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IMPLICATION OF REFUSE COLLECTION CHARGES PRACTICES ON WASTE COLLECTION SERVICE IN SELECTED URBAN AREAS IN TANZANIA.

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1.0 INTRODUCTION

In most growing urban cities in developing countries, solid waste management (SWM) remains one of the most notable and challenging environmental problems (Spaargaren*et a*l.,2005). This has attracted intense debates from scholars and practitioners on how to best organize SWM, especially in relation to whether it should be provided by the public sector alone or it should involve private sector as well Public – Private Partnership (PPP).

In Tanzania, the Local Government (Urban Authority) Act of 1982 section 55(g) has stipulated clearly that local Government Authorities have responsibilities of managing the generated solid waste in their areas of jurisdiction. However, the performance of service provision differs from one local government authorities to the other (Hussein, 2019) For example, while Kinondoni collect less than 40 percent of the generated waste, Moshi Municipality have enjoyed more than 70 percent collection rate (Kingu*et. al*, 2016).

Additionally, Hussein (*et. al*,2019) identified several factors that affect effective waste management service provision in urban areas. Among the identified factors include supportive legal framework, responsive market, convenient waste collection schedule, technological flexibility, and effective cost recovery for the offered services through the collection of refuse charges.

Therefore, it is the interest of this study to assess the aspect of cost recovery through the collection and sharing of Refuse Collection Charges (RCCs) in 5 municipalities in Tanzania and their impact on the offered waste collection services.

2.0 OBJECTIVE

The study aimed at assessing the impact of solid waste fees collection and sharing practices on waste collection performance in selected cities and municipalities in Tanzania

2.1 Specific Objectives

To identify the actors involved in the collection of Refuse Collection Charges

To investigate the process involved in the collection of Refuse Collection Charges

To analyse the refuse collection charges revenue sharing modalities and their impact on waste collection services

3.0 LITERATURE REVIEW

3.1 Revenue Sharing Modalities and waste management services in Sandali Ward in Temeke Municipality

Sandali case which extracted from Hussein (2019) has shown that decentralization of financial resources has a greater impact to the waste collection performance. From the named case informal solid waste collectors reported to collect both generated solid waste and refuse collection charges. Refuse charges highlighted to be collected directly from waste producers through weight/volume based system. Each household or business entity paid refuse charges based on the size of the waste presented during collection. Apart from the gained income the collected refuse charges mentioned to cover waste transportation cost to the damp sites and hiring pushcarts. In the sub-ward the collected refuse charges are not transferred to the municipal account. 100 percent of the collected refuse charges retained by the waste collectors. This system was claimed by Hussein (2019) to enhance waste collection performance in the sub-ward. According to Hussein (2019) the sub-ward observed to be the cleanest in Temeke Municipality. Consequently, in 2019 the sub-ward was considered for exhibition in the World Human Settlement day as the best model of managing solid waste in informal settlements.

3.2 Theories and Concepts

3.2.1 Agency theory

The Agent theory in organizational economics,provide a means of assessing the work being done for a principal (i.e., an employer) by an agent (i.e., an employee). The need for a principal to assess the agent motivated by the fact that the agent can make decisions and/or take actions on behalf of, or that impact, another person based on their own best interests, which is contrary to that of their principals (Pava, 2016).

In relation to the collection of refuse charges Municipal council employees; contracted private waste collection companies; and contracted agencies for collection of Refuse Collection Charges (RCCs) are among the agents of Local Government Authorities. The Local Government Authorities are the principal as far as agent theory is concerned. The relevancy of the Agent theory anchored on the fact that assessment of the performance of various players involved in RCCs collection is very crucial in the fulfilment of the requirement of section 55 (g) of urban Authority Act which require local government Authorities to provide waste management services which include waste collection, transportation, disposal and RCCs collection.

3.2.2 Conceptualizing Refuse Collection Charges (RCCs) collection modalities in Tanzania

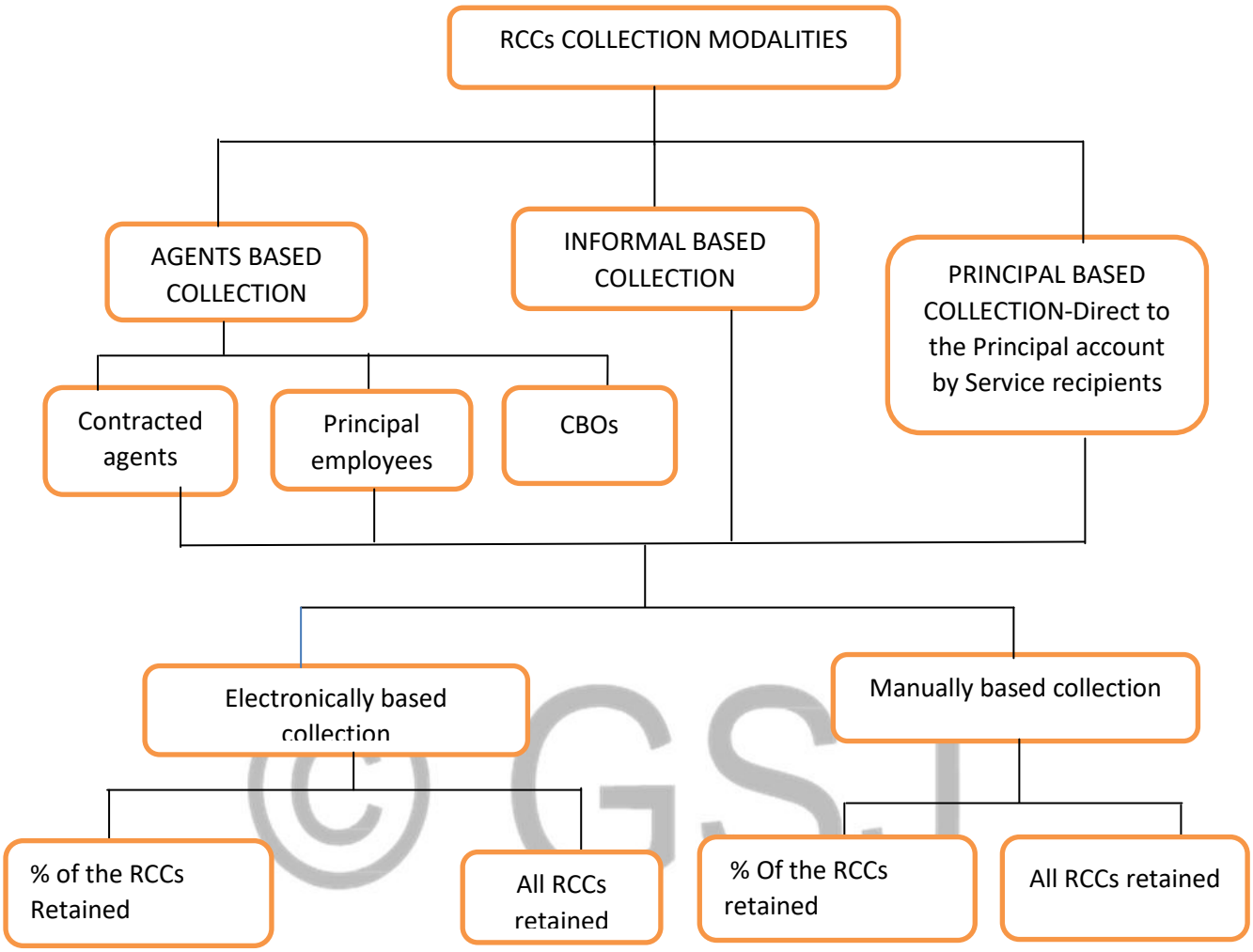

Figure 1: Conceptualizing Refuse Collection Charges (RCCs) collection modalities in Tanzania

Source: Own construct,2020

4.0 METHODOLOGY

The methodology involved a purposeful selection of the five (5) Local Government authorities based on their waste collection performance, waste generation rate, administrative hierarchy, time and resource constraints and the funder preference as part of I4ID Project on Waste management work stream of which I was the local consultant. Regarding administrative hierarchy one City (Dodoma) and four Municipalities (Ilala, Kinondoni, Arusha, and Moshi) were selected. Selection of Kinondoni and Ilala Municipalities was further supported by the fact that the two Municipalities have higher waste generation rate in the Country. For the Moshi Municipality, its inclusion was attributed to the continued

achievement as the cleanest local Government Authority in Tanzania. For the case of Arusha City, it was named as the second-best cleanest city in 2019 and thus, considered as a good case. Additionally, the selection of Dodoma was influenced by fact that the Government Ministries and Departments have moved to the City which resulted into increase of economic activities and population growth.

At each local government Authority a focus group discussion and interviews were made with waste management officers;head of environment departments; health officers; and head of procurement units;finance department officers;Ward executive officers;*Mtaa* executive officers; and representatives of waste collection service providers (Companies and CBOs). Also, observation and review of various documents were part of research data collection techniques. The study used descriptive analysis to analyse the collected data.

5.0 RESULTS AND DISCUSSION

From the five (5) Municipalities it was found that there are similarities and differences in the modalities of managing the collection of refuse charges. Some municipalities opted for agent collection (which may include contracted companies, municipal employees or contracted CBOs),others opted for centralized system where the local government authority collects directly through the authority's account while others allow the informal collection by informal solid waste service providers.

5.1 Refuse Collection Charges Modalities

5.1.1 Ilala Municipality

5.1.1.1 Agent collection

In Ilala Municipality waste collection services divided into 3 zones. The first zone includes all Wards at the Central Business District (CBD), the second zone includes all Wards at periphery of the Municipality and the third zone comprises all remote Wards.

In the first zone which is a CBD the contracted waste collection companies provide both waste collection services and refuse charges collection. The companies used their own employees to collect Refuse Collection Charges (RCCs). The RCCs collectors observed to move from house to house for RCCs collection. At CBD zone the household waste collection fees ranged from Tshs10,000 to Tshs15,000 per month. All the collected RCCs deposited at

Municipal account. The contracted waste collection companies used Point of Sale Machines (POS) for RCCs collection. The POS Machines are provided by the Municipal council. The machines meant for the municipality to track the revenue collected by the Agents. While responding on RCCs collection rate both head ofenvironmental department and operation manager of Green waste Pro (The contracted waste collection companies at CBD) have indicated 60-70 per cent as the average RCCs collection rate at CBD.

In the second zone waste collection services were provided by SMEs, CBOs and Informal service providers. However, the RCCs collection modalities differ. The SMEs and CBOswere operating like waste collection companies wherebyemployees were directly involved in the collection of RCCs on behalf of the Council. The collected revenues by CBOswere not submitted to the municipal account despite the fact that they were using POS machines supplied by the Municipal council. The CBOswere found to retain100 per cent of the collected RCCs. However, SMEs were found to submit all the collected RCCs for later disbursement.

5.1.1.2 Informal Based Collection

In Ilala Municipality, the Wards in the remote areas are commonly receiving waste collection services from informal service providers. Figure…shows informal service providers in Ilala Municipality.

Figure 2: Informal solid waste collection service providers in Ilala Municipality

Source: Field Survey,2019

The informal solid waste collectors were observed to provide both waste collection services and the collection of refuse charges.The charging of RCCs was found to base on the size of

the waste to be collected. Based on that, the RCCs observed to have a range of between Tshs500 to Tshs2000 per collection. Although, the informal service providers operating on daily basis, a household can be visited once or twice a week. Each household observed to have its own collection schedule depending on the quantity of waste generated. Unlike contracted waste collection companies, the Informal service providers are not using POS machines for RCC collection. 100 percent of the collected revenue was found to be retained by individual informal solid waste collection service provider. Figure 3 shows the RCCs percentages sharing and collection modalities

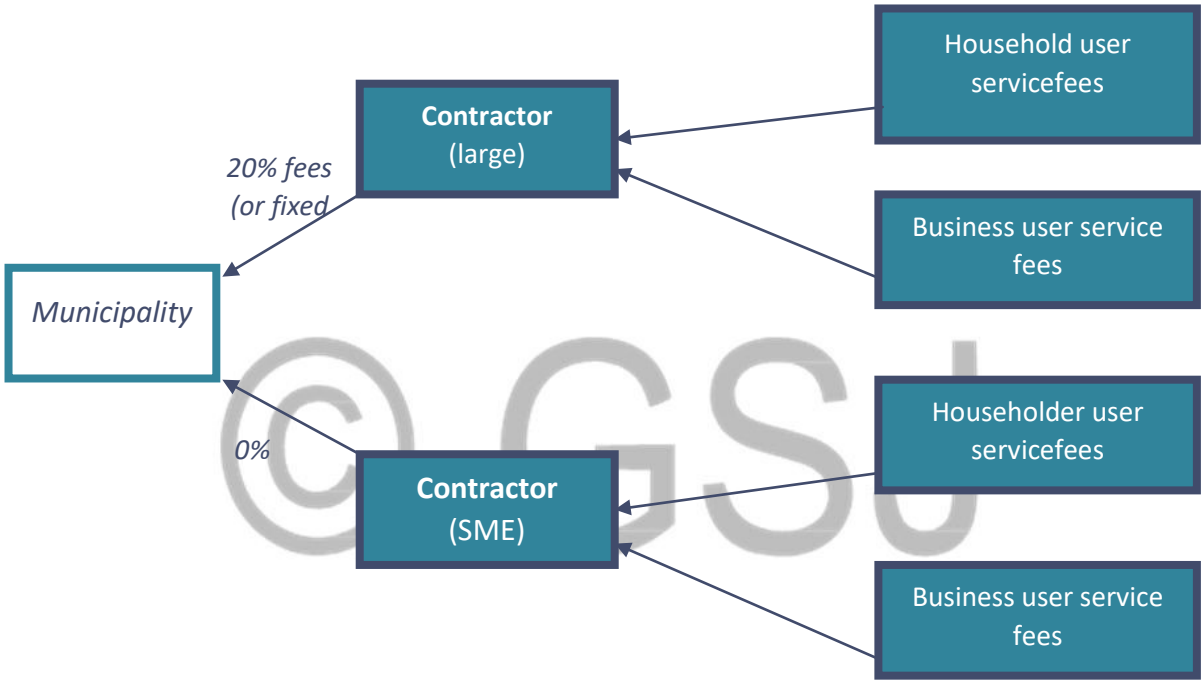

Figure 3: Percentages sharing and collection modalities of Refuse Collection Charges in Ilala Municipality

Source: Field survey, 2020

5.1.2 Kinondoni Municipality

In Kinondoni Municipality waste collection serviced areas were found to be divided based on income status.According to head of environmental department there are; high income, middle income; and low- income areas. Msasani and Masaki sub-wards were highlighted as the high-income areas. The two sub-wards house most of the high ranked Government officials, political leaders, foreign diplomats, and some wealthy individuals. The middle- income areas include;Sinza, Kunduchi, Makongo and Mbezi Beach Wards. TheseWards mostly comprise a mixture of high and middle- income class citizens with very few patchesof low-income residents. The low- income areas divided into planned and unplanned areas. The planned

low-income neighbourhoods include Mzimuni and Magomeni Wards. In the two Wards there are small proportions of medium income residents. Tandale Ward is the best representation of low-income unplanned neighbourhood in the Municipality.

5.1.2.1 Agent collection

In Kinondoni Municipality the RCCs were observed to be collected by Municipal employees who act as agents of the municipal council. *Mtaa* Executive Officers who are the employees of Kinondoni municipal council were responsible for the collection of RCCs in their areas of jurisdiction. The contracted waste collection service providers (i.e. Contracted waste collection companies, SMEs, and CBOs) were only responsible for provision of waste collection services. The RCCs were collected through POS machines given to*Mtaa* Executive Officers by the Council. 100 percent of the collected RCCs highlighted to be taken to the municipal council account. The Municipal council paid service providers in accordance with the number of trips made to the official damp site at PuguKinyamwezi. The service providers were required to raise invoice to the Municipal director for their payment to be done. According to Municipal bylaw the RCCs for households isTshs 3000 while for business and institutions the charges depend on the type of business. During the study the charges were observed to range between Tshs5000 to Tshs150,000 per month.

5.1.2.2 Principal Based Collection

Like in Ilala Municipality also, in Kinondoni the Principal who is Kinondoni municipal council not directly involved in the collection of RCCs. The RCCs collected by *Mtaa*executive officers, who are municipal employees in collaboration with selected committees from the *Mtaa* administrative areas. The role of Municipal council is to facilitate the availability of POS machines for provision of payment receipts. The *Mtaa* executive officers with selected committees were reported to visit door to door for the collection of RCCs. The collected RCCs reported to be later deposited to the Municipal account by *Mtaa* Executive officers.

5.1.2.3 Informal Based Collection

In Kinondoni Municipality informal service providers were found to provide both waste collection services and RCCs collection especially in some parts of the middleand low-income areas. 100 per cent of the collected RCCs were highlighted to be retained by the informal service providers. The size (weight/Volume) of the waste to be collected was

observed to be the base for setting the refuse charges. The rates were found to range between Tshs500 to Tshs5000 per collection. Figure 4 informal service providers in Kinondoni Municipality

Figure 4: Informal service providers in Kinondoni Municipality

Source: Field survey, 2020

Although, the informal service providers operating on daily basis, a household can be visited once or twice a week. Each household has its own collection schedule depending on his/her own preference and the quantity of waste generated. Unlike contracted waste collection companies (Agents), the Informal service providers were not using POS machines for RCCs collection.

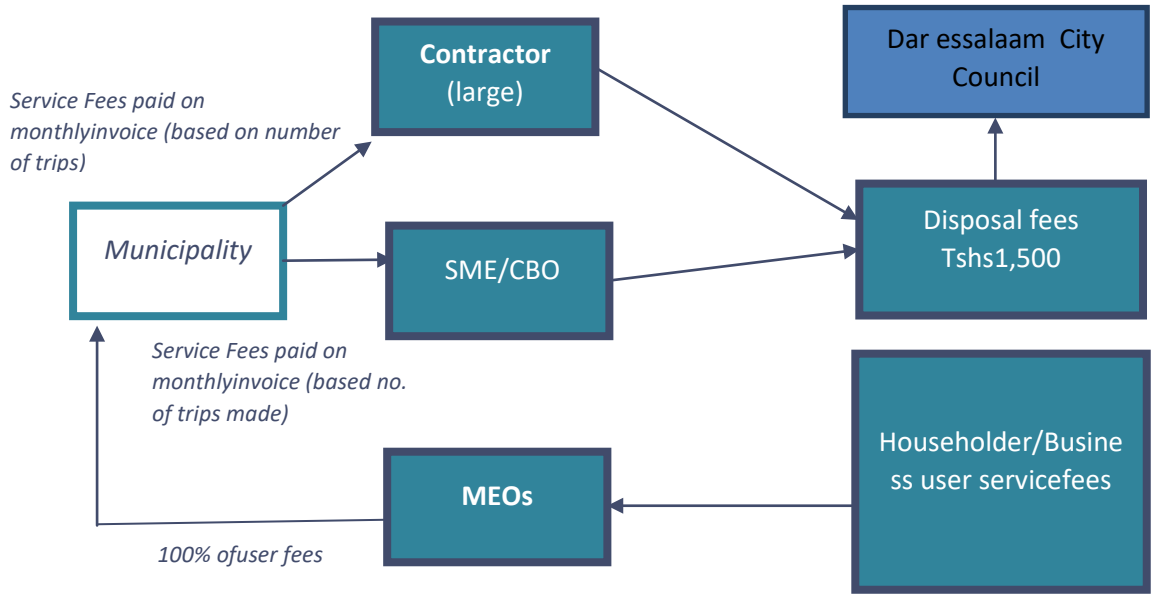

Figure 5: Percentages sharing and collection modalities of Refuse Collection Charges in Kinondoni Municipality

Source: Own construct, 2020

5.1.3 Arusha City

In Arusha City waste collection zones were found to be divided in two major categories which are; central area(known as *Kati)*and the periphery zone. The *Kati*zone comprised Wards which are predominantly commercial while periphery zone comprised predominantly residential and agricultural Wards.

5.1.3.1 Agent collection

In Arusha City the collection of RCC observed to be the responsibility of the contracted waste collection service providers. Both contracted waste collection companies and CBOs observed to provide waste collection services as well as RCCs collection on behalf of the City Council. Also, like in Ilala and Kinondoni Municipalities the RCCs in Arusha City collected through POS machines which given towaste collection providersby the City Council. As it was observed in Ilala Municipality, 100 percent of the collected RCCs were taken to the City council account. The Council pays 80 percent of the collected RCCs back to the service providers. The remaining 20 percent retained by the Council as own source revenue. The RCCs charges inArushafound to range between Tshs2000 to Tshs10,000.

Moreover, while enquiring on the RCCs collection rate; the waste collection service provider at *Kati* area claimed 60 to 70 percent collection rate. However, for the periphery Wards service providers claimed 95 percent collection rate. Head of environmental department and representatives of service providers have declared that the average monthly RCCs collection per Wards to range between Tshs 4,000,000 to 7,000,000.

5.1.3.2 Principal Based Collection

Like Ilala and Kinondoni Municipalities,Arusha City Council was also, not directly involved in the collection of RCCs. The role of the City council wasmerely foundto facilitate the availability of POS machines to RCCs collectors. The RCCs collection observed and highlighted to be done by service providers' employees. 100 per cent of the collected revenue was indicated to be deposited to the City council account. The Head of environmental department was highlighted that the POS machines enabled the City council to track the revenue records. This was further emphasized to enable the council to project the expected revenue as a baseline for waste management tendering advertisements.

Additionally, the Council was found to collect the disposal fees at the landfill site. The disposal fees found to range between Tshs 35,000 to Tshs.50,000. For amount of waste less than a tonne the disposal fee was found to be Tshs35,000 while a disposal fees for a tonne found to be Tshs50,000. The disposal fees at the landfill were found to be applied for those who dispose waste privately at the landfill site. The Municipality claimed to earn 130 million from disposal fees annually.

5.1.3.3 Informal Based Collection

Unlike Ilala and Kinondoni Municipalities informal solid waste collection service providers were not observed to operate in Arusha City. This was also attested by the response of head of environmental department and waste collection service providers (i.e. Contracted companies and CBOs) while responding to the role of informal service providers in RCCs collection. However, there was a reported incidence where a CBO provides both waste collection services and RCCs collection in area where a licence to operate granted to a different CBO. Nevertheless, the unlicensed CBO reported to pay the licensed CBO. The collection of RCCs in that area was highlighted to be performed without using POS machines. Also, the collected RCCs were indicated not to be deposited to the municipal

account. Such operation observed to be like the practice demonstrated by informal solid waste collectors in Ilala and Kinondoni Municipalities.

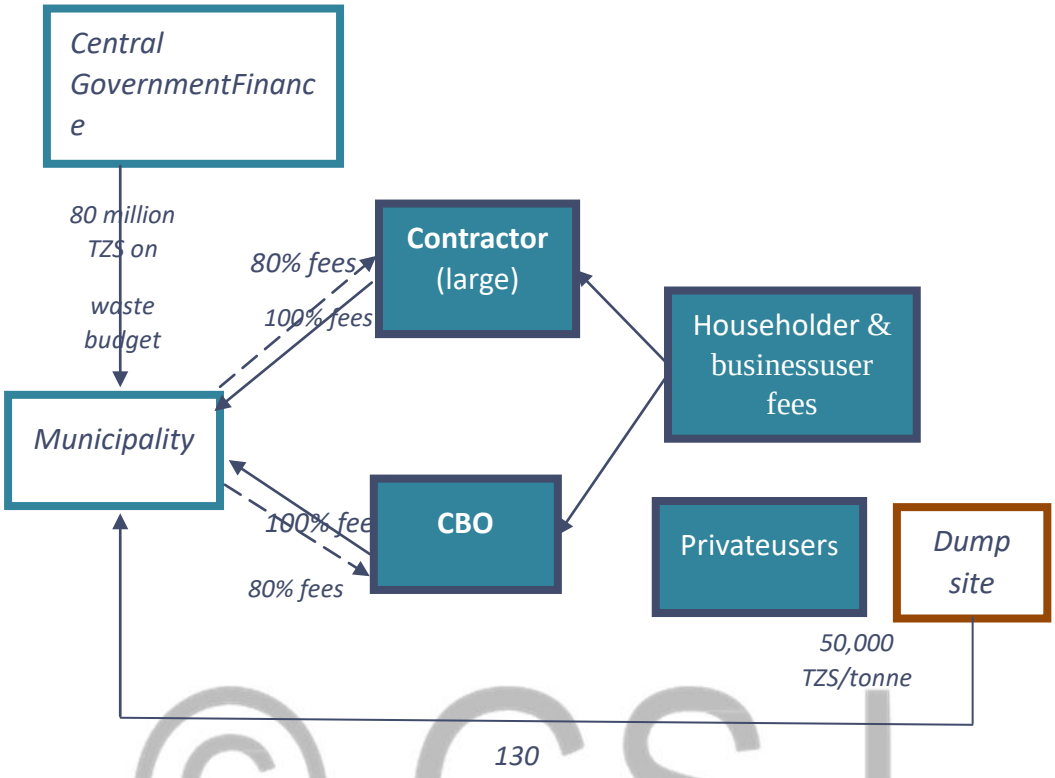

Figure 6: *Percentages sharing and collection modalities of Refuse Collection Charges in Arusha City*

Source: Own construct, 2019

5.1.4 Moshi Municipality

In Moshi Municipality waste collection zoneswere divided into two major areas; central area commonly known as *MjiniKati* and the periphery area which comprises of periphery Wards. The *Kati* area dominated by commercial and institution activities. On the other hand, the periphery zone consists a mixture of residential and some patches of small -scale agricultural activities at household level.

5.1.4.1 Agent collection

In Moshi Municipality the collection of RCCs were indicated and observed to be the responsibility of the contracted RCCs collector's company and Ward executive officers. Unlike Ilala, Kinondoni, and Arusha the Moshi municipality had a dedicated company for RCCs collection. The company was indicated to be obtained through a competitive tendering

process. According to head of environmental department and head of procurement unit the council advertise tenders for RCCs collection on annual basis.

Moreover, similar to Ilala, Kinondoni and Arusha, in Moshi Municipality RCCs was also, observed to be collected through POS machines which providedby the Municipal Council.

According to Ward executive officers as well as head of environmental department the average monthly RCCs collection per Wards ranged between Tshs 4,000,000 to Tshs7,000,000. This was found to be similar to Arusha City.

Additionally, unlike Arusha, Ilala and Kinondoni, Moshi municipal council was not providing waste collection services to industries and large-scale institutions. These categories of waste generators arrange their own systems. However, for them to access the disposal site were required to pay Tshs15,000 per tonneas damping fee directly to the Municipal account through damp manager.

5.1.4.2 Informal Based Collection

In Moshi Municipality informal RCCs collection were neither observed nor reported during the interviews. This was attributed to the fact that waste collection services was efficiently provided by the council. While enquiring on the reason behind absence of informal service providers Ward and *Mtaa*executive officers mentioned the service reliability as the major factor. “Adhering to the waste collection schedule has deprived a room for informal solid waste collectors to exist”added Mawenzi Ward executive officer.

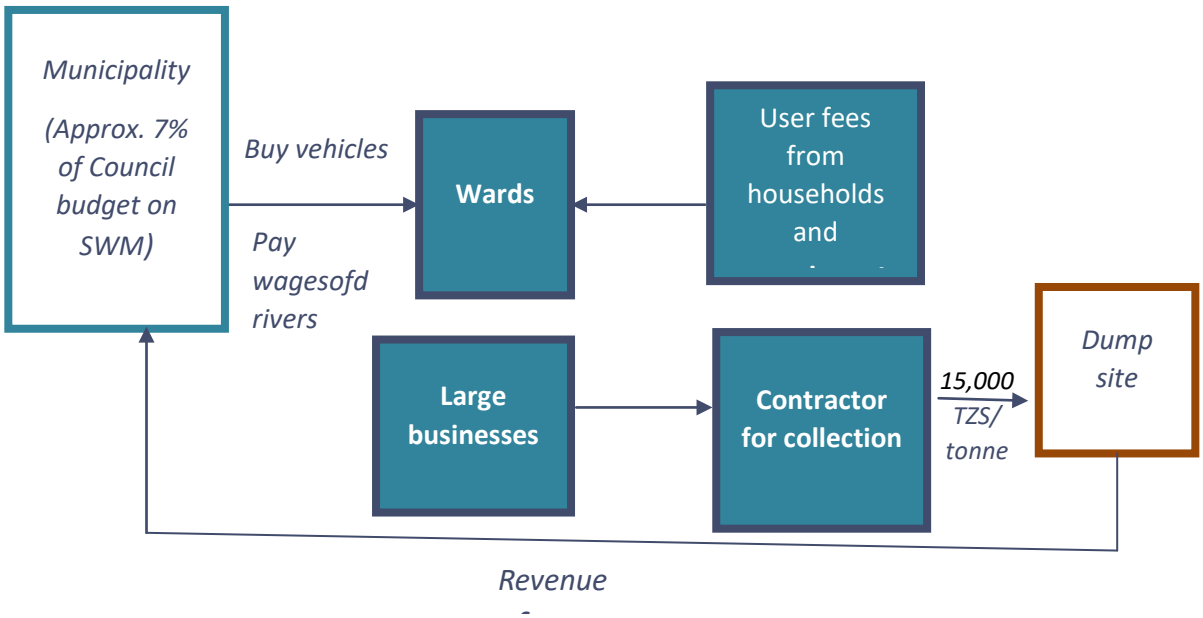

Figure 7:*Percentages sharing and collection modalities of Refuse Collection Charges in Moshi Municipality*

Source: Own Construct, 2020

5.1.5 Dodoma City

In Dodoma City waste collection services divided into 3 zones. The Central Business District (CBD) zone which comprises of 8 Wards, the periphery zone which comprises of 13 Wards and the rural zone which is predominantly agricultural and livestock areas that comprises of 20 Wards. The CBD zone was found to be serviced by contracted waste collection company while periphery zone served by CBOs. The rural zone was indicated by head of environmental department as un-serviced areas.

5.1.5.1 Agent collection

In Dodoma City the collection of RCCs was indicated by city officials as the responsibility of waste collection service providers. However,while RCCs were found to be collected by Green WastePro (the contracted service provider) at the CBD zone, in the periphery zonethe collection was found to be done by CBOs.

Moreover,unlike contracted waste collection companies CBOs and SMEs were not observed to use POS machines. But similar to Ilala Municipality, 100 percent of the collected RCCs by contracted waste collection companies were found to be deposited at the City council account and paid back to the service provider's account in full amount (i.e. without any deduction). For the case of CBOs and SMEs all the collected RCCs were found to be retained by the service providers. Theywere only found to pay Tshs50,000 per skip bucket as waste transportation cost for the skip bucket from the transfer station to the landfill. The skip buckets were indicated to be supplied by City Council.

Figure 8: *Municipal skip loader taking the Skip bucket for transportation to the landfill*

Additionally, while enquiring on the RCCs collection rate; the Green Waste Pro company's representative and Environmental Officer at City Council claimed 70 per cent to be an average rate of the RCCs collection at CBD. However, for the periphery Wards the collection rate was indicated to range between 60 to 70 percent.CBOs were reported to collect between Tshs4, 000,000 to 7,000,000 per month. For the Green WastePro Company, the RCCs collection was reported to have increased from Tshs47 million in 2017 to Tshs70million in 2019.

Also, while responding on the time taken for the disbursement of the collected RCCs from the City Council account to GreenWastePro; both Green waste Pro representative and City environmental officer have indicated 2 months was the average time.

5.1.5.2 Principal Based Collection

Similarly, to Ilala, Kinondoni, and Arusha also, Dodoma City Council was found not directly involved in the collection of RCCs. The role of City council was observed to be the provision of POS machines to RCCs collectors to enable provision of receipts to the customers. The POS machine was also, indicated to enable City council to track the payment history.

Moreover, unlike CBOs and SMES the waste collection service providers were found to pay Tshs10,000 per tonne as disposal fee at the city's landfill. The disposal fees were observed to be collected by municipal officials and directly deposited to the city account.

5.1.5.3 Informal Based Collection

In Dodoma City there was no informal RCCs collection observed or reported. This was highlighted to be caused by the involvement of CBOs and SMEs in collecting both waste and RCCs without depositing any share of the collected RCCs to the City council account. That was claimed to encourage residents to form CBOs rather than working informally. The CBOs and SMEs were indicated during the interviews to cover greater part of the city and thus there was no space left for informal service providers. However,in rural areas neither CBOs, and SMEs nor informal service providers were found to operate.

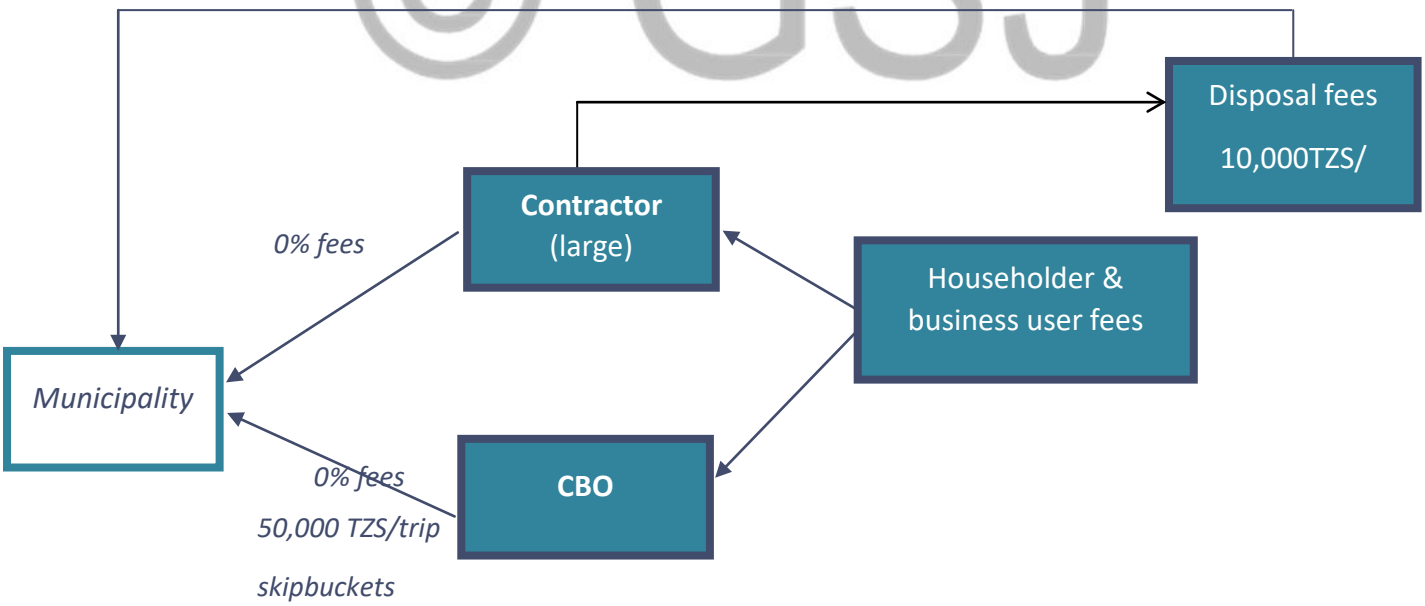

Figure 9: *Percentages sharing and collection modalities of Refuse Collection Charges in Dodoma City*

Source: Own construct, 2020

5.2 The impact of Refuse Collection Charges (RCCs) Modalities to Waste Collection service

This section analyses the impact of RCCs collection modalities on waste collection service in five (5) Local Government Authorities which are Ilala, Kinondoni, and Moshi Municipalities and Dodoma and Arusha Cities. The study concentrates on modalities of RCCs collection specifically revenue sharing percentages and revenue sharing systems.

5.2.1 Ilala Municipality

5.2.1.1 Revenue sharing percentages and waste collection performance

In Ilala Municipality revenue sharing percentages from RCCs were indicated to be guided by the type and capacity of waste collection service provider. The contracted waste collection companies were observed to pay 20 percent of collected RCCs to the Municipal council. For example, in Kariakoo (a part of CBD) wherethe monthly refuse charge collection was indicated to approximatelyreach Tshs600 millionthe Ilala Municipality received about Tsh120 million. The shared percentage claimed by both Municipal officials and waste collection companies' representatives to be enough to cover the waste management cost and ensure effective service provision. This was also been reflected on the level of services in the CBD. Both service provider representative and municipal officials have confirmed that the revenue sharing percentage in CBD (specifically in Kariakoo Ward) has enabled the waste collection service provider to provide service 24 hours a day.

5.2.1.2 Revenue Sharing systems and waste collection service effectiveness

While responding on the modalities of revenue sharing; both municipal officials and waste collection companies have indicated that 100 percent of the collected revenue submitted to the Municipality as indicated in Figure 3. The Municipal council authority was indicated to reimburse 80 percent of the collected RCCs to the contracted waste collection companies. However, both municipal officials and contracted waste collection companies have highlighted that there have been delays of one to two months before the service providers reimbursed. This was claimed by service providers to seriously affect the waste collection performance. Service providers claimed to be forced to find other sources of revenue to continue providing services while waiting for the reimbursement. This was highlighted by service providers as a stumbling block for provision of better services especially for those

operating outside the CBD. “Payment delays affect the ability of service providers to cover operational cost and consequently the quality of the waste collection service deteriorated,” claimed by Green WastePro Company representative. Also, a representative from TIRIMA waste collection Company further added that, “Although there is a potential of providing 90 to 95 per cent waste collection rate the payment delay hampering achievement to that target”. The areas serviced by contracted waste collection companies found to enjoy only about 70 percent of waste collection rate.

Moreover, unlike the contracted waste collection companies, CBOs and SMEs were found to retain 100 percent of the collected RCCs without sending the collected RCCs to the Municipal account. This claimed to enhance the resource mobilization capacity for CBOs and SMEs as their capital observed to be inadequate for effective service provision. While responding on the reasons for allowing CBOs and SMEs to retain 100 percent of the collected RCCs, Municipal Environmental Officer attributed that decision to the empowerment strategy for the CBOs and SMEs to compete with waste collection companies. He further added that, “CBOs and SMEs would never be able to stand the bureaucratic procedures while waiting for their payments from Municipal council. Thus, we allow them to retain all the collected RCCs to be able to cover day to day waste management cost”.

5.2.1.3 Billing system and waste collection performance

According to Bilitewiski (2008), waste collection charges can be flat rate or volume/weight based. In a volume-based billing system a service recipient often chooses the collection frequency and/or size of the bin (Dahlén and Lagerkvist, 2010). The system allows service recipientsto be charged per weight of the generated waste (ibid).

In Ilala Municipality a flat rate billing system was observed and reported by both municipal officials and service providers. The system was observed tobe commonlypracticed in areas served by both contracted waste collection companies and CBOs/SMEs. Through this system it was indicated that the service beneficiaries paid on a monthly basis directly to the service providers.

However, in areas served by informal service providers a volume-based billing system was observed to be a common practice even thoughmunicipal authority does not support it. Informal solid waste collectors were found to charge service recipients based on the size of the waste produced. The service recipients were found to pay waste collection fees directly to

informal solid waste collectors based on the volume of waste generated. Unlike formal service providers the informal solid waste collectors were observed to incur zero waste disposition cost. They were observed to dispose the collected waste in unauthorized areas such as open spaces and along the rivers as shown in Figure 10.

Figure 10:*Informal solid waste collectors dispose waste at Msimbazi River*

Absence of disposition cost for informal solid waste collectors has contributed to the environmental pollution through improper solid waste disposal. The disposition cost will provide a room for the collected waste to be properly disposed in authorized areas.

Moreover, while responding on the impact of billing system to the waste collection performance especially to formal service providers; both municipal officials and formal waste collection service providers have indicated that monthly collected fees are enough to cover waste management cost and making profit. However, in an environment of ineffective fees collection a volume based billing system would more appropriate as indicated in Dahlén and Lagerkvist (2010) andHussein (2019 *et al*).

5.2.2 Kinondoni Municipality

5.2.2.1 The impact of RCCs sharing percentages and modalities on waste collection performance in Kinondoni Municipality

In Kinondoni Municipality the number of waste collection trips made by service providers was found to be applied in deciding the shared percentages of RCCs between Municipal council and service providers. As shown in Figure 5 the Municipal council collected RCCs through its empoyees and paid the service providers based on number of waste collection trips made. However, both service providers and municipal officials have indicated that the payment process to have been taking 3 to 4 months. Thus, 50 percent of the service providers were reported by municipal environmental officer to have stopped service provision. This was observed to affect the waste collection rate in the Municipality. For example, different parts of the Municipality were observed to have heaps of uncollected waste especially along major roads such as Morogoro, Kawawa, Bagamoyo and Mlandizi as indicated in Figure 11.

Figure 11: *Uncollected Waste along the Mlandizi road*

While responding on the reasons behind spreading of heaps of uncollected waste in the municipality; the municipal environmental officer has indicated that, “the current revenue sharing modalities have made waste collection rate to decline from nearly 50 percent to less than 20 percent. If the revenue sharing system is not going to be changed the situation will get worse,” he further added.

According to waste collection service providers representatives and municipal health officers the municipal council was payingTshs400,000per waste collection trips. However, the waste collection contractors found to owe the Municipal council over 2 billion Tanzanian shillings. This claimed by service providers to affect their service provision capacity. Consequently, only high-income neighbourhood were benefiting from regular waste collection services. The rest of the municipality observed to get irregular services and thus, heaps of uncollected waste scattered in various places.

5.2.3 Arusha City

5.2.3.1 Revenue Sharing percentages and waste collection performance

In Arusha City waste collection service providers (i.e. Companies and CBOs) were found to pay 20 percent of the collected RCCs to the City council. The collection trends were found to have increased from 50 million in the financial year 2015/2016 to Tshs600 million in the financial year 2018/2019. Waste Management department reported to be given Tshs400 to 500 million from annual municipal budget for its operations. While responding on the effectiveness of the shared percentage on covering waste management cost; both municipal officials and service providers declared that the percentages were enough to cover waste management cost for both Municipal council and service providers. This was also, supported by the fact that in 2019 Arusha City was declared the second-best cleanest City in the country. However, the challenge was observed to be timely disbursement of the collected RCCs to the service providers. This was found to reduce the level of waste service effectiveness as some of the operation cost was highlighted mustbe covered on daily basis. While responding on waste collection rate head of environmental department has declared that the City managed to collect nearly 67 percent of the generated 200 to 300 tonnes of waste per day.

5.2.4 Moshi Municipality

5.2.4.1 Revenue sharing percentages and waste collection performance

The revenue sharing modalities and percentage in Moshi Municipality were found to be unique compared to most local Government Authorities in the Country. Unlike most local authorities in Tanzania waste collection responsibility was not outsourced in Moshi

Municipality. The council was directly involved in the provision of waste collection services through Ward and *Mtaa* (Sub-wards) offices. Also, 100 percent of the collected refuse charges were found to be retained at the Ward and Sub-ward level. Such decentralization of resources and responsibilities was claimed by Ward executive officers to expedite the response towards waste management issues including; fleet maintenance, supervision and casual labour payments and thus, have ensured reliability and quality of the rendered services. The lower level Government (i.e. Ward and Sub-ward) claimed to be very responsive to customers' complaints as resources were within their reach.In the case of truck breakdown they have claimed to be able to hire private truck without waiting from the council. This claimed to guarantee the quality and reliability of the service. That was highlighted as one of the reasons attributed to Moshi Municipality managed to maintain the top position in the cleanest competition in the Country. In 2019 Moshi Municipality was named as the cleanest Municipality in Tanzania.

5.2.5 Dodoma City

5.2.5.1 Revenue Sharing percentages and waste collection performance

In Dodoma City waste collection service providers (i.e. Green WastePro Company and CBOs) were found to retain 100 percent of the collected RCCs. The CBOs collect RCCs and retained without any submission to the Municipal account. However, for the case of the contracted waste collection company the collected RCCs submitted to city council accounts and later claimed by the service provider. While responding on the time taken for reimbursement both Green WastePro Company's representative and City officials highlighted that 1 to 3 months being the average time taken for reimbursement. It was further attested that the reimbursements delay affects the waste collection performance. This was highlighted to be attributed to the fact that some of the costs were covered on daily basis. Fuel for running vehicle and labourers' payments were mentioned as among of the daily operational cost.

According to Green WastePro representative a payment delay in some occasions lead to inconsistency service provision. The Service provider claimed to fail to abide to waste collection schedule due to inadequate funds caused by disbursement delays. This highlighted to affect their capacity to fix the broken trucks on time. The inconsistency in service provision was also observed to increase waste management cost as the accumulated

wasterequire more resources. That was also highlighted to affect the consumer willingness to pay and thus, the quality of service offered.

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Even though the indicated sharing percentages of refuse collection charges were found enough to sustain service providers operations, the sharing modalities were the major stumbling block. The existing practice whereby, service providers submit all the collected refuse collection charges to the municipal account for later disbursement back to the service providers' account is ineffective and threat to the sustainability of waste collection service providers. The average of one to six months for the disbursement provides no room for small and medium scale service providers to survive. This has also, contributed to the ineffective waste collection service provision in many urban areas in the Country.

In addition to that, considering waste management as a source of revenue by local Government authorities have negatively impacted the revenue sharing modalities and percentages and thus, waste management performance. Spending refuse collection charges for other local government authorities' needs cause delays in compensating service providers. This has massively affects the operation of service providers and consequently, the quality of the offered services.

6.2 Recommendation

6.2.1 Ring facing refuse collection charges

The current trends were refuse collection charges regarded as a source of revenue should be reversed. There should a specific solid waste management account in local Government authorities. The collected fees should be dedicated only to waste management operations. Alternatively, the waste collection service providers should retain all of the collected RCCs. The local Government authorities should only supervise the operations of contracted service providers. If there must a need to subside supervision cost the service providers may pay to the local Government authorities the amount not exceeding 20 per cent of the collected RCCs. The local Government authorities will continue to track the collected RCCs through POSs machines.

6.2.2 Provision of minimum time limit for RCCs share disbursement

The current trend of one to 3 months for the reimbursement of the required share of RCCs from Municipal council to the service providers should be shortened to maximum of two weeks.This should be stipulated in the contract with serious penalties in case of failure to accomplish this requirement.

6.2.3 Decentralization of the RCCs collection and expenditure to the Ward level.

The current practices have shown that Ward and Sub-ward levels are highly involved in management of waste collection. Therefore, like in Moshi Municipality the RCCs should be collected and deposited at the Ward account. Also, the collected RCCs should only be involved on waste management activities. The LGAs should ensure availability of proper mechanism to control the spending through "eyes on hands-off" strategy.

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