ASSESSMENT OF COMMUNITY PARTICIPATION IN DOMESTIC WASTE MANAGEMENT IN MBAGALA WARD, TEMEKE MUNICIPALITY

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ABSTRACT

This study aimed to establish community participation in domestic waste management in Mbagala ward in Temeke municipality. The specific objectives were to identify the types of wastes generated at household level, to analyze the quantity of domestic produced at household level in Mbagala ward as well as to assess the capacity of disposing the domestic wastes produced at household level in the study area. Data were collected from household members, government officials and private service providers where a sample size of 48 respondents were taken for primary data collection through interview and questionnaires meanwhile secondary data were collected through documentary review. Primary data were analyzed both qualitatively and quantitatively. Results indicated that 70% of sampled population generated a biodegradable waste that includes food, fruits and leftovers. Generally it was found that majority of sampled population were aware, willing, ready and preferred to engage in domestic waste management as response in attitudinal statement revealed either strongly agreed or agreed. Analyses on the quantity of waste generated at household level per week to sampled population were 2933kgs. However, the capacity of the private waste management service providers was generally moderate due to one of the three service provider Kimuchi group scored 84% capacity performance index indicating performance level; Kisonge group scored 66% that is moderate performance and Orphan and widow group had 47% scores indicating low capacity of disposing domestic waste in Mbagala ward. The study recommended that, sustainable domestic waste management require an active participation of all stakeholders ranging from household members, service providers, public health officers, municipal leaders as well as politicians, in so doing would ensure better environmental health to entire Mbagala ward in Temeke municipality.

Keywords: Community participation, waste management, household level.

INTRODUCTION

Environmental issues are firmly entrenched at centre of the world stage in all spheres of development activity. This is exemplified by number of international conferences and workshops which were held on the environment. This includes the Rio De Janeiro Earth summit in 1992, which marked the beginning of relentless environmental campaigns across the world from developed to developing nations (UNCED, 1992). This was followed by the world summit on sustainable development held in Johannesburg, South Africa in 2002 which has defined critical targets for sustainable development, including the millennium development goal 2015. These campaigns are largely in response to the alarming rate which human activities are affecting environment by generating much domestic waste.

Human activities generate by-products which are generally seen as useless and discarded as waste. The massive amounts of waste later find a way into the ground, water and air every year. However, consumption routines have effects on how much domestic waste are produced by modern high technology, but little effort is made to bring the same technology to bear on domestic waste management and disposal (Palmer,1998). Moreover, the increasing urban population growth leads to increase in volumes of waste produced that brings about a lot of problems in towns if not disposed in time (Membe, 2012). Such problems include health problems, as most tropical diseases bear a direct linkage to sanitary and hygienic standards.

Moreover, dumping sites may lead to chaotic domestic waste that put the health of residents at great risk as the open waste dumps are prime breeding sites for house flies, rats and mosquitoes and other vector of communicable diseases such as fever, dysentery, dengue, diarrhea, cholera and malaria. These waste dumps are source of environmental problems such as odors and smoke emissions resulting from rampant waste burning cause acute respiratory infections. The leaks from the dumpsites pollute the underground water while loose papers and plastics are blown by wind resulting in aesthetic intrusion of the surrounding environment (Masocha, 2012; Begede, 2014).

The urban authorities are responsible for implementation of these instruments including ordinances and by-laws. However, the environmental policy creation remains largely a function of central government, but implementation of policies and legislation is devolved to the local governments (Liyala, 2011; Oberlin, 2011). This leads to a problem of ineffective enforcement of the laws (Okot-Okumu and Nyenje, 2011), which may be attributed to inherent weakness of the laws themselves. The governmental authorities in the study area have assigned the formal sector and the community to manage the domestic wastes in their respective areas (Membe, 2012).

Statement of the problem

The challenge of domestic waste management among the stakeholders has been a growing concern for the national government, local authorities, environmentalists' researchers and the communities at large. This is due to complexity in the day to day management of domestic waste produced by the communities in a fast growing pace than its disposal.

Throughout the district even regional at large, there has been an increase engagement of in sector, community and other local stakeholders (such as setting a cleanliness day once a month) at ward and district level yet there is hips of domestic waste left along roadsides, in the streets and market places. Thus this study was set to assess how effective the in sector and community in domestic waste management in Mbagala ward, Temeke district.

RESEARCH METHODOLOGY

This study was conducted in Mbagala ward located in Temeke. The ward comprises of Moringe street, Mangaya street, Mbagala street, Bughudadi street,Kizinga street, Kiburugwa street and Serenge street. These areas are characterized by having in unplanned settlement with high population, meanwhile it is one of the ward emerging as a center of commerce and trade in Temeke. These economic activities motivates the influx of many people from other parts of the city, being along the main road connecting city center and southern regions of Tanzania such as Lindi and Mtwara, Mbagala as huge small business residents population who generate a remarkable quantity of domestic wastes which due to poor management infrastructures have turned the issue of domestic waste to be delicate to all stakeholders in a

ward and Temeke municipal at large. According to National Census (2012) Mbagala ward has a population of 52,582 with 13,145 households.

This study used a cross section research design where information were collect in depth through intensive investigation of the particular unit, this is a best method in terms of time management, cost reduction due to the fact that few sample were used as a case study to represent the whole population. Meanwhile the study deployed the descriptive cross section design because data were collected once in a specified time.

Basically the population of the study comprised of the waste generators (households) population in Mbagala ward and other stakeholders responsible for domestic waste management and environmental management. This study used a sample size of 148 respondents including stakeholders from one municipal council officer in charge of environment, one community development officer, two community/public health officers, two non formal service providers, two in service providers, and forty residential householder members.

Both probability and non probability sampling procedures were used to obtain information from the study area. Under probability sampling, the study used simple random sampling (SRS) to select the community members who were the target population (sampling unit) of the study. Nevertheless, non probability sampling (purposive sampling) was used to allow the use of cases that have required information with respect to the objectives of this study. Cases of subjects are therefore handpicked because they are informative or they process the required characteristics. Also the study used a convenient or accidental sampling technique so that information collected in area they become available to the researcher. The main targeted stakeholders under non probability technique were municipal officer, community development officer, and in service providers and public health officers.

Data were collected using household questionnaire and interviews. The questionnaire gathered information of knowledge, attitude and practices of respondents. The interview was used to collect in-depth information from the following stakeholder's, municipal authority (in-charge of environment, community development, community/public health) and service providers.

The capacity of the organizations that collect and dispose waste was analyzed using the Capacity Performance Indicator (CPI) and its decisions based on the Figure 2 below. Before the decision, data were entered and coded in Microsoft Excel template which gave the results that fell into three levels (level 1, 2, and 3). Each level had its own organization or enterprise stage as Forming or Storming for level 1, which was characterized or expressing that at this stage the group is gaining understanding the purpose and what they intend to do, but is full of conflicts and competition, since it is at early stage and thus difficult to compete with others. The status of other levels are as Figure 1 illustrates.
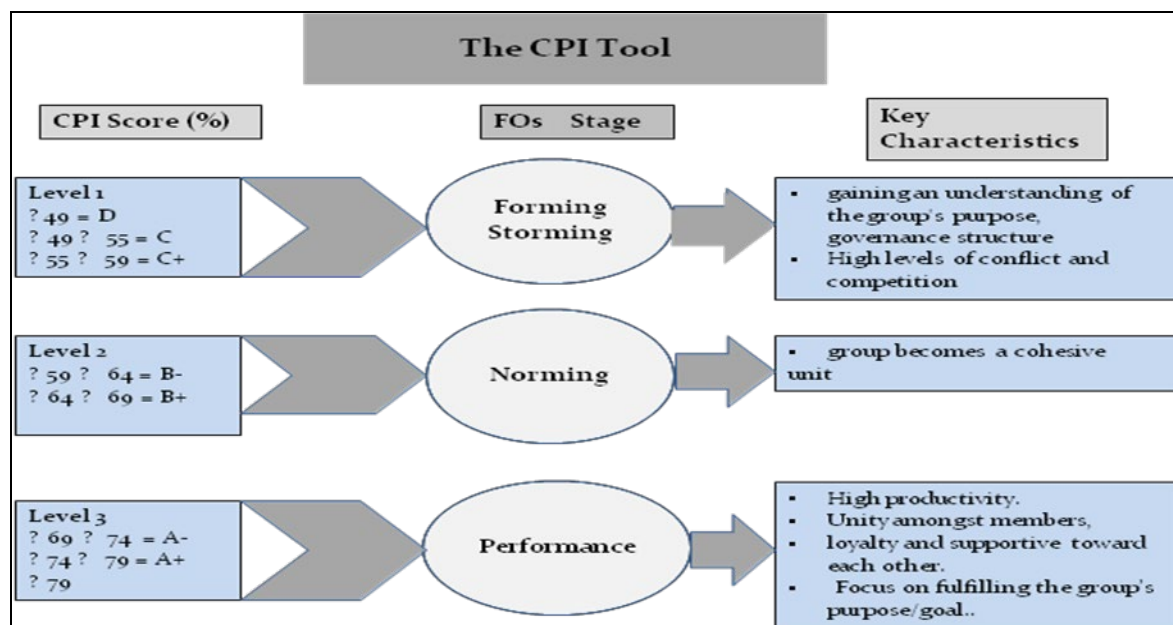
Figure 2: CPI framework
Source: Alliance for a Green Revolution in Africa

RESULTS AND DISCUSSION
Quantity of domestic waste generated at household level in Mbagala ward.
Table 1 below shows that the minimum quantity of domestic waste generated at household level were 2Kilograms, meanwhile the maximum amount were 2000kgs and the total quantity of domestic wastes generated per week to sampled population in the study area were 2933kgs. This amounted to an average of 73.32kgs per week from sampled household level.

Table 1: Quantity of Domestic waste Generated at Household Level in Mbagala ward

Description	n	Minimum	Maximum	Sum	Mean	Std.Deviation
Quantity	40	2kg	2000kg	2933kg	73.32kg	313.160kg

According to National Population Census (2012) Mbagala ward had a population of 52,582. The study had an interest of coming out with the quantity of waste produced per different time frame. Table 12 below revealed that they generated 137.7 tons per day, however the disposing capacity were only 20 tones while domestic waste left without disposing were 116.7 tons per day, likewise the amount produced per week were 957.0 tones when the capacity to disposal were 140.0 tons while 817.0 tones left uncollected.

Table12 Quantity and capacity of domestic waste in Mbagala wards 2015

Rate of domestic waste produced	Number of household	Waste produced in kilogram	Total waste generated in kg	Waste produced in tones	Disposal capacity in kilogram	Disposal capacity in tones	Waste left uncollected in kilogram	Waste left uncollected in tones
P/Day	13145	10.4	136708.0	136.7	20000.0	20.0	116708.0	116.7
P/Week		956956.0	956956.0	957.0	140000.0	140.0	816956.0	817.0
P/Month		3827824.0	3827824.0	3827.8	560000.0	560.0	3267824.0	3267.8
P/Year		45933888.0	4593388.0	45933.9	6720000.0	6720.0	39213888.0	39213.9

The quantity of waste produced per month in 13145 household were 3827.8 while the disposing capacity were 560.0 tones leaving 3267.8 tones without disposing monthly, meanwhile annually waste produced indicated 45933.9 tones when the disposing capacity were 6720.0 tones, hence 39213.9 tones tends to standstill without being disposed off.

This trend implicated that the wards lack proper and active capacity to handle domestic waste management, the amount left indisposed daily, weekly, monthly and annually real very huge while municipal wastes drop-off points were not enough to accommodate all wastes from different household as indicated in Table 2 that shows 52.5% of sampled population said that drop off centers were small to accommodate the waste generated.

Table 2 Waste Collection Centers Enough to Accommodate Waste from different household.

Response	Frequency	Percent
Yes	69	53
No	61	47
Total	**130**	**100.0**

This also implicated that large amount of waste that cannot be accommodate at pick point centers and cannot be disposed off to dumpsites at Pugu Kinyamwezi tend to be dumped on open spaces, along streets and roads as current situation revealed by one of public health officer from Mbagala ward who cited saying *"current situation of domestic waste in my ward is real headache simply because residents dump large amount of waste on open spaces, along the roads and even around house compounds as you see heaps of waste wherever you cross streets"*. This situation resulted to the dirty streets and roads as well as unpleasant conditions because about 70.0% of wastes generated were biodegradable wastes that are easily spoiled as indicated in photo3 in the study area below.

Table 13 Waste Collection Centers Enough to Accommodate Waste from different household.

Response	Frequency	Percent
Yes	19	47.5
No	21	52.5
Total	**40**	**100.0**

Capacity of disposing waste generated at household level by service providers
According to Kasala (2013), the management of domestic waste in developing countries including Tanzania is characterized by inefficient collection methods, insufficient coverage of collection system, inappropriate dumping places and improper disposal of municipal wastes. Mbagala ward in Temeke municipal, the generated wastes were transported to transfer points mostly by the waste generators themselves as data collected revealed in Table 14 which shows that about 40.0 % of waste were brought by owners of the house to drop off centers meanwhile about 22.5% by in service providers before collection by council workers or non formal service providers'.

Table14 Responsible person to collect domestic waste to collection points

Description	Frequency	Percent
Owner of the house	16	40.0
Any scheduled member	9	22.5
Non formal service provider	10	25.0
Formal service provider	1	2.5
Do not know	4	10.0
Total	**40**	**100.0**

In Mbagala ward household waste collection and disposing is contracted to non formal service providers groups namely Kimuchi group, Kisonge group and Orphan and Widow Group.

These civil groups have been given contracts by municipal to provide services to the ward; this study was interested to assess the capacity of these organizations. Capacity Performance Index (CPI) as indicates in Figure 2 was used to measure the capacity of these organizations. Hence results shows that the ability to deliver the service does not meet the intended expectations due to facts that;

First, only one non formal service provider called Kamuchi group is at level 3 by having CPI 84% that is A+ level which imply performance is in high productivity, unity among members is good, loyalty and supportive toward each other also the group is in focus on fulfilling the groups purpose or goal, these are vivid indicators that the group is collecting and disposing domestic waste in line `with the agreement stipulated in the contract with municipal council.

Second, is Kisonge group that has got level 2 with 66% of score that is B+ level which imply the group is at Norming (CPI) so it is a group which becomes a cohesive unit in delivering the service and this imply that the group has no Capacity Performance Index that is in the pace of the contract given hence it does not provide excellent service to curb the domestic waste challenges facing the Mbagala ward.

Third is Orphan and Widow group as 47% score, that is grade C level which is Forming storming level of the group, this level indicates that the entity is gaining an understanding of groups purpose, governance structure is not well developed and high level of conflict and competition do exist in the group, this reveal that the group as no capacity needed to work in this challenging task of collecting and disposing waste generated at household level safely.

Therefore in such prevailing situation where the municipal as managed to contract two out of three groups which have got low Capacity Performance Index (CPI), implicate that Mbagala ward would be facing collection and eventually disposing waste harder to handle.

CONCLUSION AND RECOMMENDATIONS

The study worked on finding answers concerning stockholders participation in domestic waste management in Mbagala ward and undertakes the types of waste generated, community perception in domestic waste management, quantity of domestic waste generated in totality in the household level as well as capacity of disposing waste to the dumpsite, through the aid from the respondents and other documentation allowed the researcher to conclude that, the issue of domestic waste management is a matter of entire community whether a resident or a mere traveler. Therefore, there should be a collective and mutual participation of every stakeholder from the household members, non formal and formal service providers, public health officers, municipal leaders and politicians. In so doing domestic waste management would be tackled in excellence from its generation, storage, collection, transportation, processing and final treatment/ disposal of domestic wastes in line with best principles of public health, economics, engineering, conservation aesthetical and other environmental consideration.

Recommendations

From the conclusion above it is clear that the issue of domestic waste need the involvement of all stakeholders from household members, service providers, public health and national environment management council officers, municipal leaders as well as politicians. Hence these stakeholders are recommended as follows.

To household members

They should be given an awareness to be active participants in waste management from the generation stage, also they should be educated on the importance of proper domestic waste management this education should preferably from the kindergarten school level so as to ensure awareness gets root from elementary and grassroots level for better future generation. In addition in order to promote separation of waste, collection points should be divided into parts so that household members bring separated waste to specified part.

To Service providers

Before acquiring contract in this sensitive and challenging chore they should meet the Capacity Performance Index (CPI) tool which signify that an entity that need to deal with domestic waste should have "Performance" stage with at least 69% CPI score and above whereby the entity would have high productivity, unity amongst members in service provision, loyalty and supportive toward each other as well as focus on fulfilling the groups purpose or goal in team work.

To public health and National Environment Management Council Officials

They should work harder in supervising domestic waste, advice and coordinate the environmental policies, plans and activities that could have been an impact on the environment. Also they should have the responsibility to review ways of involving all stakeholders so that community members could engage effectively in domestic waste management. These experts should work in the field lather than remaining in offices.

Municipal and Political leaders

Success of domestic waste management depends on the involvement of all actors, they should have cooperation in doing work and ensure professional ethics in giving contract to the organization dealing with waste, meanwhile political interference caused by personal interest should be avoided because it obstructs an opportunities to implement ordinances or by laws that ensure domestic waste management more sustainable in Mbagala ward.

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