5%) of them have monthly income of 500-1500 and only 9(24.5%) gate more than 1500 as well as 11(27.5%) participated at informal education, 15 (37.5%) are illiterate, 7(17.5%) are learned up to grade 7th similarly 7(17.5%) of them learned up to 8th. 34(85%) of MSWC said that we are collecting solid waste from community according to standard (within 3 days interval from houses, and daily from hotel, café etc.) and 6(15%) members said within 5 days interval Like MSWC responded to us 31(80%) of community holed their solid waste properly and 4(10 %) not, similarly 4(10 %) said that some of household holed properly some of them is not .when we asked them what approached do you followed to those who not holed their solid waste properly 3(75%) of them responded that we told to them to improved their practice, the remaining 1(25 %) said that we try to get them a proper punishment.

TABLE 4. From the total participant they gave different type of comments on the solid waste management service and the recommendation as followed.

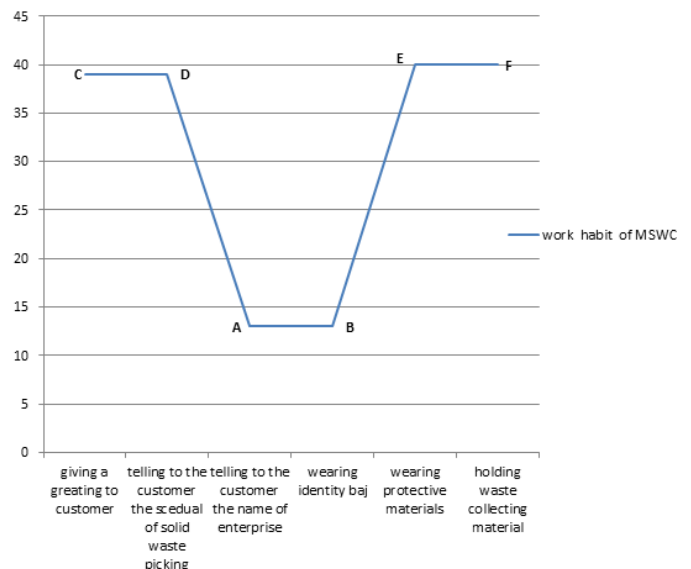
S. no	The comments and recommendation	Frequency	Percent	Remark
1	We don't have any comment	1145	36	
2	It is good	815	25.7	
3	Non respondent	159	5	
4	Dust bin must be placed at every place	701	22	
5	Solid waste will pick daily	142	4.7	
6	The service will continue consistently	209	6.6	



Graph 4. The comparison graph of knowledge of HH about solid waste with their practice.

TABLE 5. Which show the solid waste houling practice and association of solid waste transfer material and plate filling hour.

S.no	Activities	Frequency	Percent	Time which consume to fill one container
1	Holding by back	12	30	4-5Hr
2	Using woden cart	16	40	4-5Hr
3	By using small steel cart	12	30	2-3Hr



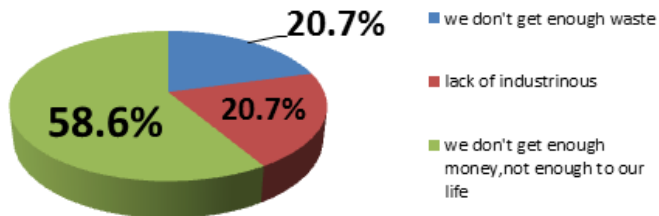
Graph 5. The graph which shown the usual practice of MSWC.

From the graph above:-Point C, D, E and F was showed that the positive work habit of MSWC but at point E there response showed that as they wear protective materials but from on job redundant observation they were poor to wear protective materials and At point A and B a graph was shown MSWC are ignorant to telling their enterprise name to customers and wearing identity baj respectively. Therefore we can be concluded as in lideta subcity the MSWC have a good - relationship with the customer. Even if according to their responded 97.5% members of MSWC wear protective material it contradicted with the observed fact.

Till this research conducted the majority subcity MSW enterprise used wooden cart to transported solid waste, the

enterprise that used an improved transport system (steel cart) are 30 % as well as the same percentage that used unimproved one (holding by back). 29 (72.5%) of MSWC said that from our monthly income we saved 10 %, 11(27.5%) of them said that we 20% relatedly they raised the following reason as an obstacle to increase their saving by pie chart

the reason of MSWC on the obstacle to increase there saving



Graph 6. A pie chart which show the reason of MSW enterprise to increase their saving.

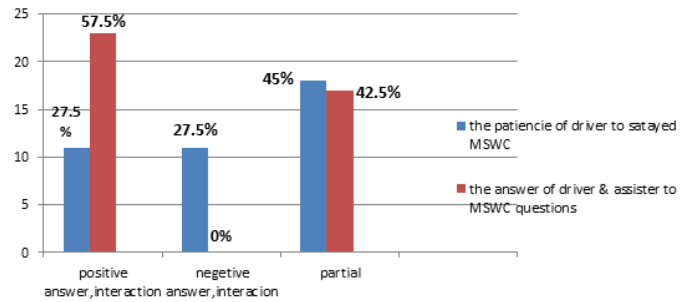
From the above graph MSWC reasoned out the obstacle to increase their saving:-The blue colored (20.7%) show that lack of waste but it may or not; because sometimes they said there is no solid waste even it collected at resident and in there zone similarly 20.7% (the red color) raise proper reason to increase the saving. And The green color show Almost 60% of them have same and real reason to increase solid waste

TABLE 6. Which was shown the solid waste handling practice.

S.no	Identified your usual practice	Frequency	Percent	Remark
1	Tried to improve the solid waste handling system of the community	10	100	
2	Gave fast solution for problems between MSWC and society	10	100	
3	To decrease complain told to the households the reason behind unloading of plate	8	80	
4	Gave fast solution to the problems on service delivery	8	80	
5	Tried to improve the solid waste holding, collecting and hauling system of MSWC	8	80	
6	Tried to give awareness evenly for stakeholders	6	60	

11(27.5%) of MSWC responded that the driver never be stayed us when we remained few waste to fill container,11(27.5%) said yes, they stayed us the other 18(45%) said that some of them stayed us some of them not as well as 23(57.5%) of them said the motorist and their assistant gave a proper answer to us when we asked them, the remaining 17(42.5%) responded that some of driver and assister gave proper answer some of them is not.

From the bar graph:-The driver who are patience to MSWC to staying during they are on work are more positive to give proper answer than the non-patience one but the interaction of most subcity driver and assisters with MSW enterprise is partial which means some of them patience and give proper answer to MSWC and some are not.

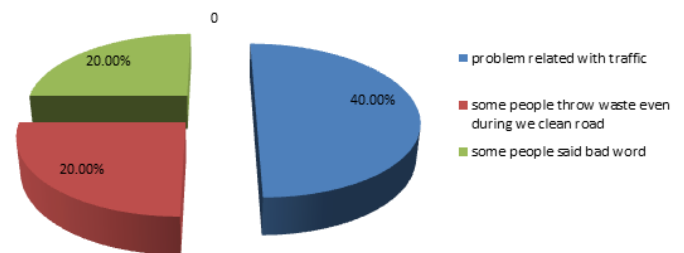


Graph 7. the interaction of MSW enterprise with driver and assister.

C. Road Cleaner

10(50%) of road cleaner their monthly income is 500-1500 similarly 10(50%) of them get more than 1500 as well as 14(70%) of RC are secondary education completer, 6(30%) of them primary education completer. All respondent (100%) said that we cleaned daily the whole kilo meters of woredas road. Although there is a question of consistant cleanness quality. From the annex pie chart

problem on RC during work



Graph 8. the pie charts which shown the problem on RC during their work.

The blue color (40%) of RC were susceptible to the problem related with traffic and The red (20%) and the green (20%) were similarly the problem on RC during they were in work en we asked them about their practice to cleaned channel, drainage and other free space 20(100%) of respondent said we cleaned properly but from the observed fact there was few practical gap to clean these type of area properly.

TABLE 7. Show the idea of RC which they want to improve in their work

S.no	The things which we want to improve in our work	Frequency	Percent	Remark
1	The work materials must arrive timely	5	25	
2	It is good	5	25	
3	Placing of light at every woreda roads	5	25	
4	Properly Controlling and allocating of human resource	5	25	

The work staying time of road cleaner expressed as 14(70%) said from 11 to 1 hours (morning) and the rest 6(30%) said we stayed from 11 to 2 hours. Where did you placed the waste you cleaned from the road? 20 (100%) of them said we transfer and put it in woredas container.

D. Driver

Did you follow properly the work allocation system of subcity? 3(75%) of them said yes we thought, 19(25%) said not. According to their comment the main cause and obstacles

for waste disposal system are 2 (50%) said that MSW enterprise not finished their work on the time and the other two said it may be traffic load, gap from driver, assister or division department of subcity. 2(50%) of respondent said we leave and gone when we were seen car around the plates (loading waste) at districts, 2(50%) of them responded that we tried to gotten the driver of that car to displacing the drivers identified their practice during work as followed 3(87.5%) said we give proper answer to the MSWC question, similarly 3(87.5%) said we Kept the safety of vehicle during load and unload of containers, 2(75%) said we tried to avoid the mixing and lifting receipt of MSW as well as all of them said we Tried to entered the vehicle to service with in a time, Kept the cleanliness of vehicle and Respecting the rule and regulation of traffic

TABLE 8. Contribution of driver in solid waste management.

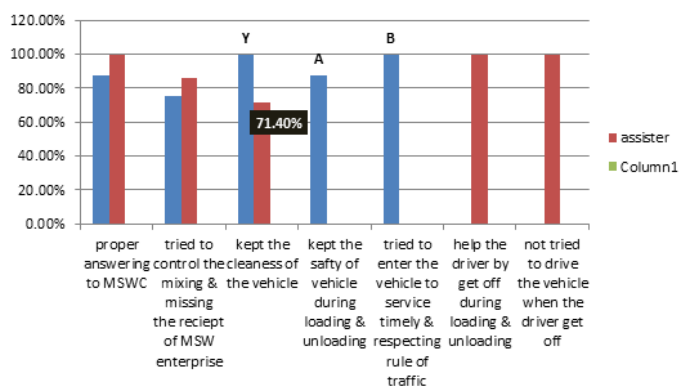
S.no	The drivers responded that their contribution to this work	Frequency	Percent	Remark
1	I am punctual and properly performed my work	3	75	
2	I worked based on the instruction of division class	1	25	

E. Assistant of the Drivers

Did you use the cover of container properly? 7(100%) Of respondent said yes we used and all assisters said we gave a proper answer to MSWC questions, help the driver by getting off from the car during loading and unloading also we are not tried to drive the vehicle when the driver is get off and 6(85.7%) of them said we tried to control the mixing and missing the solid waste receipt of MSWC and 5(71.4%) said we cleaned the vehicle repeatedly.

TABLE 9. Contribution of assisters to this work.

S.no	The assister expressed their contribution to the work	Frequency	Percent	Remark
1	Support driver every day on every work	5	71.4	
2	I followed properly the instruction of subcity	2	28.6	



Graph 9. The graph shown the interaction of driver and assister with MSWC.

From the bar graph:-Label A and B was shown the activities which are only work of driver as well as label C and D were for assister although the other activities are can be share by both of them and as we were seen from label Y all driver tried to keep the cleanness of the vehicle but only 71%

of assister keep the cleanness even if; the assister focused on it rather than the driver

F. Department of Human and Vehicle Class

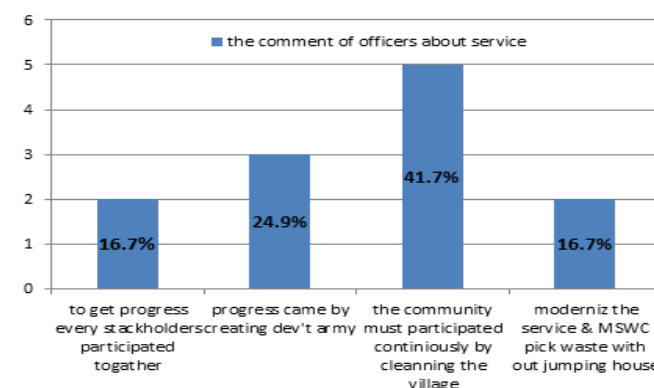
The leader of division class said i have monitoring system to hauling system and evaluation system to driver and assister .I tried to continue the work if scarcity of budget and kerosene was occurred. Also I followed shifting system and extra-time work during the vehicle was stacked by different cause.briefly division work performed as by managing daily driver and assister as well as tried to give feedback especially to driver and assister. My comment to be the division management work is improved for the future is every stakeholders who assigned on this work participated passionately without expecting others Saw the questionior from annex But there are many gaps which related with vehicle and human resource division like fikru tesema recommendation which I expressed in the review part to becoming consistent improvement in solid waste management system the problem related with vehicle must be decreased.

G. Officers

From the total officers I selected 10(15%) to fill the questioner which prepared to them. Most of the officers tried to fulfill their duty but there was gap of coverage and continuity by giving awareness to the community evenly See questioner from graph: - the officers during expressed about their contribution to service since, they assign to the office and the progress on service 5(50%) of them said we worked collaborately with stakeholders, monitoring and supervision and other through this movement there are progress on the Awareness of community, the rest 5(50%) said that we gave an awareness to community about solid waste holding by two materials (decomposable and non-decomposable) and giving immediate answer to the complain of community this brought their trust on the office. also the officers gave their comments and interest on the service as follow

TABLE 10. Show the usual practices of lideta sub city officers which try to performed them.

S.no	Health institution solid waste disposing practice	Frequency	Percent	Remark
1	We gave decomposable and non-infectious waste to woredas MSWC	6	100	
2	We burnt infectious waste in the incinerator	6	100	



Graph 10. The comment of officers to achieve a progress on environmental sanitation.

H. Institutions

a. Educational institution

We tried to assess something about solid waste from eight schools of Lideta subcity from different woredas and I summarized as follows: From the educational institutes all of them said that we have assigned compound cleaners, who clean the class room and the compound of school. About six schools (75%) hold their solid waste by large container in the compound and small container inside the class room. Related with this woreda MSWC picked solid waste daily from 1 school (12.5%), with in two days interval from 2 schools (25%) and from 5 schools (62.5%) twice a week. 5 (62.5%) of schools said that we worked by collaboration with woreda cleansing management office and the remaining 3 (37.5%) schools said no. All schools said that we tried to learn and create an awareness students at sanitation, beautification and greenery.

b. Religious institutes

We asked seven different religious institutes by preparing questionnaire to them. All institute responded that there are MSWC who picked solid waste from their institutes. 1 (14.3%) of them said we were not work with the collaboration of woreda cleansing management office and 6 (85.7%) responded yes we have. For the future they recommended about service delivery it was good by 5 (71.5%) institutes and it was good but it was best to find solution to liquid waste by 2 (28.8%) institutes.

TABLE 11. The main point of religious institutes which recommended about sanitation to their followers.

S.no	Main idea the institutes thought and recommended to the follower about solid waste	Frequency	Percent	Remark
1	We gave awareness by collaboration with Cleansing management office and gave brochure to the follower	2	28.5	
2	We advise them to clean their village by collaborate with their neighborhood	5	71.5	

c. Health institutes

All health institutes responded that woreda MSWC picked solid waste daily as well as 5 (83.3%) of them said we have collaboration with woreda cleaning managements although 1 (16.3%) said we haven't. From these institutes all commented that the service delivery which give by cleansing management office is good but tried to work more

TABLE 32. Show solid waste holding and disposing practice of health institutes in Lideta subcity.

S.no	Health institution solid waste holding practice	Frequency	Percent	Remark
1	Use different types of container for different types of waste	6	100	

I. The Findings

The main findings are based on the primary data and information, logic and observation: the solid waste handling

of HH good but very few of them separate by two materials, two third of MSWC collect and transfer solid waste by wooden and steel cart and there is harmonious relationship between MSWC and HHs, -70% of community are gate a proper service of solid waste collection by MSW enterprise (i.e. according to the standard), -89.5% of community used covered materials to hold solid waste and 7.8% of them holded solid waste separately by two materials., -the knowledge of community highly dependent on their educational level and practice of environmental sanitation, -almost all MSWC have good relationship with HH and 85% of MSW enterprise consumed 4-5 hr to fill one plate (to work around 10m³)

IV. CONCLUSION

Almost 50% Lideta subcity households are house wife as well as monthly income more than 500 birr. From the total households from 39% of them solid waste taken weekly and 28% twice a week. Most of the community are literated and 90% of them holded there solid waste by covered material (properly) and only 7.8% of them separated solid waste by two materials (decomposable and non-decomposable). Almost 85% of community has awareness or knowledge of how much meters is mandatory to clean their village. 85% of MSWC collect solid waste based on the standard. 75.5% of MSWC monthly income of 500-1500 birr. 40% of MSWC enterprise used wooden cart and 30% of them used steel cart to hauled solid waste. almost all MSWC have good relationship with stakeholders and 70% of RC are secondary education completer as well as almost all RC clean all road Km at woreda level which assigned to them. Most of the officers tried to fulfill their duty but there was gap of coverage and continuity by giving awareness to the community evenly.

ACKNOWLEDGMENT

I would like to thanks Cleansing Management Office for sponsoring and the agency worker to help finished this research paper. I would like my wife Marry Gurmu and my child Aledana and Euale Massreshaw to appreciate and participate the research.

REFERENCE

- [1] Addis Ababa City Sanitation, Beautification and Park Development Agency, Current status of dry waste management in Addis Ababa. Unpublished material. Ethiopia: Addis Ababa, pp. 48, 2003.
- [2] Onibokun A. G., and A. J. Kumuyi, The urbanization process in Africa, International Development Research Center (IDRC), Espanol, 2003.
- [3] Onibokun, A.G., and Kumuyi, A.J. "Ibadan, Nigeria," *International Development Research Centre: Science for Humanity*, Ch. 3, 2003.
- [4] Sha' Ato, R; Aboho, SY; Oketunde, FO; Eneji, IS; Unazi, G; Agwa, S, "Survey of solid waste generation and composition in a rapidly growing urban area in central Nigeria," *Waste Management*, vol. 27, issue 3, pp. 352-358, 2006.
- [5] United Nations, Adoption of the Declaration and Programme of Action of the World Summit for Social Development, Copenhagen, 1995. NCONF.166/L.1.
- [6] United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision, vol. II, 2013, Demographic Profiles (ST/ESA/SER.A/345).