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Community Participation in Municipal Solid Waste Management: A Case of Kium CBO, Morogoro, Tanzania

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ABSTRACT

Community participation (CP) in municipal solid waste management (MSWM) is a strategy introduced by UN Sustainable Cities Programme (SCP) in the early 1990s to developing countries. It aimed at complementing local governments' limited resources and capacities overwhelmed by rapid urbanization to managing solid waste sustainably. Tanzania adopted the strategy in 1992 under a market oriented economy starting with Dar es Salaam and then it was replicated to other urban areas of the country including Morogoro Municipality in 1998. This strategy has been received with different feelings and outcomes in Tanzania. In some situations, community participation through CBOs has failed to manage solid waste in their respective communities. This study identified Kikundi cha Usafi wa Mazingira (KIUM) CBO as a success story of community participation in municipal solid waste management project in Morogoro Municipality by achieving 50% of solid waste collection. The study employed the Institutional Economic Theory (IET) and Solid Waste Service Provision Linkage Triangle Model to the study's conceptual framework to analyse CP in municipal solid waste management using organizational, legal, resource, coordination, benefits and effective community participation variables in a market-oriented economy. Participatory Urban Appraisal (PUA) using Focused Group Discussions (FGDs) and researcher's in-depth interviews were employed to interview the CBO's leaders and community members in Mji Mkuu Ward where KIUM operates. The findings showed that a well organized CBO as KIUM with committed leadership which scored 50% in self-managing MSW service provision has the potentiality of achieving sustainable MSWM; if such poor communities-based groups are adequately given an enabling environment. The local government has not given enough encouragement to CBOs towards achieving sustainable municipal solid waste management.

INTRODUCTION

Community participation in MSWM is part of the Sustainable Cities Programme born by the Rio de Janeiro Earth Summit of 1992 (Global Agenda 21). One of its objects was to replace conventional approaches with community participatory approaches due to governments' failure to cope with rapid population in the provision of urban solid waste services (Okpala, 1999; Halla, 2002). Privatization of municipal solid waste management through community based organizations (CBOs) run on a market-oriented economic situation would lead to achieving sustainable MSWM (UNCHS 1994 in Kyessi, 2002). If done, it was expected to provide MSW services to over 50% in informal settlements where residents are seldom involved in municipal solid waste issues (UN-Habitat, 2003). Enormous uncollected waste caused different social economic menaces, blocked drains causing floods which pollute, disrupt infrastructure systems and normal community life (Mwapilinda, 1998, Nguluma, 2003). This is the justification by policy-makers for the adoption of CP in MSWM in poor rapid urbanizing countries (Kalwani, 2007). Tanzania adopted community participation in MSWM under market economic situation, as part of Sustainable Cities Programme (SCP), starting with Dar es Salaam. Before privatization in 1991, the city was generating 1400 tonnes of solid waste per day of which only 5% was being collected (Majani, 2000). In 1992, under the influence of a SCP's Sustainable Dar es Salaam Project (SDP), the Dar es Salaam City contracted local private enterprises to provide municipal solid waste services in urban areas. Shortly, many of these private companies withdrew, partly because many households could not afford to pay the prescribed user-service charges (Halla and Majani, 1999b). Besides that, the companies' weak technical and financial base resulted in inefficiency service

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(Kaare, 2002). The SDP mobilised communities to form CBOs and NGOs for municipal solid waste management projects. These included several CBOs in MSWM, however, many of them short-lived or became passive due to various factors mainly lack of coordination, assuming a top tier, donor dependency and lack of community support (Halla and Majani, 1999b). It should be noted here that, other large urban areas in the country also experienced rapid urbanization with equally poor MSWM even after adopting CP in MSWM. These included, Tanga, Mbeya, Mwanza, Arusha, and Morogoro to mention a few (Ngware and Kironde, 2000).

The adoption of CP as a strategy for Tanzania in the 1990s was intended to complement meager governments' resources overwhelmed by rapid urbanization in order to achieve sustainable MSWM in a market oriented economic situation (Kalwani, 2007). However, expectations have rarely been met using the strategy. The major issue is on how community groups could be organized, coordinated, empowered, and how they can mobilise local resources and be utilized in the existing policies and legal framework to achieve sustainability in their communities. This study investigated the effect of CP in MSWM projects in Morogoro municipality with a view to making policy recommendations towards achieving sustainable MSWM in informal settlements.

STUDY AREA

Location of Morogoro Municipality

Morogoro municipality lies between 6° 35´S and 6° 57´S; and 37° 33´E and 37° 50´E.

Morogoro Municipality constitutes 19 administrative wards (Figure 1) covering around 100 sq. km. It is bound by Tanga and Arusha (North), Coast (East), Iringa and Dodoma (West) regions. It is a vital central railway- highways nodal point opening Dar es Salaam city's large hinterland across the borders.

KIUM CBO in MSWM

KIUM CBO in MSWM project is one of 41 CBOs registered in Morogoro Municipality involved largely in the provision of MSW collection services in one of the nineteen urban wards of the Municipality. It operates in one of the wards (Mji Mkuu) as detailed below.

Social Economic Factors of *Kikundi cha Usafi wa Mazingira* (KIUM) in Mji Mkuu Ward

Mji Mkuu Ward occupies the CBD of the Morogoro municipality. The Morogoro River's two tributaries form a natural boundary of Mji Mkuu ward to the East and West with Boma and Sultani wards respectively. It is bound by Kingo and Saba Saba wards to the North; and Mbuyuni ward to the South (Figure 1.).

According to the National Population and Settlement Census of 2002 (URT, 2003) Mji Mkuu Ward had 1514 households with 4.1 average size of households. Therefore, KIUM served an estimated population of slightly above 6965 people. Mji Mkuu ward had a total population of 6,180 people of whom 3,050 were male and 3,130 female (URT, 2003). KIUM served all 1514 households including business units.

According to URT (2005), Mji Mkuu consists of semi-upgraded squatter; planned and informal settlements. The author observed that, many of the structures bear informal settlement characteristics.

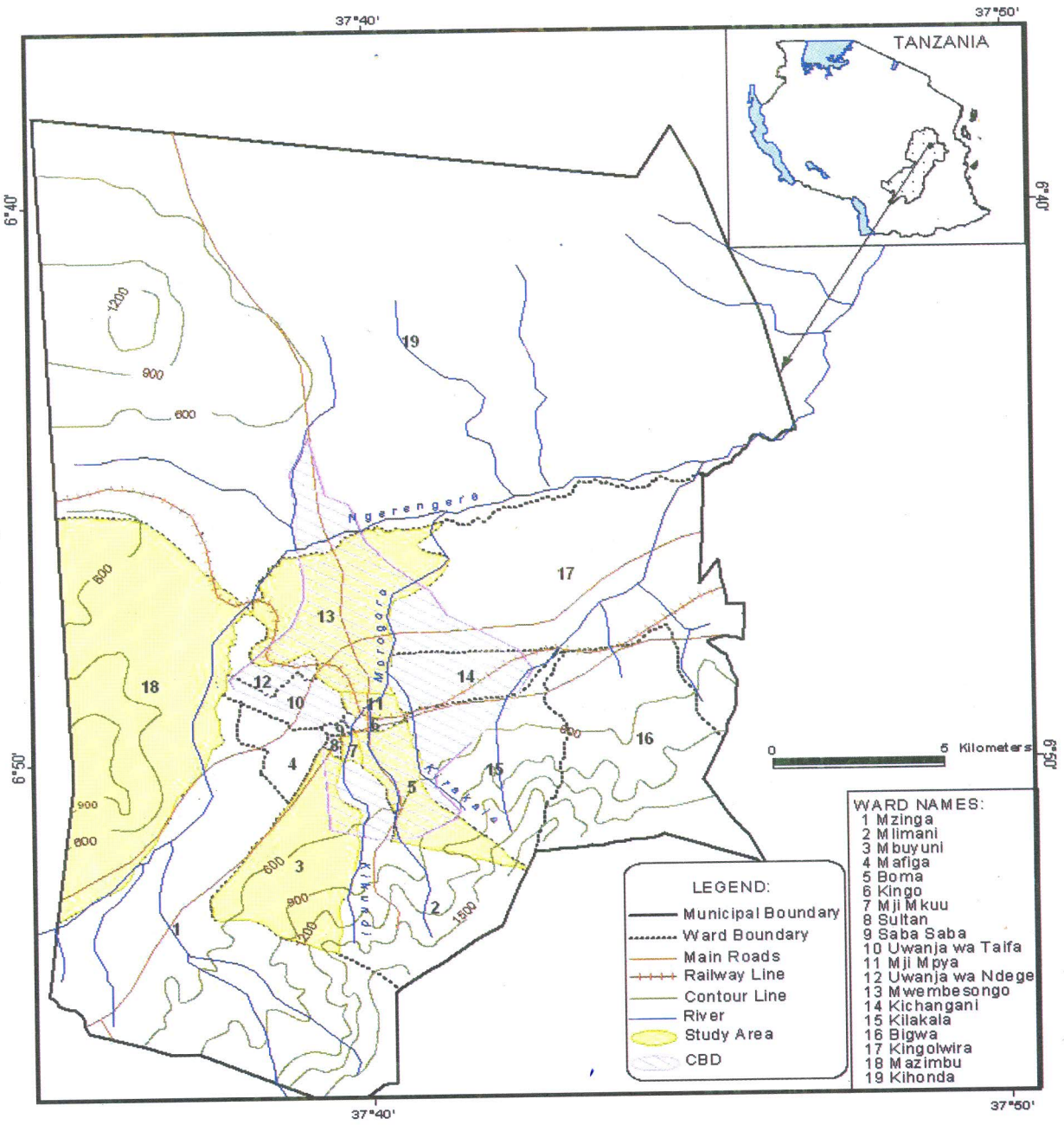


Figure 1: Map Showing Topography and 19 Administrative Wards of Morogoro
Source: Morogoro Municipality Records, 2005

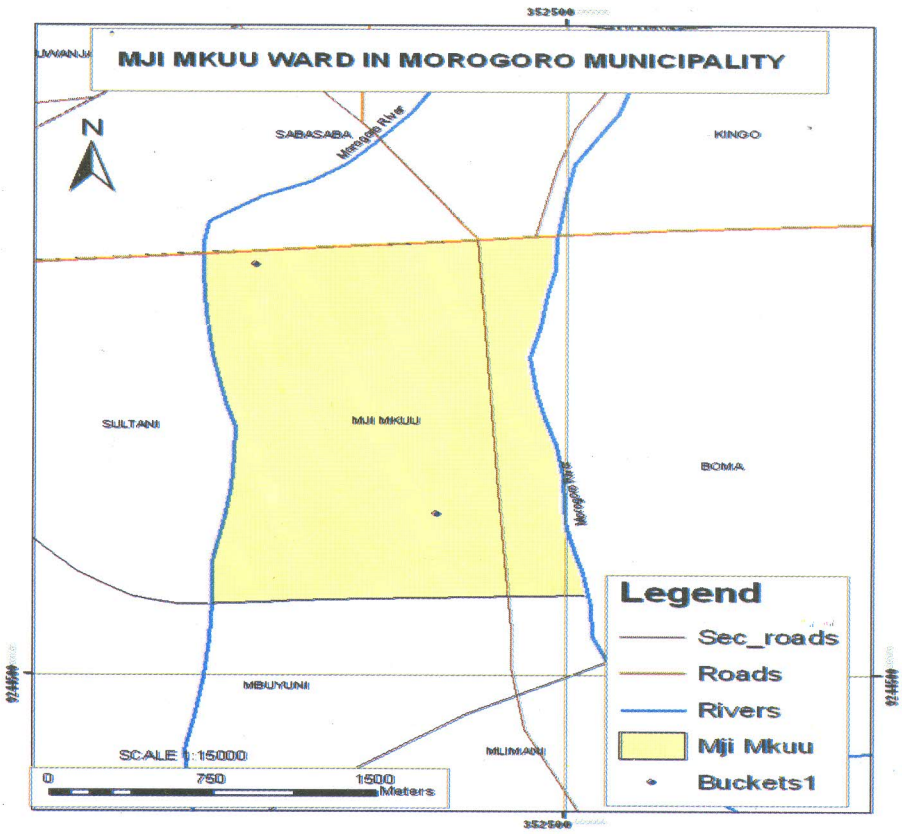


Figure 2: KIUM's Operational Area, Mji Mkuu Ward.
Source: Adopted from Morogoro Municipal Records, (URT, 2005)

Mji Mkuu ward, as appears in Figure 2, is generally a linear settlement influenced by road, street and drainage patterns. It constitutes housing units made of various building materials including several cement blocks and a reasonable number of pole- mud plastered shelters. Mji Mkuu is a low lying densely settled area. This terrain makes it susceptible to frequent floods whenever the Morogoro River regime rises during the long rainy season.

The Ward is fringed by two tarmac roads which intersect in the CBD: the Madaraka Road to the North; and Boma Road to the East (Figure 2). Between them run grid of streets which link concomitant mixture of planned and informal settlements. Many of the streets are narrow especially in informal settlements of *mitaa* of Karume A & B; Amani and Mlapakolo. Narrow streets retard transportation of solid wastes and other goods. Also, at the time of this study much of the infrastructure was eroded. The municipal authority infrequently maintained it. The two above-mentioned tarmac roads are maintained constantly because they form the municipal major economic and administrative links (URT, 2005). According to the latter source, other factors for infrastructure destruction included the impact of floods; and the water table being two high in Mji Mkuu. This surface soil instability is unsuitable for road.

METHODOLOGY

Different methods were employed to collect data. The methods applied included quantitative and participatory urban appraisal interviews, mapping and photographing, focus group discussions and observation. Systematic random sampling was

employed in the selection of wards and respondents who were interviewed in Kiswahili. Data collected were analysed using Statistical Package for Social Science (SPSS). Throughout the analysis, data were disaggregated regarding actors' roles and responsibilities in the collection, transportation, storage and final disposal of urban solid wastes at different levels ranging from households to dumpsites. The principal actors included households, community-based organizations, and municipal government. Analysis on the extent participatory planning, management, assignment of roles in various urban solid waste management by different stakeholders was done at different levels. The levels ranged from primary (collection), secondary (storage) solid waste management for transfer to either final disposal at dumpsite or to urban solid waste recycling. Descriptive statistics namely, averages and percentages were used to summarize the information collected.

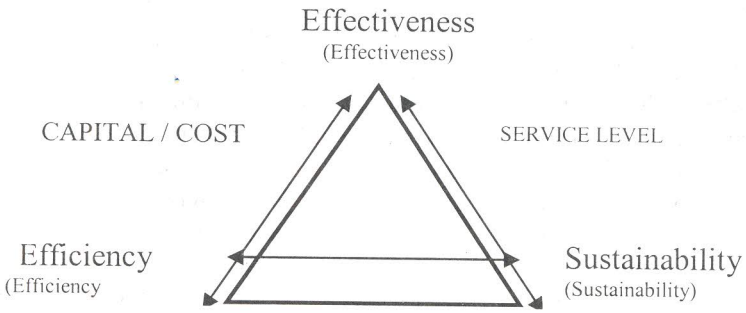
THEORETICAL FRAMEWORK

Institutional economic theory

This study has employed the Institutional Economic Theory (IET) as the main guiding theory supported by other related theories and concepts. The theory was propounded by North (1990) who observed institutions from an economist viewpoint, that, they were the rules of the game in a society. They are the *human devised constraints* that shape human interaction. The theory is based on the conception that individuals are socially constructed identities. Basically, it challenges the neo-classical theory which assumes that the political, economic and social environment is constituted of groups of autonomous individuals, each pursuing their own preferences in order to obtain material satisfaction. The theory tries to cultivate the understanding that no "institution" can exist on its entirety but through interaction with others. According to the Institutional Economic theory, the term "institution" embraces individuals, households and organizations with diverse behaviours. They have to be controlled by norms and rules for rational transactions to occur. The government is the custodian of such rules. In essence, the theory underpins the evolution of "institutions" and the way they affect economic performance as determined by the technology employed, costs of transacting and production. This aspect is central to this study as it seeks to understand the behaviour of institutions, both public and private operators, involved in the provision of municipal solid waste services before and after privatization. North (1990) asserted several assumptions for this theory as discussed by Majani (2000). Institutions are guided by both formal and informal rules. The formal rules and their enforcement characteristics are featured by the need for sudden change in society. While, informal ones, like norms and social values, are equally useful but change gradually. Another assumption central to IET, is bounded rationality i.e. fair transaction costs based on transparency and exchange of perfect information in a market-oriented economy (North, 1990).

Solid waste service provision linkage triangle model

Urban economic activities depend on the availability and quality of infrastructure and services. Efficient solid waste removal service, for example, is needed to keep the environment clean and healthy for increased productivity. Conversely, a filthy environment, becomes a source of various diseases which affect human health resulting in low economic productivity. Thus MSWM can be perceived in an economic perspective. Conventionally, in Tanzania, MSW services were provided by the government free of charge until when the public sector collapsed in late 1970s (Semboja and Therkildsen, 1995). Following privatization of MSWM in 1990s, different scholars came up with models suggesting how MSWM can be effectively and efficiently provided under a market economic condition. One of such model was Kyessi's (2002) Solid Waste Service Provision Linkage Triangle Model (Figure 3). It was essentially intended to analyse community participation in water service provision in Dar es Salaam. It was applied by this study in the analysis of CBOs involved in MSWM in Morogoro municipality.



Source: **Adopted from *Kyessi (2002).***

Solid waste service provision linkage triangle model

From Figure 3 agencies which provide solid waste services have to ensure that the levels of services provided, meet both the qualitative and quantitative demands of the citizens. Where supply exceeds demand, service costs become inflated. Where supply fails to meet demand, the quantity of the service declines and, thereby, leading to shortage, rationing and possibly creating parallel ('informal') market. This may cause stagnation in or distortion of settlement growth resulting in different forms of settlement patterns. The capital and operation costs will depend on the mode put in place (e.g. on-site or off-site) and the technology adopted. The service level is determined by the standards applied e.g. distance to the service, expected quality, and organization of the provision. The revenue accrued depends on the effectiveness (affordability) levels, price or service charge and the management/operation system. It is important for solid waste service-providing institutions to ensure sufficient service levels, efficient capital cost recovery mechanisms and adequate costs of provision in order to satisfy demand and guarantee sustainable provision process. According to Kyessi (2002), efficiency means the extent to which a provided service meets the effective demand using the available resources and the extent of cost recovery. The term "effective demand", is difficult to characterize because it is an expression of perceived needs and priorities of a community. However, it can be defined as willingness and capacity to pay for an identified service as determined by the community itself (Fox, 1994). Further, Kyessi explains the meaning of "effectiveness" as the extent to which the target group gets access to the service or the impact of the service provided. In this respect, "sustainability" (of service provision) implies the extent and period the beneficiaries are able to and willing to support the provision process. He concludes by saying, technical infrastructure including solid waste service initiatives (projects) should be made replicable by being self-financing based on demand. What are the basic assumptions of the model? In brief, the model asserted the following three major assumptions:

Solid waste collection should be demand-oriented service delivery

This means that, service providers need to operate according to commercial principles. Second, competition should be introduced into the supply process as opposed to monopolies of parastatals and urban councils. Third, solid waste collection service users (the settlement community) must acquire a stronger voice in the provision and management process at all settlement levels including the means to express service demands and relative satisfaction and dissatisfaction with service delivery.

Financing solid waste collection through cost recovery

Cost recovery arises due to the experienced governments' resource limitations to meet rapid urbanization demand for solid waste collection services provision; and donor fatigue to finance the same. Thus, the major assumption is that: financial resources must be generated from the users through cost recovery and possibly applying cross-subsidies i.e. levying different rates according to income or land use. Meanwhile, cost recovery needs to consider subsidizing the poor and exploring ways of making the poor pay for the

services provided. This is a necessary condition in search for elements of sustainability and affordability in solid waste collection service provision in poor settlements.

Willingness to pay and affordability of collection Service

This component takes into account various factors which influence the urban poor's decision to pay for the service user charges. These include the amount of money they pay, whether it is set through participatory means or not, where they find the money, and how they react to changes in either prices or supply structure. Further, willingness to pay for improved technical solid waste collection service depends on a number of factors namely perceived benefits e.g. convenience, amenity and economic and social benefits; income (households with higher income are willing to pay more); service charge (the higher the charge the lower the usage or consumption); and other prices (prices are often compared to prices of other services- parallel prices i.e. 'informal/ shadow market prices'). Other attributes are: value of time (if a services is delivered timely then it becomes highly valued by the community members hence their willingness to pay for improvements to the technical infrastructure services); and other productive activities (where the service can be used to increase home production linked to income generating activities, willingness to pay is likely to be higher).

However, these assumptions depend on the policy of the day especially in developing countries. That is, whether the policy put effective structures in place that permit social services provision in a market-oriented situation. Central, is public awareness raising in order to make communities understand, accept such a strategy and contribute to solid waste collection projects.

This study attests that Kyessi (2002) provided a generic infrastructure service provision linkage triangle model. He focused on policy and technical issues related to community participation in infrastructure provision generally in poor countries. However, he did not address on how it can be employed specifically for municipal solid waste management. This study employed the model (with slight modifications) to analyse community participation in municipal solid waste service provision by demand and supply through a price mechanism. Modifications included incorporation of income generation activities out of solid waste, thereby creating employment for community members. This is due to the fact that municipal solid waste is also a resource. The incomes accruing from such employment can increase poor communities' purchasing power to meet various basic human wants. In this way, Solid waste management can stimulate demand–oriented delivery in municipal solid waste service provision as the community will have "effective" demand for the service and other human necessities. This study asserts that Kyessi (2002) general infrastructure service provision model's conditions/ assumptions remaining constant, solid waste resources can be taped to achieve sustainable municipal solid waste management.

RESULTS AND DISCUSION

State of solid waste management in Morogoro

The study found out that in Morogoro municipality, the rapid urbanization rate was mainly due to rural-urban migration contributing to 78% of the municipal population. Further, the municipal population generated 177 tons of solid wastes daily. Only 77 tons (45%) were collected and transported to the municipal dumpsite, 5 km north of the municipality. The remainder, 95 tons (55%) were neither contained nor collected but are indiscriminately dumped, in streams and riverbeds, in drainage courses and on undeveloped plots (URT, 2005). These findings tallied with previous studies. According to SUMO (2001) and Morogoro Municipal Records (2005), Morogoro Municipal Council failed to provide MSWM services adequately especially due to rapid urbanization since mid-1990s. As a result, much of the generated solid waste remained uncollected or haphazardly dumped polluting the municipal environment mainly in informal settlements. For example, in 1998 the municipality generated about 3300 tons of solid waste per annum, but it managed to collect only 30% of the solid waste which was crudely dumped at Tungi Estate quarry (SUMO, 2001).

The need for community participation in MSWM

Failure of the Morogoro Municipal Council to provide MSW services to its urban population as discussed in the previous section, called for the adoption CP in MSWM in 1998. In fact, it was part of the UN strategy to establish financial and technical structures to assist poor countries in the implementation of the Sustainable Cities Programme (SCP) in their local areas (SUMO, 2001: 5). In the same vein, Tanzanian and Danish Governments concluded an Environmental Support Programme for technical and financial support for the introduction SCP in 1993. Tanzania for the first time experimented SCP in Dar es Salaam where it was known as the Sustainable Dar es Salaam Project. It used urban participatory approaches to environment management called Environmental Planning and Management (EPM). From Dar es Salaam City the Sustainable Cities Programme has been replicated national wide to nine urban centres since mid-1990s. They included Mwanza city, Arusha City, Tanga City, as well as Moshi, Iringa, Dodoma, Mbeya, Tabora and Morogoro municipalities. Through DANIDA support programme, Morogoro Municipality adopted SCP in 1998. It assumed the name Morogoro Sustainable Urban Programme (SUMO) aimed at building Morogoro Municipal Council's participatory capacity through community participation for sustainable MSWM.

Challenges to community participation in MSWM in Morogoro Municipality

As stated earlier, the study used multiple data collection techniques basically to triangulate information related CP in MSWM as practiced by households, CBOs and the Municipal authority at large. The study findings showed that, the Municipality not only adopted CP in MSWM but also incorporated it to its structure termed as *"Mpango wa Udhibiti wa Taka Ngumu Morogoro"* (MUTAMO) in Kiswahili (meaning Plan to Control Municipal Solid Waste Management Plan for Morogoro) under SUMO Programme (2005). MUTAMO (2005) carried a catchphrase saying: "Every household is required by law to contribute to municipal solid waste collection service charges." It underscored privatization of municipal solid waste management that aimed at "keeping wards environmentally clean for prevention of diseases, income generation, and to keep the Sub-wards solid waste free" (MUTAMO, 2005). It was discovered that, almost all processes of planning to implementation of the "MUTAMO" were done by elites. Community representatives, if any, were not involved representing their interests. Instead, elites identified and picked representatives of their own choice. In some extreme cases, some elites formed their own CBOs in MSWM projects and formerly registered them under the umbrella of "community based organizations" representing "communities' interests". Actually, such CBOs were formed by some elites to serve their individual interests. They used their influence to win MSW services provision contracts tendered by the Morogoro Municipal Council. The researcher received such information from focused group discussions (FGDs) and key informants. Further informed, elitist CBOs were known by the community which often denied them cooperation in form of financial contributions mainly payment of MSW collection service charge. It partly contributed to several CBOs contracted by the MMC to pull out of MSW service provision business due to financial constraints. It was reflected too in non-participatory decisions made by the MMC led to some of the CBOs contracted by it to terminate their contracts due to high Municipal skip bucket user charge fixed by the MMC for using its solid waste storage facilities. The net result of these factors increased transaction costs of CBOs in MSWM. The other main finding was lack of transparency to communities by the MMC on revenue collected from MSW service levies. And the MMC seldom enforced the existing public health laws. As a result, MSWM law-breakers such as households, CBOs and other institutions including the MMC itself which passed such "by-laws" often were not prosecuted and punished. For instance, the MMC which was assigned by MUTAMO (2005) to empty solid waste filled skip buckets in community areas; it frequently failed to fulfill this crucial role on grounds of "resource constraint". Consequently, much solid waste remained uncollected from households and in overfilled skip buckets, decomposing posing health risks to residents mainly living in informal settlements.

Despite the foregoing shortcomings of CP in MSWM, this study identified KIUM CBO as a success story out of its own MSWM initiative. Although KIUM has not taken off; it demonstrated

its potentiality towards achieving sustainability in MSWM in future. The study decided to present this case study from Morogoro municipality in order to share experience with readers.

How community participation in solid waste management could be conceptualized

Figure 4 provides six variables conceived as appropriate for effective community participation in solid waste management in settlement within an urban context. Of the six variables, community participation in MSWM which occupies a central position is a core variable. The assumption is that, sustainable solid waste management can take place if this core variable is effectively and efficiently linked to the rest of the variables internally and externally by four main types of links acting in harmony. One of the main links should include economic with multiplier effects of investments through forward and backward linkages; technical (innovative knowledge); physical and spatial communication linkages. Second, administrative linkages tie settlement development interventions to the existing administrative set-up of a municipality or country. Thirdly, political linkages concern power relations between the community and the central authorities through a decentralized system for participatory decision-making on MSW in an enabling legal framework. Fourthly, socio-cultural linkages originate from the household, the group, the clan up to higher social organization. These linkages are required to boost CBOs in municipal solid waste management projects in identifying priorities, planning, designing, operating, and maintenance of community infrastructure in a market-oriented situation (Fecade, 1994:68). The study asserts that, effective community participation in MSWM can be achieved if the six variables are effectively linked by the above mentioned four main links to achieve MSWM efficiently.

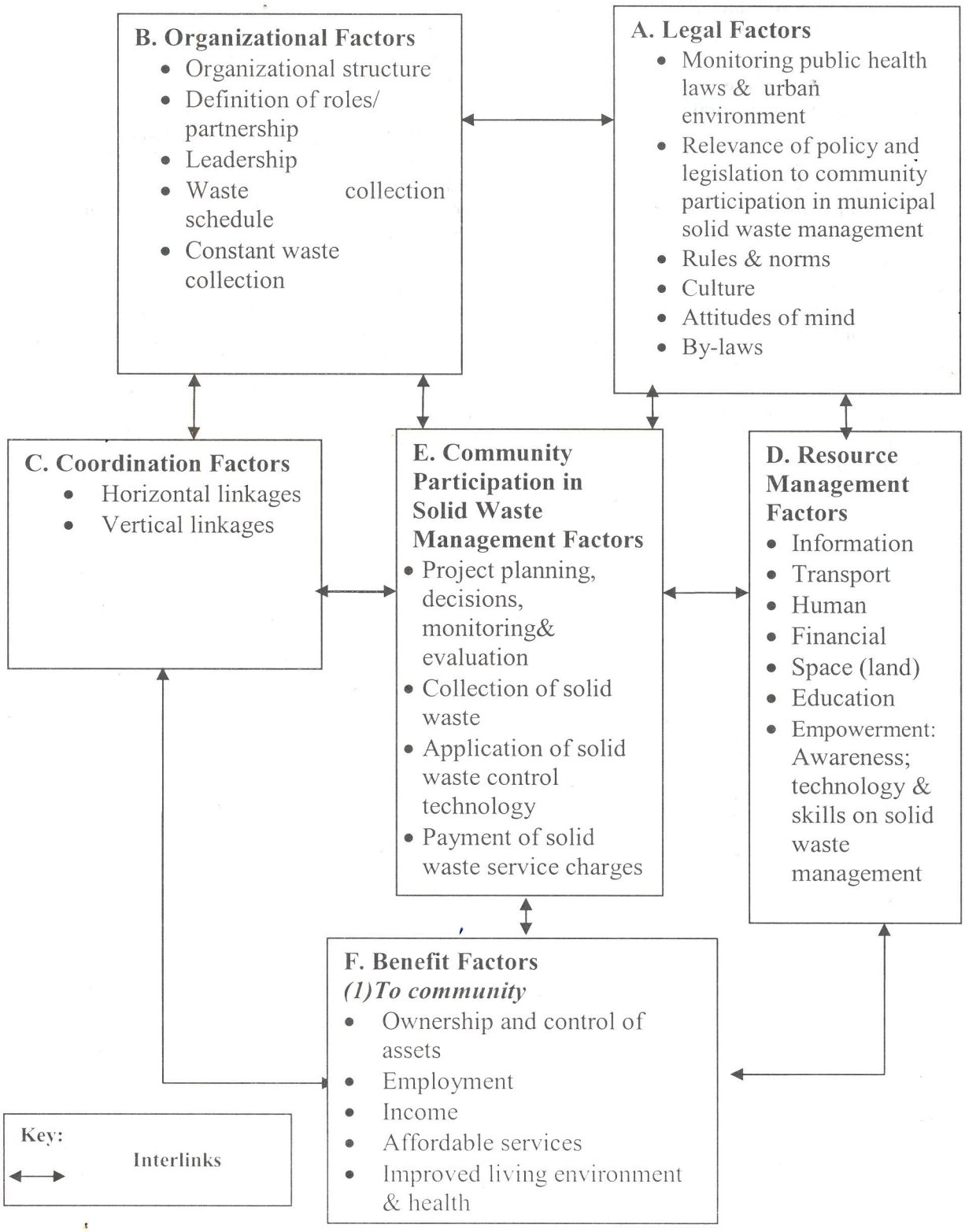


Figure 4: Conceptual Framework: Effective Community Participation in MSWM
Source: Kalwani, (2009)

Organizational factors

Before the adoption of the community participatory strategy in solid waste management in late 1990s; Mji Mkuu ward was one of the areas affected by diseases caused by uncollected solid wastes. Then the municipal authority's conventional approach failed to remove enormous wastes generated by the rapid population increase. That menace prompted the community's readiness to accept community participation in solid waste management. The organizer and founder of KIUM was Mr. Kibwana Mkasi.

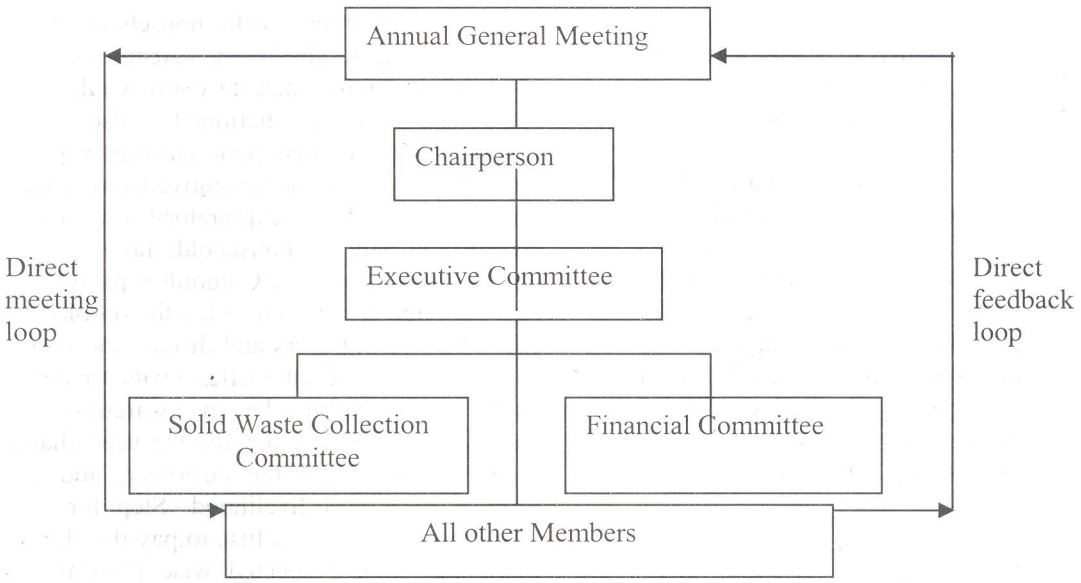


Figure 5: Organizational structure of KIUM solid waste management project
Source: Kalwani, D. J (2009)

Kikundi cha Usafi wa Mazingira (KIUM)'s organizational structure is made up of the Annual General Meeting, Chairperson, specialized committees; and all other registered members at the bottom (Figure 5). The Annual General Meeting is the supreme organ. It is attended by all registered members of KIUM. It deliberates and approves all major decisions of the organization involving policy matters, annual plans and budgets. The chairperson is the chief executive office bearer. He is responsible for the day to day activities of KIUM. He is assisted by the Executive Committee under his chair. The Executive Committee consists of the chairperson (man); secretary (woman); treasurer (woman); and one (man) representative of all members.

The study was informed by the chairperson that all these leaders were elected by the Annual General Meeting. The chairperson also headed the two special committees: the Financial and Solid Waste Collection Committees. They observed a fair gender balance of two men and two women. The study noted that, no other election of leaders has taken place because their three years office term has not elapsed. They said decisions regarding organizational activities in various organs were discussed and resolved through participatory means. To wind up this section, KIUM had a strong internal organization structure operated on participatory basis. This quality partly explains the group's minimal internal conflicts which attributed to its stability.

Formal legal factors

KIUM is a community based organization founded by the current chairperson who later co-opted other 17 members constituting 12 men and 5 women. Upon registration in 2006, it acquired a legal status. The legal personality enabled it to win a competitive tender for a solid waste collection service in the ward. After that, it was contracted by Morogoro Municipal Council (MMC) under the

concession model to provide solid waste collection in the entire Mji Mkuu ward. The MMC fixed different MSW service charges for KIUM CBO to abide by.

KIUM had a registered constitution enclosing the following objectives. To collect municipal solid wastes from households to secondary transfer stations, to remove street solid wastes including dead bodies of animals, fallen trees and leaves, to weed and slash grasses in open spaces in the area of operation, preparation of compost for sale, horticulture involving growing flowers and vegetables in gardens, to clear solid wastes from storm water drains and to mobilize households through public and *mitaa* organized meetings to pay their solid waste service user charges to the group. Initially, the overall objective was to generate income to the low income group members by collecting solid wastes from households to secondary collection points. Over time, KIUM diversified its objectives to include other mentioned income generating activities.

On the other hand, the chairperson said, his Executive Committee was involved in the supervision of day to day solid waste management activities in the operation area. The supervision was effective because, partly the chairperson was not a civil servant. He devoted his working time in supervision of the project activities. Also, the chairperson and his Executive Committee worked as a team in planning, implementing and monitoring solid waste management activities in the project area. The chairperson said that his leadership was built on a simple principle, **"whenever you delegate you must make a follow up"**. However, he expressed some legal operational problems facing his organization. These included: the general laxity of external supervision of solid waste management shown by some irresponsible ward health officers. Also, he stated some cases of households which failed to contribute the solid waste collection service user charge.

A combination of legal and informal legal factors

The study wanted to know how the KIUM Chairperson handled problems of laxity in external supervision and households which refused or could not afford to pay the solid waste collection service user charge. The following section examines the CBO's formal and informal legal procedures in handling MSWM.

The study was informed by the Chairperson that, informal contacts were frequently used to approach KIUM's service user debtors. It sparingly prosecuted such debtors for fear of breaking the rapport and harmony with households who are their permanent customers. According to the Chairperson, taking them to court would not only antagonize the future relations but also would not necessarily make such poor customers pay their dues. In such cases, the Executive Committee team usually assumed an exploratory role involving establishing why the households failed to pay the service user charge. The Committee passes through four participatory steps to solve the problem. Step one it visits non-payers and discuss the issue with them. Step two it intensifies visits to defaulters while raising public health awareness on the importance of paying the service user charge for health betterment of the customer; and for the survival of KIUM livelihood. Step three if the defaulters persistently refuse to pay the charge, the team asks some respected wise persons usually informal leaders in the community to approach the debtors. Normally, at this step, defaulters pay the liability except the genuinely poor households. The team usually resolves to excuse them and cover the loss by revenue earned from other income generating activities.

Informal laws are also involved the distribution of some duties of the CBO according to sex roles. KIUM has 17 members made up of 12 men and 5 women. Women did the relatively light duties, mainly loading solid waste laden plastic sacks into push-carts at primary collection points. Men and women collaborated in unloading the waste at secondary transfer stations.

If, the Executive Committee establishes beyond doubt that, a household had the ability to pay the MSW collection service charge but just refused to comply, KIUM can prosecute the defaulter via the Ward Health Officer consent. Formal laws applied when the CBO enters in contract with the Municipal Council to provide MSW collection services in community area.

The chairperson described the internal organization structure as presented in Figure 5. It shows

different levels, vertically and horizontally interlinked. The link enhanced effective communication, information sharing and participatory decision making process on solid waste management. Furthermore, the organization had reasonable vertical and horizontal links with different stakeholder institutions as described below.

During an interview with the author, the chairperson explained the organization's core horizontal links. He stated that the organization had a solid waste collection schedule. It was prepared in consultations with households and local leaders. He remarked that it was difficult to execute the schedule due to rapidly growing population, surpassing KIUM's capacity to supply solid waste collection timely. This was the case especially in informal settlements which experienced acute transport difficulties.

Regarding networking with local institutions, the chairperson's education background and initiative made him attend various courses and training. They included: commercial-oriented short courses on project analysis and management at the Faculty of Commerce, University of Dar es Salaam. He also attended different SUMO training seminars on mainly project solid waste management. He was regularly selected to attend the latter's trainings partly due to his good public relations with SUMO, the trustee of KIUM. Education and training exposed him to holistic horizontal links. He equally said to have established good network links with different local community groups and other stakeholders in solid waste management. He capitalized on such links to advance capacity building and empowerment of KIUM.

The municipal authority which contracted KIUM to provide solid waste collection service in Mji Mkuu acted as a vertical link between KIUM at the lower level and the Municipality at the higher management level. It represented a vertical link between grassroots organizations at the bottom and the Morogoro Municipal Council at the top in solid waste management. However the study noted that, the link between the two institutions lacked effective implementation rigor. The top lacked sufficient awareness raising, supervision and enforcement of public health laws on continuous basis. Besides, poor coordination between the two levels by the municipal authority's failure to transport and empty overfilled skip buckets from transfer stations to the authorized solid waste disposal site. The uncollected solid wastes polluted the environment, threatening the livelihood of the surrounding households.

KIUM had a total of 17 members: 12 men and 5 women. These formed two types of personnel i.e. 5 out of 17 members were registered. They included the Chairperson, and the rest of the members of the Executive Committee. Only the Chairperson had secondary school education. The remaining members ranged from no schooling to primary school leavers. They were mainly casual workers residing in Mji Mkuu ward.

The Chairperson was the 'expert' of the group partly due to his education and training background. KIUM relied on him to handle general administrative matters and management of the project. Technically, he possessed project management and analysis skills. They included project identification, design, planning, decision making, monitoring and evaluation. He acquired these qualities, partly due to his closeness to SUMO, which was the group's trustee. He attended short courses on compost preparation; and elementary public health education from local institutions.

KIUM mainly used casual labour tools in the collection of solid wastes such as few pushcarts; rakes; shovels; ordinary water buckets; hoes and helmets. Protective gear entailed few pairs of overalls, hand groves; nasal masks and gumboots. The organization also had one old pick up which the Chairman informed this study that, it was obtained through a loan secured out of his initiative on good public relations with his business unit clientele. It assisted in the transportation of solid wastes from distant households to the secondary collection points.

KIUM's Treasurer collected revenue from different users of its solid waste collection service. She also kept a ledger of names of households, business units and other customers. The organization observed transparency and record keeping. The chairperson informed this study that, the group collected Tsh 600,000 to 680,000 per month. The treasurer immediately banked collected revenue. Collections from commercial units' solid waste

collection service user charges formed a reliable source of revenue. They involved shops, hotels, bars, guesthouses, *mama and baba lishe* (women and male food vendors and charcoal vendors. KIUM made substantial capital plough back from its initial capital injection of Tsh 300,000. Profits fluctuated monthly depending on households paying the solid waste service user charge.

Part of the income was spent on purchasing solid waste collection capital tools and maintenance. The rest was partly distributed as allowances to workers and partly banked. Transparency prevailed in these transactions across the organizational organs.

KIUM encountered the problem of many ordinary households failing to pay the solid waste collection service charges deliberately or under poverty compulsion. However, the group combined informal and formal legal actions to reduce the problem. Besides, the organization had other income generating sources to minimize revenue lost to non-payers of the service user charges.

As said before, KIUM devised a strategy of reducing non-payers of solid waste service users. The diversification of income generating activities kept the group solvent. It did not depend solely on solid waste collection service user charges. In this way, it tried to maintain solid waste collection service level constantly.

KIUM undertook several activities intended to augment the group's income. Some had just started. They included small scale compost processing. The compost was partly used as input in its horticulture activity which also generated some income, however, the amount of money generated from these activities was not revealed to the researcher. The chairperson said KIUM decided to close briefly the compost production business due to lack of compost market. Other income sources involved hiring its tools such as push-carts to other CBOs providing solid waste collection in the municipality.

The chairperson informed the study of KIUM's plan to initiate an environmental protection and conservation biomass project along Morogoro River subject to availability of donor funding. It would involve planting trees in order to check river erosion by human activities. It would also include mushroom horticulture which would use compost input to increase production and control solid wastes simultaneously. It would increase local community employment opportunities to both sexes. KIUM Chairman pleaded for financial and technical assistance from diverse stakeholders as initial project capital.

There was some degree of ownership of the solid waste management project by members of KIUM. They passed decisions on participatory basis. The closeness of the chairperson to local leaders and households, cultivated a some sense of community ownership of the project. This influenced community members to accord the project cooperation necessary for improved performance in solid waste management.

KIUM offered employment from within the community. Due to project limitations, 17 poor residents from the community were hired as wage earners in the labour intensive solid waste collection services e.g. solid waste cargo loaders; and cart-pushers. Residents who were hired in KIUM solid waste management project received income, on averaged Tshs 36,000 per month. By all standards, such income was too low to meet subsistence needs. Nonetheless, it dismally augmented other sources of income in the process of poverty reduction.

The CBO argued that, it was not necessarily true that all those who said they could not pay the solid waste collection service user charge were poor. KIUM persuaded its service user debtors through constant follow-ups. This way, it had over three fourth of the households eventually paying the service user charge except the genuinely poor ones. Before KIUM was contracted to provide MSW collection services, the Municipal authority failed to provide such services in the municipality as its resources were overwhelmed by rapid urbanization. It hardly managed to collected solid wastes once per week leaving much of the waste uncollected polluting the urban environment. Since KIU took-over from the Municipality, solid waste collection rose threefold per week. It exhibited a three fold thrice improvement in the environmental cleanliness. Possibly, such improvements motivated residents especially those with reliable incomes to pay the service charge regularly. Partly, it raised KIUM's trust where some rich residents advanced its leader a loan which was

used to buy a pick-up which facilitated transportation of solid wastes in the area.

The Institutional Economic Theory (IET) and Infrastructure Service Provision Linkage Triangle critically examined CP in MSWM to seek explanation on how it was conducted in a market-oriented economic situation in the study area. Findings have shown a general lack of perfect market competition governed by demand and supply forces to determine the price in the MSWM market. Examples included: both the MSW collection service user charge levied to households (beneficiaries); and the skip bucket service charge imposed to CBOs as MSWM (agents) by the MMC (principal) monopoly. CBOs were highly charged (Tsh 120,000/= per month) by the Morogoro Municipal Council for skip bucket use relative to the total revenue collection, on average, Tshs 600,000 per CBO per month. It worked against bounded rationality as one actor dictated terms of the market conditions to other players instead of the MSWM price mechanism set by supply and demand for the service. It increased transaction costs of MSW service consumers (households) especially those who lacked effective demand for the service. This cost was directly/ indirectly transferable to CBOs in MSWM which experienced a net decline in revenue collection. The fact that many of the households failed to purchase the service, they suffered from the cost of not receiving it; consequently, CBOs could not sustain MSW service provision.

The MMC, on one hand, set monopolistic MSWM prices and collected revenue from the agent without efficiently discharging its obligation of transporting solid wastes from secondary transfer stations to final waste disposal site. It subjected transaction costs to the environment and consumers of its service. Besides, one of the IET's assumptions for a market-oriented situation to hold is the existence of norms and rules controlling individual behavioural deviations from rationality and effective transactions in the market. By the MMC changing from a custodian of rational rules and norms to a monopoly in the market, therefore, it distorted the rules and norms of the game in an MSWM market. It subjected various transaction costs to other players in the market mainly the beneficiaries and agents of MSWM.

The study observed rhetorically sharp MSWM laws with blunt enforcement like Section 191 of the EM of 2004 (URT, 2004:211) states that:

> *"Any person who commits an offence against any provision of this Act for which no other penalty is specifically provided for shall, on conviction be liable to a fine of not less than Tsh fifty thousand but not exceeding Tsh fifty million or to imprisonment for a term of not less than three months but not exceeding seven years or to both."*

The finding reported several cases of individual households or institutions which for one reason or the other failed to observe public health and environmental management laws. Yet, no legal actions were instituted against them by the MMC. Therefore, under such situations CP in MSWM projects cannot sustain provision of MSW services to community areas as many of the households neither pay solid waste collection service charges nor are prosecuted. If violation of public health and environmental management continue unabated; sustainable MSWM is unlikely to be achieved. This was a typical case where the policy and its legal instruments existed but the political will to enforce them lacked. Similar experiences from different poor countries were observations by Zietlow and Bull (2004:3-4) and made them conclude that; privatization various social services required a political enabling environment. Rotich *et al.* (2005) noted lack of political will deprived Mathare 4 slum in Nairobi from being provided with MSWM services. Such political acts distort market forces in developing countries.

This study asserts that, KIUM is a success story in participatory MSWM for the following main reasons. Before Morogoro Municipality replicated SCP as explained above, its limited resources failed to cope with rapid urbanization demand for MSWM. Over 70% of the generated solid waste remained uncollected resulting in a filthy urban environment which became a source of diseases affecting mainly the poor residents. Since 2006 to the time of this survey in 2009, KIUM was contracted by the Municipality under SUMO to provide solid waste collection services in Mji Mkuu ward. It worked under a difficulty financial situation compounded by corruption as discussed above. However, KIUM managed to provide solid

waste collection services thrice per week as compared to once or none when the Municipal authority previously discharged such services independently. KIUM improved environmental cleanliness and public health related to MSWM by indicator of reduction of epidemic disease outbreaks roughly by 50% in the area. This was a result of several factors mainly three. One, KIUM won community support by using informal means instead of formal prosecution instrument in pursuing payment from its solid waste collection service user debtors. This approach enabled it to recover revenue from its debtors amicably. Two, KIUM had in place and practiced a pragmatic participatory organizational structure in its day to day MSWM project activities. Third, it had diverse sources of revenue intended to augment its income apart from MSW collection service charge. For example, it hired solid waste collection equipment to other groups involved in MSWM. These qualities attributed to KIUM's stability and success in MSWM project. Nonetheless, KIUM needed further financial and technological support from various stakeholders to enable it achieve better results in MSWM.

CONCLUSION

Community participation in solid waste management mainly in informal settlements has not yet been achieved in the study area generally. This is due to a number of factors mainly lack of elite's political will to adhere to participatory planning and decision-making in MSWM matters. Besides, it is explained by elite's general lack of enforcement of the existing public health and environmental laws. As a result, the MMC itself frequently violates its MSWM laws. This is emulated by some households even those aware of the public health laws and capable of paying MSW collection charge but often consciously break such laws without being prosecuted and/or punished by law. Generally, these are some of the main factors which impede the achievement of sustainable CP in MSWM in Morogoro Municipality. It will be unfair to think that; the institutional weaknesses pointed out in MMC alone account for CP in MSWM impediment. There are unique internal characteristics which differentiate one CBO from another in initiatives, strengths or weaknesses in managing MSW projects. One of such exceptions is the success story of KIUM CBO in MSWM. It has shown roughly 50% prospects of achieving sustainable CP in MSWM. It's partly possible, if a CBO is founded on a voluntary participatory basis with well organized and coordinated structures, and local resource mobilization initiatives to sustain MSWM. It also pre-supposes a committed leadership with aggressiveness to seek project planning and management skills; and application of formal and informal laws in handling day to day project matters. Equally important, fair distribution of the benefits accrued from the project motivates community members to contribute more to the project for its sustainability. The main lessons learnt from KIUM CBO case is that; for CP to be effective and sustainable in MSWM inter alia contributions from service consumers (households) and service providers should be mutually supportive.

RECOMMENDATIONS

KIUM CBO in MSWM project has shown the way forward towards achieving sustainable MSWM in community area. However, more empowerment and encouragement from the government and other potential stakeholder is required for CP in MSWM strategy to achieve sustainable solid waste management among the poor urban communities. It partly calls for the mind-setting and prioritization of policy-makers and actors in MSWM. That is; changing the mind-set from elites preaching "participatory approaches" while in reality practicing the conventional approach to MSWM by "collecting, storing, transporting and disposing of wastes in municipal dumps" which has been overwhelmed by rapid urbanization. They should give top priority on adoption of modern cost effective technology in MSWM such as changing solid waste to a resource. It can be one of the income generation sources to CBO in MSWM projects while managing solid waste to sustainable levels resulting in a healthy urban population and environment. This should be perceived in the light of reviewing the existing conventional outdated laws by replacing them with participatory legal instruments workable in a market oriented economic situation. Equally important, CBO in MSWM should be founded on a voluntary participatory basis with well organized and coordinated structures, and local resource mobilization initiatives for sustain MSWM. This should go along with continued community empowerment and awareness building on the

importance of participatory strategy; and local government enforcement of MSWM laws.

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