

An Investigation of the Roles Performed by Community Based Organisations in Solid Waste Management and Challenges They Face: A Case of Tandika Ward in Temeke

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Abstract

This paper investigated the roles performed by Community Based Organizations (CBOs) in solid waste management and the challenges they face. Tandika ward in Temeke Municipality in Dar es Salaam Tanzania was used as a case study. The rapid population growth and increase in Technology has led to increase in quantity of solid waste production in the community which results into poor management of wastes by the municipality. To overcome this problem the Dar es Salaam City Council in 1994 decided to involve the Community Based Organizations which were interested in participating in solid waste management practices. The study employed qualitative approach with a case study design. Key informant interview was the main method of data collection whereby 12 respondents were interviewed. Content analysis was used to analyze the data. The study found that there was only one CBO in Tandika ward involved in provision of waste management services such as door to door collections, cleaning of the roads as well as street sweeping in one sub ward only. Their waste management practices were held back by some challenges such as lack of willingness of the household to pay collection fee, poor working facilities, poor infrastructures, low number of workers, monitoring and excessive wastes production.

Keywords

Dar es Salaam, Temeke, Tandika, Solid Waste Management (SWM), Community Based Organizations (CBOs)

1. Introduction

Community-based waste management is a necessary activity that needs to be carried out by members from the same community, because it is in line with the local people's needs, their priorities and capacities hence improving efficiency and effectiveness [9]. The rapid population growth and increase in Technology has led to increase of a large quantity of solid waste production in the community which resulted to poor management and uncollected waste by the municipalities. These imply that people in the community have to form organizations to deal with waste practices in their area as waste management is very important in their life.

But, since the independence of Tanzania in 1961 up to 1993 the role of solid waste management was being managed by the Dar es Salaam City Council (DCC) where they were tasked with collecting, storing, transporting, disposing, sweeping streets, managing the sites and recycling the wastes [30].

Due to the failure of Dar es Salaam City Council to manage wastes, people living in the unplanned and informal settlement were affected by environmental pollution and water contamination, flooding and frequent outbreak of diseases such as cholera, diarrhea and typhoid fever [22]. So, the failure of Dar es Salaam City Council to conduct its responsibilities became a driving force to decentralize the solid waste management services. In 1994 the Dar es Salaam city council decided to privatize some of the waste

management services specifically waste collection and disposal to private operators such as private companies and Community Based Organizations (CBOs) [15].

The Community Base Organizations (CBOs) aims and objectives are more on resident organizations to improve waste collection and green aspects of sustainable development. Moreover, the establishment and participatory workmanship of CBO's, it has to originate from within a community and usually be led by community leaders hence they are in a better position to prioritize problems within their context [19, 28].

After the establishment of these Community Based Organizations, the main objectives were to specialize in primary collection while private companies and other CBO's had to do both primary and secondary collection of wastes including collection, storing and transporting the wastes to the dumpsites [12]. According to [8], it was estimated that approximately 4,200 tonnes of solid wastes per day were generated in DSM by the year 2011. This represents a generation rate of 0.93 kg/cap/day based on a population of 4.5 million and using the population growth rate of 4.3% and a generation rate of 0.815 kg/cap/day.

Temeke Municipal is one among the Municipals of Dar es Salaam. The waste management is conducted by the Municipality itself, private companies and Community Based Organizations. Despite the three organs to be involved in solid waste management process whether individually or collaboratively the Temeke Municipality especially in unplanned areas and informal settlements such as Nyambwela and Kilima hewa are still very dirty [17]. In Temekefor example, there are different CBOs that are involved in solid waste management. These include Upendo Youth Group (UYOGRO) situated at Mtonikwa Azizi Ally and Boresha Mazingira Kata yaKurasini (BOMAKU) situated at Kurasini. Despite the presence of these CBOs the solid waste produced are not well collected from the production areas the amount of waste produced per day is enormous that is 1,035 tonnes and the amount of waste collected per day is 280 tonnes which equals to the rate of 27% [5], leaving 73% of solid waste uncollected.

On top of that, CBOs encounters many challenges in its daily operations, for example the study conducted in Kinondoni Municipality by Oberlin, [22] who worked with CBOs such as Kisutu Women Development Trust (KIWODET), Tua Taka Makurumla (TTM) and Kinondoni Environmentalists (KENS) revealed a lot of challenges in the implementation of their work on solid waste management such as infrastructure, policy, attitudinal and political changes. 70% of the people who live in unplanned area and have very little access to available waste management services have failed to use municipal waste containers and there is no space for placing containers due to their informal nature of settlement [22]. These challenges always lower the performance of waste management practices by the CBOs.

Therefore, the studies which have been provided show that the Temeke Municipality is still dirty especially Tandika ward regardless of the CBOs present, hence this study aims

to investigate the roles performed by Community Based Organizations (CBOs) and their challenges in solid waste management as there is no single study so far conducted in Tandika ward to investigate the roles of CBOs and the challenges they face.

2. General and Specific Objectives

The general purpose of this study was to investigate the roles performed by the CBO's in solid waste and the challenges they are facing in its management. The specific objectives that governed the study were as follows; the first was to explore the activities performed by Community Based Organizations in solid waste management in Tandika ward and the second was to examine the challenges facing Community Based Organizations in their management of solid waste. These two objectives followed by the key research questions which were:

- i. What are the activities performed by the Community Based Organizations in solid waste management in Tandika ward?
- ii. What are the challenges faced by the Community Based Organizations face in managing solid wastes?

3. Literature Review

The role of CBOs in waste management is still limited but is growing at a good speed since the year 1994. For example, in Nairobi Kenya the number of CBOs in 1998 were 15 and up to 2009 the number of CBOs increased up to 135 [21].

3.1. Door to Door Collection System

The community based organizations have been involved in collecting wastes from different sources such as the household and transport them to the nearest municipal containers. This is the primary function of any CBOs but when they are matured they involve in secondary functions such as transportation to the dumpsite as well as recycling. Door to door waste collection systems differ a little according to the different country. In Uganda door to door is applied to the place with high income zone and the Central Business District where the zone is well planned with wide road networks that can easily accommodate the collection trucks [2]. In unplanned area the handcrafts and the wheel barrow are used because the road is narrow and foot path cannot accommodate the collection trucks. The frequency of door to door collection in Uganda differs between low-income and high income groups. In high income groups the CBOs collects often 3 times per week while in low income groups collects 1-2 times per week [23]. In Camilla city in Bangladesh, the door to door waste collections conducted by the CBOs exist in parallel with the official agencies in 18 wards where they use different types of vehicles such as four hydraulic trucks, seven min trucks, bimlift truck and four tractors [20]. But in most cases, Bangladesh uses tricycle vans for primary collection of wastes which involved the door to door [3, 13]. In Nepal Netherlands the door to door

waste collection service is provided by the CBOs where the waste is transported straight from the source to a collection vehicle at a given time so as to avoid the need for multiple handling of waste and also reduces the cost of street sweeping [24]. In Kenya the door to door system involves the use of trucks and pushcarts in unplanned area with low income people where the road is narrow [4].

Door-to-door collection of waste in India takes place on a daily basis on either pushcarts or Rickshaws. After the waste has been collected from the households and the common areas have been swept, the waste is transported to the site with auto rickshaws [6]. The same process is also applied in Chennai city in India [19].

The appreciations of door to door service is high since the households are in a position to ensure that the service is provided by the collection workers that is a customer client relationship. Also this has been supported by [29] that the people are typically more willing to pay for direct door to door service especially to those who know and trust to deliver the service. For example, in Tanzania, Dar es Salaam there are some individual collectors (informal sector) who collect wastes and get payments from the households [27]. Similarly, [4] reported that some residents in Accra pay waste pickers to carry out their wastes to the communal areas. In Tanzania the door to door collection system is similar to that of India and Kenya as the process involves use of trucks and pushcart in low and medium income households [4, 27]. It is interesting to note that the community groups in Dar es Salaam are responsible for collection and transportation of wastes from the households to the transfer stations and municipalities assist them to transport from transfer stations to the disposal site [14]. These imply that the role of CBOs in Tanzania is still limited in terms of financial resources.

3.2. Communal Collection System, Storage and Street Sweeping

This method is used by service users in the medium and low income zones where refuse skips are placed at accessible locations for business operators to carry and dump their wastes for collection by the collection trucks. In Uganda the households stored their wastes in bins, sacks, plastics bags, jerry cans, cardboards, boxes for the low –income household. The wastes storage containers used by the poorer in the low-income group are dumped by with the wastes (example sacks, polythene bags and boxes) [23]. The distance between the location of the refuse skips and sources of wastes is far from some service users that is about 500metres to 1kilometre hence they can end up dumping the waste along the way especially at night [2]. In Comilla city in Bangladesh the stationary containers system is adopted for the waste collection. The waste containers remained at the point of waste generation where they are kept at open space along streets ends or junctions [20]. In cases where the collection crew fails to adhere to the collection schedule and the skips get filled up, service users resort to dumping the waste just around the refuse skips [11]. In such areas, it is common to see wastes in open drains or collection points littered with

garbage. The waste collection workers usually complain about the littering habit among other service users. This involves collection from the area where CBOs have least interest to provide collection services [7].

Apart from the door to door collection system and communal collection and storage, the CBOs also involve in street sweeping as one of the activities done by the Community based organizations, they clean the streets usually in their area or any other street in which they have agreement with the municipal to clean and remove dead animals [30]. They normally use brooms and shovel to clean off litter and reduce the pollutant loads like leaves, pet/animal debris, heavy metals, oils, grease, sediment, etc to the Bay [26]. In India the employed members of CBOs are engaged in the street at least once in a day using brooms, brushes, rotomould wheel bins, wheel barrows and long brooms [25]. On top of that the study conducted by [13] in Khulna in Bangladesh revealed that CBOs engaged in waste collection by by door to door system as well as street sweeping.

3.3. Challenges Facing CBOs

Many CBOs are facing a number of challenges in the implementation of their work. In Ghana the population pressure and economic hardships are the major problems facing the CBOs in waste management [1]. In Netherland and Chennai in India the CBOs are facing the challenges on the law enforcement on the waste management as the laws on waste management practices are not enforced which may be attributed to inherent weakness of the law [18, 19]. Therefore the informal sector and the community based organizations operate with little or no regulation at all in Netherlands. In India the CBOs are facing with a number of challenges such as the lack of the financial resources, non- co-operation of the population in the community and inaccessible area like narrow lanes [25]. Apart from that CBOs in India facing a challenge in implementing daily street sweeping following the shortage of sanitary workers and public holidays [10]. In Tanzania, low participation of house hold in collection system and low willingness to pay waste collection charges seems to be the main challenges to CBOs. Also financial problems and lack of cooperation within the municipalities in waste management are also the challenges facing them [16, 17]. Apart from that the infrastructures for solid waste management at household level, there are highly inadequate of things such as litter bins, carts, transfer stations, wheelbarrows, inadequate vehicles as well as poor road condition as most of the people lived in unplanned area hence failed to use municipally prescribed waste containers [22].

3.4. Knowledge Gap

It seems that the roles of many CBOs are not well document and also there is little information available in regard to their performances in terms of their activities in solid waste management services they provide. A number of studies on management of waste by CBOs have been

conducted in Dar es Salaam and Temeke particularly, no study has been conducted to investigate the roles of CBOs in waste management and the challenges they face in delivering the services to the societies in Tandika ward. This study aimed to fill the gap.

4. Methodology

4.1. Study Area

This study was conducted in Tandika ward in Temeke Municipality in Dar es Salaam. This was the purposively selected because most of people lived in Temeke have low income and lived in unplanned and informal areas [17]. Also its rate of waste collection is very low (27%) compared to Ilala 39% and Kinondoni 41% per day [8], hence the chance of getting representation of the population was greater. The representative members of the CBOs were purposively selected as a sample size in Tandika ward depended on the number of CBOs present in Tandika ward. Also the Healthy ward officer was purposively selected as is the one who register and supervise the CBOs in the ward. On top of that 10 households were purposively selected as they are the one who were served by CBOs for the purpose of justifying what the CBOs member said as well as the Health ward officer in the ward.

4.2. Research Design and Data Collection

The study employed a qualitative research approach where a case study research design was used. Qualitative data on roles performed by the CBOs was collected by using key informant interviews. Key informant interviews were held to the people who believed to have in-depth information about the roles performed by the CBOs in waste Management such as Health ward officer and CBOs leader in Tandika. Also 10 household members were interviewed to validate the information which was given by the CBO leader and the Health ward officer.

Data were analysed by using content analysis technique. Data from key informant interviews were interpreted and organized into different themes based on ideas and concepts and finally the themes were analysed according to research questions.

5. Results and Discussions

5.1. Introduction

The findings revealed that there is only one CBO present in Tandika ward Namely Chihota Environmental Group which was established in 2000. The CBO owned by the by the members of the street government of Tandika and they took the name of one the street in the ward namely Chihota. Apart from that the CBO had no its own office rather it used the office of the street government in Tandika. This was the first CBO in Tandika ward to be established up to now as before there was a private company called Mushi company

which ceased to operate following the unwillingness of the people to pay waste collection fees due to its poor performance. Still there was only one CBO in Tandika ward as people in Tandika lack awareness in making sure that the solid waste produced in their households are collected and managed properly.

5.2. Activities Performed by CBO in Tandika Ward

The first objective intended to explore the activities performed by CBO in solid waste management in Tandika ward. On interviewing the CBO chairman he said that the activities performed by the Chihota were to clean and remove the solid wastes within their communities such as waste from the households, commercial areas for example shops which involve door to door collection system and cleaning of roads and trenches within their streets. These activities were planned by the CBO chairman. The waste management practices were done in two sessions which were day and night. At the day session they pass and collect wastes from the households and cleaning the roads in the area where there are no large population. In the night session they clean commercial areas because during the day the area is so busy with commercial activities in the extent that they can't clean. In the provision of service by the CBO peoples had to pay the waste collection fees from each household. On interviewing the CBO chairman, he said that they charged Tshs 3,000 per each normal household and Tshs 4,000 for the big house which has about 10 rooms where different people rent as the rate of production is high due to the large number of people in the same house. The price was arranged by the top members of the CBO. The chairman said that people were able to pay because their fee was low than the fee arranged by Municipal which was Tsh 5,000. On asking the chairman of the CBO about those who did not comply, he reported that:

...Those who normally refused to pay had their names recorded and taken to the Health ward officer for further action to be taken.

On asking the Health officer on what measures are used, he said that he received the names and wrote the letter to them. He also added that they paid immediately as soon as they get the letter to avoid being taken to court. This implied that people are not willing to pay the waste collection fee as they do not know the importance of waste management. The waste collection fees in the households were collected by the CBO members who were passing in the house to collect waste and provide the pay in slip of the CBO starting from 27th of each month.

Chihota group collect 8-10 pushcarts and 5-6 wheelbarrows per day from the household as well as from the road cleaning. They use their pushcarts and wheelbarrows to transfer the wastes from the production sites to the transfer station where they pay Tsh 1,000 for a big push cart and Tsh 500 for a small push cart as arranged by the Municipal in their agreement with the CBO. 4-6 pushcarts remained uncollected from the households per day because the workers were few in number and they cannot pass all the streets

although the wastes were there to be picked. The failure to collect wastes in the household led to unwanted dumping in the street especially in the roads and wastes emitted bad smell in their houses.

According to the interview with the Health ward officer the CBO conducts their activities on a daily basis since solid wastes are produced daily in the community at large quantity. According to the Chairman of the Chihota Environmental Group he said they do not collect wastes every day, they used to collect two days per week in the household, one or two days per week in the shops and everyday in cleaning the road. On interviewing the households, members were complaining a lot about the number of days that they used to collect waste in their houses. One of the household members had the following to say

...this month for example, they have come only three times, I have refused to pay them because they are not coming on time, they leave the wastes here until it decomposes and produces bad smell in our house, it is better at the time when the wastes were collected by informal collectors as they were committed and come every day or after one day.

This shows that the CBO was not serious in its work as they were not collect waste on time from the households but they collect fees on time each month. Also this implied poor management of the CBO in Tandika ward by the health officer as he knows that they collect waste daily while it is contrarily with what they were doing. Following the CBO office being in the street government of Tandika most of

households are not happy as they know that the CBO belong to the street government so they are afraid to express their complains as the street leaders to be consulted are the top members of the CBO. What is needed here is the CBO to have its own independent office so as to provide free rooms for the clients to express complains and doubt about the services offered by the CBO.

In managing wastes the Chihota group has the following working facilities as shown in the table 1 below

Table 1. Equipments owned by Chihota Environmental Group.

NO.	Equipment owned	Quantity
1	Pushcarts	4
2	Wheelbarrows	5
3	Rakes	10
4	Shovels/stades	8
5	Harrows	3
6	Brooms	10

Source: Field work

From the equipments owned by the Chihota CBO, its shows that they lacked some facilities such as overall, gumboots and gloves for the effective waste management. The equipments missed in the table were very important in the waste collection as the wastes contains sharp and risk such as pieces of broken classes and bottles, nails, needles and other dangerous things. These also evidenced by the figure 1 below. Hence they need maximum protection.



Figure 1. One of the worker working without wearing gloves, gumboot and overall for the maximum protection.

According to the number of other equipments presented in the table 1.1 above, it also shows that the equipments are enough compared to the number of workers presents to use the facilities as they are only 9 workers in the CBO but the problem is the shortage of workers as they have a large number of streets to manage wastes. Due to the shortage of workers, large number of streets and households as well as the high population present, the efficiency of waste management practices by the CBO in Tandika were very low thus why they were managing to collect waste even three times per month in the households. The findings are in line with the findings obtained by [2] in Arua and [4] where the activities of the CBOs were to collect wastes from the households by using door to door system. Apart from that the study by [13] revealed the same results where the roles of the CBOs in Khulna in Bangladesh were to collect wastes in the

community by door to door system and street sweeping.

5.3. Challenges Facing Chihota Environmental Group

In the provision of solid waste management by Chihota in Tandika ward the CBO faced a number of challenges as follows.

5.3.1. Lack of Willingness to Pay Waste Collection Fee

One of the challenges was the unwillingness of community members to pay the collection fee for each household. When the household members interviewed, some of the members showed that they lack knowledge and importance of waste management hence difficult to pay for the service. Apart from that Other leaders in the street such as ten cell unit

leader refused to pay claimed to have different duties in the community so they wanted the government to pay for them to compensate their work instead of being the first one to pay and motivate his/her people to pay. One of the ten cell unit leader had the following to say about the payment:

... I'm the leader in this street, if some has taken to the police or Do anything bad I have to write the introductory letter, if people riot in the street about poor service I have the role to talk with them and settle the problems without any payments, and still they are charging me the waste collection fee in my house, I won't pay.

Leaders should be the first one to pay waste collection fees so as to motivate their people to pay. If they can't pay what will follow is to remain with his/her wastes and finally they will throw in the roads. Their roles performed in the society have no relationship with the payment of waste collection fees.

5.3.2. Poor Working Facilities

The in Tandika faces CBO a lot of challenges in its working facilities as their pushcart and wheelbarrows were in a poor conditions and needs to be repaired as they had been used for long time now and most of their parts like tyres were already worn out. The facilities were in the very bad condition such that it couldn't even afford to carry out the waste collected from the production site to the transfer stations. Apart from the present facilities being poor, they lack other important tools for example, gloves, overall and gumboots which will protect them during waste collection as

shown in table 1.1. Figure 2 below were the one of the poor facilities owned by CBO which could not afford even to carry wastes from the source to temporary storage.



Figure 2. The pushcarts owned by the CBO.

5.3.3. Lack of Infrastructures

In some areas the roads were not accessible for the pushcart and wheelbarrows to pass during collection of waste as the house may be surrounded by water all of its sides during rainy seasons as well as roads. These make the waste collectors to delay to pick the waste on time as they have to wait until they get time to go and pick the waste by using hands up to where they are parking their pushcart and wheelbarrow or waiting for the water to dry. These can be evidenced by the figure 3 below.



Figure 3. One of the area in Tandika where the pushcarts and wheelbarrows couldn't pass during waste collection due to the full of water during rainy. Water takes about two weeks or more to dry up.

5.3.4. Low Number of Workers

The CBO had only 9 workers who worked in the Tandika sub ward which contain 12 streets. Following the number of workers present they delayed to collect wastes from the households on time as they could pass in other houses three times per month. Low number of workers made Tandika to be dirty as wastes were scattered waiting for them to come and collect while it takes a lot of time to rotate because they were very few in number.

5.3.5. Monitoring

There is no monitoring of the CBO by the Health ward officer as he doesn't know even number of days they used to collect wastes from the households. Monitoring of funds were also a problem as workers were complaining about important facilities such as buying of a wheelbarrow tyre thing which seems to be very difficult while they used collect fees from the community. Apart from that, Chihota group had no office where the household members could go and present their problems about the waste management practices as most

of them knew that the office were for street government of Tandika while they used it for both work which was not correct or allowed

5.3.6. Excessive Wastes Production

High production of waste in Tandika ward was a challenge to the CBO as it led to the unofficial disposal in the community. Unwanted dumping were established following the delaying of the waste collectors to come and collect waste, but this mostly caused by high production of the waste following the high population in Tandika ward.

These findings were in line with the findings obtained by [14] in Dar es Salaam who observed poor working facilities as a challenge as most of the working facilities were in a bad conditions such wheelbarrows and pushcarts which need maintenance. The study conducted by [22] revealed that the infrastructure was the challenge facing the CBOs in waste management as there were very poor road conditions hence vehicles, wheelbarrows and pushcart could not pass to collect wastes in the community. Also the study conducted by [17] and [22] revealed the same results the most of people were unwilling to pay the collection fees to the CBOs as they believed that it is the task of the council to provide free services in the waste management. Those who totally refused to pay were subjected to a fine and the most of the CBO saw the court as the last resort.

6. Conclusion and Recommendations

From the study it was observed that, in big cities like Dar es Salaam especially Tandika in Temeke Municipality the waste management practices were not well conducted due to the poor management by the present leaders. The CBO which concerned with waste management practices in Tandika was poor managed from the owners of the group up to the Health ward officer. What was needed was to have close monitoring in the day to day activities conducted by the CBO. This should be guided by the Health ward officer and the CBO chairman as well as involving members of the household in giving out their views on how this waste management practices would be conducted in their houses as they were paying for the services. Apart from that the Municipality should investigate and supervise the day to day activities conducted by the CBO as they were the one who registered and allowed them to work. Following the work performed by informal collectors, there were a need to recognize them and gave them identity cards because in Tandika they were performing a good work and the household members appreciated their work. More than that there was a need of the government through its municipalities to provide education to its people about waste management practices and encouraging them to form groups as CBO in order to manage wastes in their community and these should go hand to hand with financial support at the initial stage. Lastly CBO should have independent office where the members from the

community could go and express their problem free rather than combining the CBO office with the office of Tandika street government.

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