

Water Resilient Cities in Africa

LOCAL INSTITUTIONAL FRAMEWORKS AT COMMUNITY LEVEL IN DAR ES SALAAM AND ADDIS ABABA WORKPACKAGE 3: REPORT 2

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1. Background

The main objective of the study is to highlight the institutional frameworks at community level focusing on their arrangements, capacities and modalities for operation as well as how they operate with regards to water shortages and flooding. The study further investigates what local operations are relevant to landscape based urban storm water management and how they can be linked with higher levels of governance and urban planning in the management of storm water and floods.

Generally, institutions may comprise structures, regulations, policies, plans, bye-laws and. Formal structures include authorities such as central/local government departments and agencies as well as non-governmental organisations (NGOs) faith-based organisations (FBOs) and city associations. The latter, i.e. (NGOs, FBOs) are often registered and are therefore legally recognised as partners of the central/local government authorities in any local government endeavours. It is also important to add that the conception of institutions (whether formal or informal) invariably converges with the question of whether it is recognised and accepted by the community or people it intends to serve.

Informal institutions on the other hand, comprise community associations/groups, norms (written or unwritten) and values that have been established in a local area and may relate to locality, economic, gender, ethnic or religious affiliations. Such attributes may cut across households, groups and communities in a geographical area. The attributes are critical characteristics of a well-functioning institution as they depict the degree and sence of identity shared by the actors involved. In short as long as the values and norms cherished and agreed upon by the local community have established collective values; such norms or values constitute institutions albeit informal. This conception is instrumental in the initiatives to explore and institute LSM principals and ides in SWM in Dar es Salaam and Addis Ababa cities because it is these attributes which will determine:-

- How local communities in the study areas perceive and identify themselves with LSM ideas;
- How people respond top decisions of individuals which may espouse or obstruct and undermine LSM initiatives.

Needless to add that once established and supported by the community, formal or informal institutions may serve as intermediaries between individual/households or community members and local/non-local actors as such the Wards, Municipals, Central Government departments the Ministry and International Agencies. In this respect, establishment and nourishing institutions are central to the success of local development initiatives not in the least LSM.

The institutions can be of permanent or temporary status depending on the problem/issue that needs to be collectively addressed. Uphoff and Buck (2007: 47 in Agrawal and Perin, 2008:4) suggest that institutions can be classified as,

“falling into public (bureaucratic administrative units, and elected local governments), civic (membership and cooperative organizations), and private sectors (service and business organizations)”

In the face of rapid urbanisation and poverty, many governance institutions including local authorities have fallen short of having the appropriate structure, knowledge and capacity to provide the necessary support and to deliver the required public services in their communities; leading to the increasing discontent, political and social conflicts. No wonder in recent years, the role of the local communities in public service delivery has intensified (Kyessi, 2002, Kiunsi, 2013). role of the community in service provision. Nonetheless, local groups, individual households and communities in general remain critical players that foster, enable or even may obstruct high levels of community participation in local development including matters that concern storm water and flood-risk management (Vedeld et al; 2014). How institutions at local context are organised, linked and coordinated at various levels involving many stakeholders; are critical governance concerns in Tanzania (*ibid*).

1.1 Methodology

The report has been jointly prepared by the Dar es Salaam and Addis Ababa teams using a number of research methods, tools and techniques. These include, documentary reviews; interviews with key officials at the municipality and relevant government departments and discussions with community leaders in the case study areas. Field work studies conducted between October and December 2015 provided deeper insights into the reality regarding actors, their roles and inter-linkages with regards to storm water management. During field visits focus group discussions (FGD) were conducted with members of the community and various Community Based Organisations (CBOs) both in Dar es Salaam and Addis Ababa as well as individuals practicing some form of LSM (Dar es Salaam). The main respondents with whom FGDs were held were women groups (formal and informal); vegetable farmers and community leaders. In terms of groups/associations; a total of 18 community groups were inventoried and a few purposefully selected in the three case study sites in Dar es Salaam. That is; 2 out of 7 for Mbezi Luis, 6 out of 8 in Kibululu and 1 out of 3 in Kawe Ukwamani.

In Addis Ababa, a household's survey was also carried in the Jemi Condominium and in Repi to complement some of the information. About 52 households were selected through random sampling and interviewed. FGDs were held in Addis Ababa with members of the Housing Associations in the Jemo site as well as with farmers' groups in Mekanissa. The members of Mekanissa Gofa Farmers Cooperative were taken as a case study community.

The quantitative and qualitative information obtained was compiled and analysed thematically using concepts and definitions of institutions and *institutional analysis*. As will be noted, by and large the data and information collected comprised qualitative data. The report first presents the situation in Dar es Salaam and then Addis Ababa, followed by a comparative discussion focussing on the emerging issues.

1.2 The context of water and green structure at the local/site level in Dar es Salaam City

Generally, in many areas of Dar es Salaam city, the stormwater during heavy rains is left to flow freely on the surface by gravity; Mbezi River Catchment and the study areas surrounding it are no exception. In the three study sites i.e. upstream, midstream and downstream, stormwater naturally flows to the low-lying area of Kawe Ukwamani and into the Indian Ocean. The housing in all three areas are hardly serviced by a stormwater drainage system. In this respect, natural drains, which are often encroached on due to spontaneous housing development, forms an important part of the storm water and flood management system in the catchment area. Where storm water drains exist such as in Kawe Ukwamani settlement, they are open drains which are often clogged by refuse.

In terms of institutions with a mandate on storm water, the Local Government Act, No.7 of 1982 gives the responsibilities to municipalities; at community level, wards and Sub-wards authorities ought to be critical players particularly in terms of protecting natural storm channels and mobilizing local communities to clean the drains. The Tanzanian Road Agency (TANROADS) is responsible for all major trunk road infrastructures including the construction of roadside drains along such roads. Goba Kibululu is traversed by the Ardhi-Goba, a major trunk road without storm water drains thus facing stormwater challenges especially during heavy rains.

Study site	Location	Water/Storm water	Green structures/spaces	Remarks
	<p>topography with many steep slopes, valleys.</p> <ul style="list-style-type: none"> Fairly well vegetated – man-made green structures. Varying housing densities but rapid housing densification. 	<p>individuals at plot levels.</p> <ul style="list-style-type: none"> Local flooding and overflows from the River Mbezi and streams due to steep terrain but no major impact on households but minor erosion in some localities. No piped water supply from DAWASCO (Water supply agency); largely depends on wells and boreholes, water vendors striving to fill the gap (Plate) Individual and household level adaptations to storm water runoff problems and flooding include planting elephant grass, digging channels to drain away rain water from compound. 	<p>dense bush and forests.</p> <ul style="list-style-type: none"> No large recreation public open spaces apart from accidental open small spaces. Green structures being depleted due unregulated house construction along and close to the river banks. Management of green structures, including decision on the use or change of land use, planting and felling of trees, clearance of bush and vegetation cover solely done by individuals (Plate...). 	<p>largely saline unlike tap water which is non-saline.</p>
Goba Kibululu	<ul style="list-style-type: none"> Midstream Informal settlement Mixed low and middle income households Sparsely built. Limited sand-mining activities 	<ul style="list-style-type: none"> No man-made storm water drainage system. Open unlined channels dug by the community/at individual plot or house level. Local flooding and overflows from River Mbezi and streams due to steep terrain and environmental degradation due to sand mining (Plate ...) No piped water supply from DAWASCO. Deep wells and boreholes dominate some of the wells managed by DAWASCO. Bulk and small scale water vendors supply water also. At individual and household level 	<ul style="list-style-type: none"> A variety of green structure spaces exist comprising open spaces, vegetable gardens riverine held by private individuals, also vegetation mixed forests. No public open spaces. Military land with dense vegetation cover used by local community members for temporary farming activities essentially vegetable gradening along the river (Plate...). Management of land and most green structures, including decision on the use or change of land use, is done by individuals 	<ul style="list-style-type: none"> Bulk and small vendors coping include use of rain water or hiking of water prices during water shortages. The poor depend on rain water but storage facilities small. Face hardships because of hikes in water prices. No institutional mechanism to check and price of water; Ward and Mtaa institutions not in control or managing green structures, Overall weak in control. Waste

Study site	Location	Water/Storm water	Green structures/spaces	Remarks
		adaptations to potable water shortages and flooding extensively used.		management, house/bush vegetation clearance actions – no by-laws.
Kawe Ukwamani	Downstream Informal settlement/little formal Densely built Predominantly low-income households but also middle low-income. Construction of houses increasingly encroaching into the river Extensive sand-mining	<ul style="list-style-type: none"> • Limited open lined drainage system in some areas. • Severe local flooding and overflows from River Mbezi and streams during heavy rains due to flat terrain especially along the river. • Existing piped water supply from DAWASCO provided at community kiosks and connection to individual households. • Community and Individual and household level adaptations to flooding exist. 	<ul style="list-style-type: none"> • Horticulture marsh/swamp • No public open spaces • Encroachment of housing into river valley. • Management of most green structures, including decision on the use or change of land use, is done by individuals, community leaders and institutions are generally weak and insensitive to green structure management. 	•

1.3 The context of water and green structure at the local/site level in Addis Ababa City

The tree case study sites in Addis Ababa city are Repi hill, Jemo area and Mekanissa. Repi hill and Jemo case sites are located within the Jemo River catchment which is a tributary river to Lafto River ultimately joining the Little Akaki River. Repi hill and Jemo case sites are upstream and middle stream case sites respectively. Mekanissa is located downstream along the Little Akaki River.

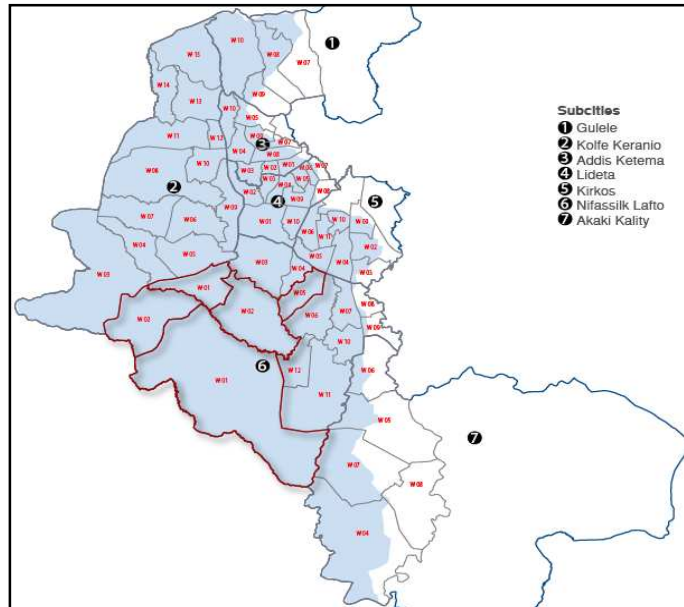


Figure 2: Little Akaki River catchment and sub city and wereda administrative sub divisions (source from WGA drop box)

Repi case site is located on the slope of the Repi hill. In the past two decades the hill side has experienced rapid informal housing development. Settlements constituting single storey houses mushroomed on the steep slope of the hill although some parts are still covered by forest. There is also grazing land in the upper part of the hill. Quarrying for extracting for road construction material has also been conducted on the hill for years until recently.

Economic activities include farming at the top of the hill, growing and producing crops for selling and for own consumption. The farming is a major source of livelihood for these people, whereas few settlers from the mid and lower slope of the mountain grow vegetables in their own backyard and use for their own consumption. The farmers have experienced intensive pressure and decrease in the size of their farm land in recent decades.

There is a water tanker on top of the hill where water is distributed to Repi and other localities. However, very little number of households from Repi has private connection. Majority of the households get water from communal standpipes. Water shortage is the most severe problem in Repi, compared to other two case study sites. It requires the residents of Repi to struggle and to strive daily to get water which is one of the major livelihoods challenges and time consuming activities of the households

Midstream, at Jemo, the ground water is shallow is located adjacent to the Jemo and Hurbu rivers bank where five storey condominium buildings are now built. Condominium blocks are clustered in group in a compound where communal facilities (open spaces, parking area and communal buildings) are also provided and organized.



Vegetables commercial farm in Mekanissa



Small scale gardens in Jemo condominium backyard

All residents of the condominium have private water tap connection. However, water shortage especially in the upstairs of the condominium is a critical problem of the project area. Paradoxically sudden and unexpected overflow of pipe water from unattended and open pipes of the upstairs units sometimes occurs. Residents in the lower floors are affected by the overflow of unattended pipe water from upstairs especially during night time; because the residents in the upstairs leave open their tap all the time in the expectation to get water, which is unpredictable when it will be there. The overflow of the pipe water in turn soaks the downstairs units and damages the building. Some of residents in the ground floor were also affected by flooding from the surface runoff during rainy season due to blocked drains. Around the condominium buildings there are cracks that allow the surface runoff to infiltrate and because of this residents fear that this causes a structural damage to the foundation of the buildings and would endanger their safety.

Downstream, the Mekanissa pilot site is flood plain area which is naturally susceptible to seasonal flooding. Unlike major part of the river segment, the water level of the river at Mekanissa site is close to the ground level which easily swells and inundates the nearby areas seasonally. On the bases of the assessment, the dominant livelihood activity in Mekanissa is farming where the members of the Mekanissa Gofa Vegetable Farmers Cooperative livelihood depend. The farm land of the Mekanissa Gofa Vegetable Farmers Cooperative is located to the west side of the Little Akaki River bank and the river water is used for irrigating the farm land. Most of the farmers live close by the farm land and most have private water connection in their house.

Table 2: Water and green infrastructure challenges in the studysites in Addis Ababa

Study site	Location	Water/Storm water	Green structures/spaces
Repi	<ul style="list-style-type: none"> • Upstream • Informal settlement; mixed income • Steep slopes and valleys. • Farming, grazing land, quarrying activities • Single-storey housing development. 	<ul style="list-style-type: none"> • Open unlined channels. • Few private connections to piped water • water tanker on top of the hill where water is distributed to Repi • Majority of the households get water from communal standpipes • Water shortage is the most severe problem 	<ul style="list-style-type: none"> • Grazing land exists. • Some parts still covered by forest • Farming activities e.g. vegetables in their own backyard for household consumption
Jemo	Midstream Mainly condominium development	<ul style="list-style-type: none"> • All residents have private water connection. • There is critical water shortage especially in upper floors of the condominium • No SWM and residents in ground floors affected by flooding from the surface runoff during rainy season due to blocked drains • Storm water run-off infiltrates in building cracks on ground floor causing structural damage to the foundation of the 	<ul style="list-style-type: none"> • Green open spaces and, parking areas exist. • Individual residents of the condominium grow vegetables and ornamental plants and trees in the common open spaces • Also individual farmers and organized groups do farming activities along the river bank outside the condominium compound.

		buildings	
Mekanissa	Flood plain area which naturally susceptible to seasonal flooding. Dominant livelihood activity in Mekanissa is farming	The river water is used for irrigating the farm land. Most of the farmers have private water connection in their house.	Farmer s grow vegetables, bananas and small scale livestock (dairy cattle and sheep) There exists MSEs organized by the wereda practising horticulture on the main road of Mekanissa

2. The Institutional Environment at local level

2.1 Introduction

The City level institutional analysis (WGA Report ,2013) revealed that existing national and city level organizations, policies, laws and regulations related to water, stormwater and green infrastructures for both cities are generally linked to and in many ways support landscape-based storm water management. However, the institutional set-up was found to be wanting with regard to vertical and horizontal coordination, among relevant spheres and departments; particularly with regard to central, local and grassroot actors. There were also gaps in terms of institutional structures for SWM; in existing legislations and policy documents. But this is not surprising since because unlike water supply, sewerage and sanitation in many countries; stormwater management has no dedicated managing entity that manages storm water. The adverse effects of storm water only become visible when a flood occurs.

Despite this local communities in both cities have adapted (directly or indirectly) ways to mitigate the effects of poor storm water drainage, water shortages and the management of green structures. Hence the implementation of landscape based storm water management (LSM) ought to explore and build upon the subsisting structures and potentials as will be outlined in this report. UN-Habitat; (2011) and Hossein et al. (2011) observe that programmes and activities are likely to become sustainable if local inhabitants play a critical role in planning and implementation (Indeed the private sector actors particularly in Dar es Salaam city have played a significant role in water supply but very little in the way of SWM and yet their resources and potential can be tapped to advance LSM.

In Dar es Salaam and Addis Ababa cities, the local inhabitants in the study areas and many other areas as well, face various risk and threats. These include flood risks, contamination of ground water sources; outbreak of epidemics such as cholera. These events will adversely affect activities and processes that concern everyday lives and livelihoods of the communities. It is therefore necessary to explore institutional arrangements at local level that can tap synergies and

promote collaboration between the many actors involved such as the municipal and local grassroots community, NGOs, CBOs, FBOs and private actors) for planning and implementation of landscape-based storm water drainage. Community organizations are not a new feature in many developing countries, many of which are formed to cope with among other things basic service deficits such as water; however government institutions at city level rarely have will and patience to collaborate. The following table summarises some of the key institutional constraints in Dar es Salaam and Addis Ababa as found during the city level analysis.

Table 3: City Level analysis: Summary of key constraints in Dar es Salaam and Addis Ababa Cities and Catchment levels

Level	Institutional structures	Institutional challenges/opportunities	Remarks
Catchment	Wards (Dar es Salaam) <i>Woredas</i> or sub-city authorities (Addis Ababa)	<ul style="list-style-type: none"> – Highly centralized mechanisms for response to flooding – Ineffective land use planning – Unregulated informal housing development/expansion – Extensive livelihood activities that negatively impact on the environment /LSM opportunities. – Fragmented, uncoordinated individual, household based efforts – Little, lack of awareness/knowledge on LSM – Insensitivity of institutions and actors to LSM imperatives 	<ul style="list-style-type: none"> – Opportunities for LSM adoption present in on-going projects such as the Awash Basin Council and the Basin plan preparation in the case of Addis Ababa and the on-going Master Plan preparation in Dar es Salaam – The individual small-scale dams for fish farming and water for gardening/washing
Site	<ul style="list-style-type: none"> – <i>Mtaa</i> and Sub-ward units (ten-cell units in Dar es Salaam) – <i>Kebeles</i> (Addis Ababa) 	<ul style="list-style-type: none"> – LSM opportunities hardly discussed in the existing structures – Planned PPP practices in greening (Addis Ababa) – Existence of institutional structures with administrative powers at <i>Mtaa</i> and Kebele levels 	<ul style="list-style-type: none"> – Livelihood endeavours such as urban agriculture coupled with water shortages provides a good opportunity to adopt LSM building on local practices

		<ul style="list-style-type: none"> - Fragmented, uncoordinated individual, household based efforts/interventions - Untapped potential capacity of community based institutions 	
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Source: Field studies between July 2015-December 2015

It was observed that both cities have more or less a highly centralised mechanism for responding to floods emanating from increased storm water run-off. However the existence institutional structures with administrative powers such as the *Mtaa* and *Kebele* and the untapped potential capacity of community based institutions are some of the opportunities that need to be strengthened.

2.2 The Institutional Environment in the Mbezi River Catchment - Dar es Salaam

The following sections present the local institutions that were observed during the field work studies in Dar es Salaam

Formal Administrative Institutions

Wards and Sub-wards Committee

In Dar es Salaam, the Wards and *Mtaas* or Sub-ward units are the smallest administrative units of local government that represent the Municipal Councils at the country level. The sub-units in the three case study sites are; Ukwamani in Kawe Ward (downstream), Kibululu in Goba Ward (midstream) and Luis in Mbezi Luis Ward (upstream). Wards and Sub-wards are critical units of democratic governance within the decentralized local government system in Tanzania. They comprise both elected leaders (Ward Councillor and Ward Chairperson) as well as salaried officials namely the Ward Executive Officer (WEO) and the Mtaa Executive Officer (MEO).

The key roles of the Sub-ward unit include:

- i.** Mobilising local communities to participate and contribute resources especially when there is a disaster in cash or in kind;
- ii.** Promote and sensitize local communities to support local action geared toward solving community felt problems, especially, during and after disaster such as flooding;
- iii.** Monitoring and enforcing laws and by-laws and norms (including unwritten) where they exist;
- iv.** Monitoring the day-to-day development activities in their localities. This includes cleaning storm water drainage systems, tree-planting campaigns, maintenance of peace and security. They also prepare reports on the implementation of development activities and community proposals and submit them to the Ward and eventually to the Municipality.

The Ward and Mtaa Development Committees are the main participatory organs at these levels. They include elected representatives of local communities.

2.3 Institutional arrangements addressing water, storm water and green structures

The three case study areas have established and functioning Ward/Mtaa Development Committees (WDC). More importantly, the committee is the participatory organ charged with developmental activities at Ward level. It is for instance, involved in issues such as environmental cleanliness and the preservation of green structures, monitoring fragile ecosystems from degradation (i.e. by prohibiting grazing and cultivation on steep slopes, valleys, river banks etc); and management of floods by prohibiting disposal of waste in drains. As noted earlier, the WDCs are constituted by Ward Councillors, the Ward Executive Officer (WEO), and an appointed public official, who is the secretary to the committee. The Sub-ward Chairpersons and some professionals from a Municipal council such as the Community Development Officers and Health Officers are members of the WDC. Sub-ward chairpersons in the case study sites of Mbezi Luis, Goba Kibululu and Kawe Ukwamani represent their local communities in the Sub-ward or *Mtaa* and are responsible for communicating to the WDC, developmental concerns including issues facing the community. On the other hand, at the Mtaa Development Committee (MDC), collects concerns from the local communities/Sub-wards and presents the same to the municipality through the Ward/WDC. Normally submissions from Sub-ward organs are deliberated on at the MDCs before they are consolidated and forwarded to the Municipal council for funding/action consideration

At *Mtaa*/Sub-ward level, Sub-ward Committee (MDC) members' include representatives elected by the local community living in the Sub-ward areas. These are elected from smaller units such as clusters, zones or branches; and each cluster is further divided into ten-cell units' largely comprising ten households/houses. Often times they are influential persons or opinion leaders who are trusted and listened to by the community. The cluster leaders or *Wajumbe* are elected representatives/leaders of the ten-cell/houses units. With the advent of multi-party democracy, the role of the ten-cell unit has somehow faded out especially in urban areas; however activities and roles have more or less persisted. These include overseeing the welfare of the local communities within their respective cells/cluster. They have an important community role of; for instance, mobilise households within a cell/ cluster to undertake communal activities including those related to environmental care, safety and security.



Plate 3... Mbezi Luis Sub-ward offices renting out space for water selling .

The *Mtaa* Sub-ward Development Committees in Mbezi Luis, Kibululu and Ukwamani are responsible for preparing and implementing development actions that aim to address local community concerns such as environmental cleanliness, poverty alleviation and income generation. They also mobilise their local communities to implement development activities from the Municipality or City Council; and/or development partners through self-help/community funding initiatives. Furthermore the Sub-ward officials sometimes collaborate with the local community to address chronic problems facing them such as illegal sand-mining. The biggest challenge however is the development of informal housing which is unguided and thus threatening the existence of green spaces and fragile land. The following sections illustrate some of these actions.

Box 1: Sand mining and attempts at collaborative action between land owners and the Sub-ward offices

In Goba Kibululu, sand-mining along the Mbezi River, is done by local residents and sold to private homebuilders. The activity however, leads to environmental degradation especially destruction of vegetation along the river banks. Gradually land becomes prone to erosion particularly during heavy rains. Members of the community especially those whose land border the river reported the matter to the Sub-ward officials so as to take action to prohibit and enforce environmental protection bye-laws. However the Sub-ward officials upon taking action by visiting the area with the police, met with great resistance and physical aggression when they tried to stop the perpetrators. Efforts were made to involve higher level institutions/stakeholders whose land also borders the river such as the Military. But enforcement was only temporary and the miners are back to sand-mining. This highlights the weak Sub-ward institutions as well as lack of support to address local issues. They lack the necessary resources and cooperation from higher tiers of local government.

Source: Community meeting between WGA project members and Sub-ward representatives held on 19-09-15 in Goba Kibululu.

Despite apparent weaknesses in enforcing by-laws aimed at protecting community welfare, there are a number of actions done between the Sub-ward and the community in the three areas that are noteworthy. They include:-

- i. The installation of storm water drains at Kawe Ukwamani and the construction of a bridge along river Mbezi to ease mobility within two settlements. Indeed the main actors in the construction of the bridge are the Mtaa committee members responsible for the environment. They were responsible for coordinating the initiative. The private contractor was the implementer whereas the local community members provided labour but at a cost.
- ii. In Mbezi Luis, solid waste management is also on-going at *Mtaa* level. While many households bury household waste in the compounds; alternative waste management was discussed because the intensification of land development activities in the study area is rapidly reducing open areas (in and around house compounds) that can be used for waste pits.



Plate 4: Officials acting as enforcers, a signpost prohibiting waste dumping.

The idea discussed at the Sub-ward or *Mtaa* is to have vehicle to collect solid waste. The business people who generate more waste will be required to pay at least Tsh. 5000/= per month. Discussions are on-going on how much individual households will be charged. When asked who initiated the idea, the respondent said the idea was mooted by the Sub-ward chairperson and then presented to the environmental committee; the decisions are made at the committee level and then forwarded at Sub-ward Committee for rectification. In relation to the legal instruments used to facilitate the establishment of the committee it is noteworthy that the Local Government Acts No.7 & 8 of 1982 and the Environmental Management Act Cap. 191 of 2004 provide provisions for the protection of the environment “within the area of the township, ward, Sub-ward/mtaa, and village”. The booklet issued by the Ministry responsible for local government (PMO-RALG) also outlines the mandates of and roles of Sub-ward and Ward institutions. In this respect the community based institutions seem to have a basis for discharging their duties.

- iii. Attempts have been made to collect cash contributions so that the community could hire a bulldozer to realign the river in Mbezi Luis to check extreme erosion caused by excavation of sand. This has not been very successful because the illegal sand-digging continued.

Some of the challenges facing collective actions between the Sub-wards and the community relate to inadequate financial, technical (equipment) and little appreciation for LSM. Above all, and according to the discussion held with local leaders in Kibululu, there are also problems of corruption and collusion between the truck drivers carrying sand and law enforcers in the Police Force. Local leaders bitterly complained that whenever they arrest and take lorry drivers to the Police station, within days they are back to business. Others added at that:

"..on several occasions we have witnessed lorries carrying sand from the prohibited areas while the police take no action and remain by-standers. This cannot be accidental, it appears that they have "greased" their palms. So we cannot do anything if the police are colluding with the law-breakers" (Meeting with community leaders at Kibululu June, 2015). Similar concerns and experiences on illegal sand-mining and the laxity of the Police were expressed at Kawe Ukwamani (downstream) by the Sub-ward chairman.

2.4 Institutional linkages

Overall the impact of the Sub-wards and its committees in supporting the local communities to address or adapt to water shortages, storm water/floods or even the loss of green spaces brought about by indiscriminate housing development have been insignificant. But the relationship and linkages between the local community; and the Sub-ward committee and leaders in the study sites are generally cordial, and are based on neighbourliness and familiarity because the leaders are elected from among the community by the community. Focus group interviews in Goba Kibululu and Mbezi Luis revealed that local community based groups are however not practically related with their community leaders. They only see them as officials, with the role of providing official documents/identities when required or resolving domestic or land conflicts in the local community. They therefore do not see them as a potential source of sustenance or partner to link with, or as a bridge to other outside organisations or groups involved in addressing environmental or livelihood challenges.

On the other hand, Sub-ward officials from the three study sites observed that, local groups (informal or formal) carry out their group activities "under the radar" and do not necessarily report or register with their Ward or Sub-ward offices. Therefore it was difficult for the Sub-ward/Ward officials to assist or cooperate with them on issues related to community development. Discussing on the role of institutions and how they affect communities' adaptation to climate change, Agrawal (2008:29) suggests that individual households or community groups have different "degrees and types of links with their local institutions" which affect the benefits they can gain as well as how they adapt to climate change impacts. The strength of the linkages

depends on their role. They could be socio-cultural, economic or political; spatial or economic based. Whatever they are, the critical function is that they can facilitate transactions of activities in a local community and reduce everyday hardships. Linkages are critical as they mediate interaction among individuals, groups, communities and organisations at local level. The implication here is that the development of local linkages among the actors at Ward/Mtaa levels is instrumental in an attempt to forge synergies for LSM to flourish; for linkages have reinforcing power that has to be activated and/or mobilised.

Table 4: Existing links between the Sub-ward and community

Issue	Type of link	Extent of links between Ward and community	Remarks
Water shortages	<ul style="list-style-type: none"> – Overseer in community boreholes – Water supplier – Facilitates private water suppliers 	Strong	No resources involved Low capacity/resources and skills for alternative approaches Private vendors play a critical role
Floods	<ul style="list-style-type: none"> – Coordinate humanitarian and other assistance – Disseminate information/ early warning – Construction of local storm drains – Prohibition/enforcement with regard to sand-mining 	Weak	Low capacity and skills to engender strong links
Green structures/spaces	<ul style="list-style-type: none"> – Informal land use development – Decision-making – Implementation 	Weak	Indiscriminate change of land use from open/agriculture to residential Environmental damage due to sand-mining, erosion Weak enforcement capacity due to lack of mandate

Source: Interviews with Sub-ward leaders and FGDs with groups (November 2015)

In this case one may argue that how much the community or the community groups in the study area are affected by water shortages, stormwater and green spaces particularly in relation to their livelihoods will, inter alia depend on the type and strength of links they have with their local or external institutions such as the Ward and *Mtaa*, particularly if they are poor and/or do not have the necessary financial, physical or human resources (capital) to buffer them against calamities like flooding. .

2.4 Water and green infrastructure related government agencies at the community level

DAWASCO

The Dar es Salaam Water and Sewerage Corporation (DAWASCO) is the subsidiary of DAWASA responsible for water distribution, management and maintenance within the City. DAWASCO support community participation and involvement in water supply and management actions through the Water Users Associations (WUAs). WUAs are the lowest level of water management within the water management structure in the country. At Ward level, the Goba Water Committee which was established under the JICA technical and financial assistance and with a constitution and elected leadership of 8 members (4 men and 4 women) is the organ responsible for water management in Goba. Water is received from DAWASCO and stored in reserve tanks of about 1000 litres specifically located in school open grounds. The Kinondoni Municipal Council (KMC) also contributes funds while the community members contribute labour and cash for a water meter to operate the water supply. Households have to pay about Tshs. 200.00 for 20 litres of water. At Kawe Ukwamani DAWASCO supplies water through a piped system. There are also privately administered bore holes (one at the Oilcom petrol station and another one at the mosque). In this respect private and faith-based organisations are also fill the gap of water services created by the public deficit especially in informal settlements.

2.5 Other relevant formal institutions at community level

2.5.1 The Military

River Mbezi separates or marks the boundary between the Tanzania Peoples Defense Forces (TPDF) and the local communities at Kibululu. The Lugalo and Changanyikeni Military bases of TPDF cover 8.4% of natural green structure (575 ha) of the total catchment area. Most of the Military areas are still natural with bush shrubs, tall trees and grass (Report on Green Structures WP.2,2014). The areas are protected by the Military and are important to the catchment community; interviews with the Mtaa officials and households revealed that the Military has informally allowed households to farm in the open areas along the Mbezi River. Residents in Goba Kibululu and Kawe Ukwamani therefore have the opportunity to farm on the Military land.

Apart from offering land for farming/gardening, the Military does not provide any other support technical or otherwise to the farmers. Therefore, the relationship between the Military and Kibululu community is mutual.

As noted earlier flooding in the river catchment areas is exacerbated by sand mining due to erosion of the river banks. It was reported that members of the Military together with the Sub-ward officials have attempted to prohibit sand-mining through community policing but without much success. It could be that the efforts are short-term and unsustainable due to lack of forum or collaborative mechanism to formulate concrete strategies and activities between the community, the Military and the Sub-ward officials.

2.5.2 Schools

Interviews with the MEO 's in Kibululu, Mbezi Luis and Kawe Ukwamani indicated that schools are significant institutions in the case study sites because they normally have large open areas not yet built upon; besides, they provide temporary shelter to families whose houses have been destroyed or overrun during flood periods. Schools also provide space for community activities such as public meetings. Several community meetings and FGDs in Goba Kibululu by the WGA project have been held in the classrooms and grounds of a privately managed kindergarten school. At times of flooding, the Sub-wards liaise with school authorities to resettle victims while coordinating rescue activities.

Apart from providing physical space, interviews with the *Mtaa* Executive Officer (MEO) of Mbezi Luis informed that school grounds are not used during the rainy season because they are flooded and are potential areas for LSM type activities. Therefore the Sub-ward leadership plans to use part of it which has a large depression; to retain storm water and thereafter re-use it for urban agriculture. The area is planned for construction of a secondary school, but currently there is no fund for the construction, so the area can be used for LSM and other income generating purposes. The target group for the proposed urban agriculture endeavour is women and youth; this in turn will provide self-employment and therefore income. The MEO is an employee of the local government stationed Mtaa/Sub-ward level who oversees the development of the area. The MEO is aware of the potentials of rainwater re-use. Also being a government official, he can influence change with regard to the re-use of rainwater as well as LSM.

2.6 Informal institutions

2.6.1 Community based groups

Informal institutions in this study comprised groups/associations that are not registered, or do not operate through the Sub-ward level. They include groups that loosely network to address local issues that concern their every-day lives. Such collective actions are geared towards addressing long-term or short-term issues related to the livelihoods, social/welfare, or physical/environmental threats such as water shortage and flood risks. The structure of such community groups comprises largely the chairperson, the secretary and the treasurer. Out of 8 groups interviewed in the case study sites only 2 groups have prepared a group agreement which outlines rules and obligations of each members including registration requirements, how meetings are conducted, operational sub-committees, rules related to finance as well as others related to the leadership tenure and election. The interviews further revealed that, those groups without formal agreements or constitutions have an 'unwritten' understanding shared among members about the organisation structure, routine meetings, membership fees and contributions; and objectives of the group. In short informal groups in the study areas seem to operate with some structures norms and values which bind and link members.

(i) ***Economic/livelihoods and welfare based community groups***

During the field study and interviews it was further observed that there are also community groups which are formed by members to address specific welfare issues such as income challenges. In all the 3 case study sites, the community groups interviewed had more or less similar characteristics and functions. The groups were, for instance, economic -credit and saving associations whereby membership is voluntary, but is based on common history and close friendships. In total there are 18 such groups in Kawe Ukwamani, Goba Kibululu and Mbezi Luis which were inventoried. Majority of the groups and their members comprise women. Credit rotating schemes, *Upatu* and VICOBA system¹ are administered by the groups where each member contributes an agreed sum of money which is then handed to one member or two members at a time through the rotation. In VICOBA, the contributions are based on agreed shares. The collected amount is distributed to shareholders at the end of the year, based on shares contributed or held by each member. Many women in informal settlements are unemployed and at the same time they shoulder a lot of responsibilities in their families. This has given raise to the growth of credit rotating schemes in many local communities of Tanzania. The number of members per group observed in the case study sites is 20 -70 on average. Each member is required to pay a “registration” fee as well as make monthly subscriptions as part of his/her as savings. Goba Kibululu had the largest group members with a total of 80 members..

Group members in credit groups contribute daily, weekly or monthly towards savings which form a pool of money from which members can borrow, during emergencies or need of cash to supplement or boost his/her income generation activities. Most of the groups operate within their locality, and not beyond the Sub-wards.

Box 2: Upendo VICOBA Group (Kibululu)

The group began its activities in January 2013 and has 80 members all of them women. The main objective of the group is to economically empower women. Members buy group shares (TShs 2,000/= per each share), these are used as their collateral when one wants to borrow money from the group. The loans are usually supposed to be paid back after 3 months (with 10% interest). The group used to run a washing powder business; where members were given 1kg each, and make a payment of TShs 1,000/= after a week; and At the end of each year, each member is paid cash in proportion to her shares, and interest is divided equally. The process goes on and on as long as members contribute.

Source: Interviews with group members, November, 2015

¹ Upatu and VICOBA systems refer to forms of rotating saving and credit schemes which operate among most low-income urban residents.

Box 3: Mshikamano Group (Mbezi Luis)

This group started its activities in 1st January 2014 and has 15 members all of them women. The group has a constitution and group administration regulations. The fee for joining the group is TShs 120,000/= and every month each member contribute TShs 50,000/=; The main objective of the group is to support the establishment of income generating activities for its members. Among other activities, the group owns chairs, saucepans, plates and spoons which they hire out to members of the community for use during functions such as weddings, funerals or social gatherings. This enables the group to earn an income as a group as well as increase savings.

Source: Interview with group leader November, 2015

(ii) Environmental/neighbourhood improvement based groups

Many groups that are involved in environmental or neighbourhood related improvement activities in informal settlements have come together to facilitate/provide basic community level services. They have established such groups because of lack of these services at the same time they provide them (services) as a source of income/employment. Field visits and interviews with community groups and Sub-ward leaders in Kibululu and Luis revealed that there is only one group in Kibululu focussing on environmental or neighbourhood improvement namely sanitation services and advocacy on the use of pit latrines. In Kawe Ukwamani there is one CBO involved in solid waste collection, environmental control and fumigation. Further probing however, revealed that the CBO operates more or less like a private enterprise and is registered with the National Environmental Council (NEMC) to provide environmental services such as fumigation. Many CBOs and NGO groups that subscribe to environmental issues/management in Dar es Salaam focus on solid waste management because it is more visible when not managed. Solid waste management in the city of Dar es Salaam is one of the public service sectors which were open for privatization in the 1990s.

When asked why there were not many groups concerned with neighbourhood improvements or environmental issues, at the same time local communities were facing severe water shortages as well as soil erosion, the CBO members interviewed in Goba Kibululu asserted that household income concerns were the priority issue in their community. They had taken up the concerns to increase the incomes of women so that they could take care of their families rather than, engage in service related community activities. There is a group in Kibululu (Ebeneza Tuinuane Group) that is reported to be interested in rain water harvesting because a member of the group has had the experience in her village outside Dar es Salaam. Some of the challenges this group was facing include lack of inadequate resources to buy water tanks for water harvesting and building the system, but also getting a community member to contribute or donate their land for the community activities. The contribution or allocation of land for LSM purposes is an issue worth reflecting on because it may facilitate or hinder LSM adoption.

In Mbezi Luis, interviews with a CBO group leader more or less revealed similar findings of not having groups engaging in environmental issues. A respondent noted: “...*We do not face serious problems related to storm water or solid waste management. For instance each household is required to have a garbage pit within their compounds so people do not dispose waste indiscriminately. Storm water flows down the hills swiftly into the river and is not a problem unless you live close to the edge of the river.*”(Mjumbe, Field visits, January 2015)

Another community member added that, “*Storm water is naturally drained towards Mbezi River. There are no big effects of floods within the settlement. Sometimes it does happen within individual houses when they block natural drains. The effects of floods normally is observed along the river valley where you can see soil erosion. There are few sand miners along the valley which contributes to soil erosion*”(Mbezi Luis, Interview with Mjumbe, June 2015).

Most of the groups observed that they do not receive any assistance from the Sub-ward leaders apart from letters of identity issued to them when they need to present such documents to say banks or institutions they cooperate with. A group member in Kibululu noted that they have invited the Sub-ward chairman to officially inaugurate the group at a meeting. Otherwise no information is exchanged with Sub-ward institutions and the inventory of CBOs that this study compiled during the field survey was very much welcomed by officials in Kibululu.

2.6.2 Individuals at household level

Almost all the land on which they carry out activities related to LSM is held by the individuals under customary or quasi - customary tenure system. Generally, in all the three case study sites, individually oriented actions (including those related to storm water management and green structures) are more common than collective endeavours. Households with varying activities related to LSM were purposefully selected for the interviews. Field study showed that individuals in Mbezi Luis, Kibululu and Ukwamani have used their own resources to address or improve storm water systems, portable water supply or green structures with hardly any assistance from the Sub-ward leaders. They appear motivated and compelled to take own initiatives because of either chronic water shortages or the need to make and improve their livelihoods.



Pictures 3 &4: Rainwater harvesting by households who can afford the investment.

The actions taken are presented in Table 5:-

Table 5:Individuals and Households level initiatives related to LSM in Mbezi Luis, Goba Kibululu and Kawe Ukwamani

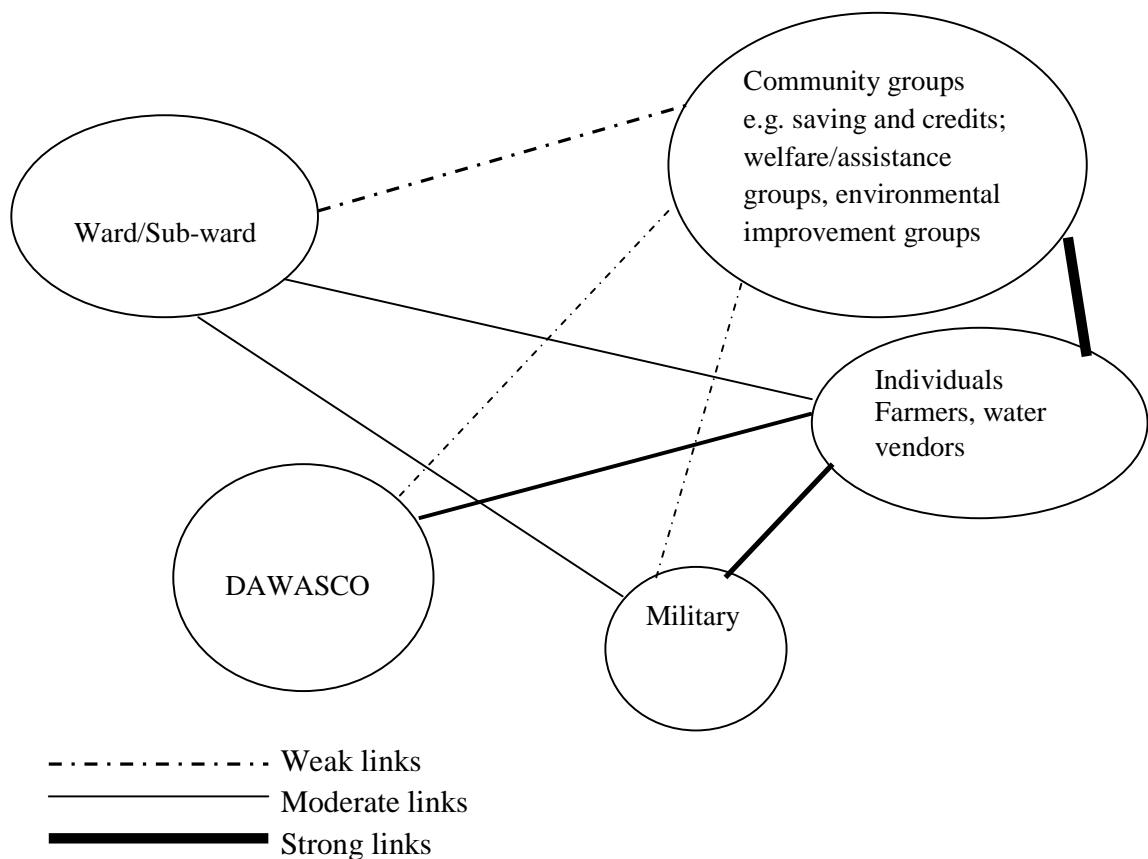
Issue	Type of action at household/individual level	Remarks
Water shortages	<ul style="list-style-type: none"> - Rain water harvesting within compound for domestic use and vending (small/rarely large scale) - Private water vending using deep boreholes located within compounds - Digging temporary wells on the river bed - Storing water in containers/tanks when it flows through DAWASCO pipes (kawe Ukwamani). 	<ul style="list-style-type: none"> - Using own resources and local skills or <i>fundis</i> - Better off households have access to credit institutions such as micro-credit banks, for rainwater harvesting projects
Floods	<ul style="list-style-type: none"> - Constructing individual drains to direct water away from compound. - Planting grass (elephant grass) to prevent erosion in vulnerable areas around the homestead. - Rain Water harvesting (small dams) for livelihood activities such as vegetable gardening, fish-farming - Building retaining walls to deter floods 	<ul style="list-style-type: none"> - Using own resources and local skills - Limited fish farming and vegetable gardening activities -
Green structures/spaces	<ul style="list-style-type: none"> - Urban farming in the compounds and on opens spaces on the banks of the river Mbezi. - Planting grass (elephant grass) to prevent erosion in vulnerable areas around the homestead. - Planting trees for beautification 	<ul style="list-style-type: none"> - Using own resources - Amount and type depending on taste for green structures within the compound.

Source: Various interviews with households, groups and Sub-ward leaders, site walks (Between October- December 2015)

2.7 Nature of the existing linkages in the study areas and potential for LSM

As pointed out in the preceding sections, linkages among the local institutions are critical as they mediate interaction among individuals, groups, communities and organisations rather than having individuals working alone. Furthermore, the nature of linkages also determines the type of support and collaboration inherent for the adoption of LSM. The following figure illustrates the nature of linkages existing within the community groups in the case study areas as well as the strength of the linkages (Figure...).

Figure 3. Strength of Linkages between the local level institutions



The above figure indicates that there is a strong link between Farmers, water vendors and the community groups existing in the community. This is because the farmers, water and food vendors as well as households can rely on the community groups (formal and informal) for financial support (credit); delivery of much needed services and non-monetary support necessary to cope with everyday life. Since the actors operate along social and economic association, the relationship is somewhat strong.

As a water supplier, DAWASCO should have a key role in the lives of the community in Goba Kibululu, the farmers, water and food vendors would very much like to have reliable water supply so that they can undertake the livelihood activities smoothly; but as with other informal settlements in Dar es Salaam, water supply is unreliable and at times completely absent. Although DAWASCO supports community involvement in water supply management through Water Users Associations (WUAs), the associations are faced by resource and capacity constraints. Furthermore WUAs still need to rely on DAWASCO for the supply of water into the community tanks; therefore the link remains weak since they cannot fully depend on DAWASCO.

2.8 Capacities and modalities for operation relevant in the management of the urban landscape and stormwater

2.8.1 Formal institutions

The analysis of the formal institutions reveals that despite being statutory organs with wide spread mandates and responsibilities the Sub-ward face a number of challenges with regard to their capacity to carry out routine activities in the community. The key functions of the Sub-ward offices are among others, to promote and sensitize local communities to support local action, monitor and enforcing laws and by-laws and; monitor the day-to-day development activities such as cleaning storm water drainage systems, tree-planting and generally keeping neighbourhood environments clean. However the extent of informal housing development that encroaches into the River Mbezi, especially in the downstream areas reflects glaring institutional deficits and weakness in the enforcement of laws and by-laws that relate the preservation of fragile ecosystems including rivers/wetlands. In Goba Kibululu and Kawe Ukwamani there is lack of adequate staff to follow-up and enforce the laws. On the other hand, compliant actions such as establishment of groups/cooperative or even urban agriculture do not have the requisite technical support such as agricultural extension services because there are no professional staff at the local level. Hence actors and their activities are left on their own to develop and grow without much support. But, during floods, Sub-ward officials are relied upon especially coordinating relief activities because they are well-known in the community, can identify those most in need and are the official representation of local/central government, as such they command some respect among their local communities..

Military land is a vast green resource that covers about 8.4% of the total catchment area. In the case study sites, the Lugalo and Changanyikeni Military barracks have largely been used to facilitate the community to carry out urban agriculture. This is done to protect the land from invasion whilst they engage in farming. While Military officials have the capacity and power to “watch” over their land, they seem to have incorporated members of the community to check encroachment on their land at the same time earn a livelihood. The visible presence of the Military would most likely deterrent would-be abusers of green and blue structures from the

communities, but interviews with the Sub-ward chairman of Kibululu suggested that there was no forum to link the Military officials and Kibululu local community so that they could meet and discuss issues of mutual interest such as land encroachment or river bed misuse; in their opinion a meeting between representatives of the two institutions would suffice to formulate strategies to prevent sand-digging.

2.8.2 Informal institutions

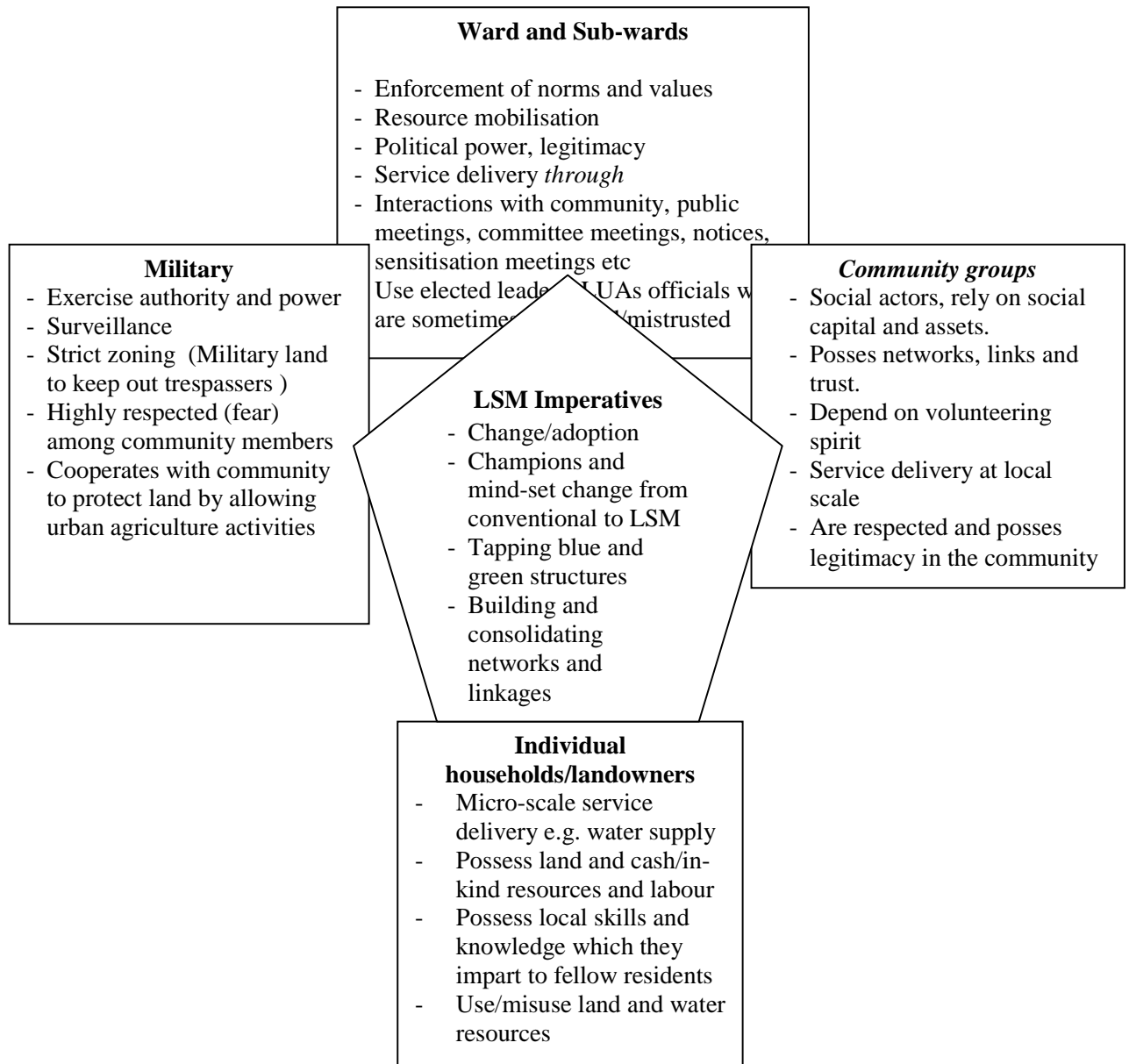
Informal institutions employed their own local resources to support their activities, even though they were not directly related to flooding or water shortages. Group members used the association credit services to boost their personal savings. Although groups generally said they lacked capital to support their growth, the ones in Kibululu and Mbezi Luis cited the following issues as key tenets for the sustenance of their associations:

- Good leadership;
- Group discipline and adherence to rules;
- Positive group dynamics, members should be ready to listen to each other;
- Cooperation and group consensus on issues; and
- Spirit of volunteerism.

In the absence of adequate financial resources, the groups further noted that common interests, networks, trust and good relationships as well as the above characteristics are an important asset. Indeed these characteristics are typical of social capital, a vital resource for local groups that network around an agreed action or objective. In addition the FGDs revealed that generally the women were more responsive and willing to learn new ideas such as those of LSM if they are provided with the capacity. The noted that; *“We are ready to learn new ideas because we would like to increase our incomes but also be able to care of our families. Some of our members have attended workshops related to income generation and entrepreneurship activities but such workshops are outside the Ward and but they are not free of charge.”* (Women at FGD, November, 2015)

With regard to individuals and households, most had little financial resources to deal with water shortages and floods. It was observed that many have used own savings and labour to cope with flood and water shortages. Only households with better incomes were able to build/procure for instance, large tanks for rain water harvesting. Their capacity to deal with floods was reported to be limited to constructing walls around their doors to prevent water from flowing in and piling sandbags on vulnerable slopes near their homes.

Figure 4 Summary of the key local institutions in the three case study areas and attributes relevant for urban storm water management



2.9 Norms/values and practices relevant to adoption of alternative management of SW, green spaces and flood impacts

The institutional analysis at local/site and documentary reviews revealed that the formal institutions are guided by regulations and by-laws some of which are relevant to landscape based storm water management these include:

Table 6: Key Formal institutions

	Practices related to SWM Wards and sub wards	Rules and regulations/ norms and values related to LSM	Remarks
	<ul style="list-style-type: none"> - Mobilising, promoting and sensitising the local communities to participate in environmental cleanliness, planting trees, - Monitoring and enforcing laws and by-laws and norms e.g. prohibiting households to direct stormwater in neighbours compounds/plots, sand-digging etc; arbitrating boundary disputes; - Monitoring the day-to-day development activities in their localities. 	<ul style="list-style-type: none"> - Wards and Sub-wards subscribe to Municipal bye-laws governing urban agriculture, solid waste management, liquid waste and storm water and tree-planting such as the Dar es Salaam City Council (regulation of planting, maintaining, and protecting trees) <i>by-law GN.513 of 1990</i> or the Kinondoni Municipal Commission (waste management and collection of refuse fee) <i>by-law GN.354 of 2001</i> used in Kawe Ukwamani to provide solid waste management services. 	Aim is to ensure compliance and facilitate better practices but hardly enforced due to lack of capacity
	<p>Dawasco</p> <ul style="list-style-type: none"> - Facilitate the supply of potable water through water supply systems as well as community boreholes managed by Water User Committees 	<ul style="list-style-type: none"> - <i>Water Supply and Sanitation Act Nr. 12</i> enacted in May 2009 also allows for the registration and operation of Community Owned Water Supply Organisations 	Aim is to ensure better practices but potable water sources in the catchment still a challenge. Only one community association at Ward level.
	<p>Military</p>	<ul style="list-style-type: none"> - Zoning of Military land through Detailed Planning Schemes under the <i>Urban Planning Act, 2007</i> - General protection and oversight of their institution's boundaries using Military presence and force which is feared and 	Aim is to ensure compliance but they have an agreement with community to farm near river areas as preservation measure

		respected by community	
	Community and individual households/landowners	<ul style="list-style-type: none"> - Establishment of neighbourhood networks/groups based on incomes, ethnic groups, faith etc to improve livelihoods and well-being - Households with access to water sell/provide to other community members - Landowners owning plots near river banks allowed to farm on the river banks (Upstream and midstream). - Storm water is drained away from compound and flows towards the roads and river or is retained/dammed to provide water for urban agriculture - Own land under customary tenure - Generally value and respect each other's plot boundaries, plant trees, erect fences 	Aim of the norms and value is to encourage better practices in but also cope with livelihood challenges either individually or collectively.

3 The Institutional Environment in the Little Akiki River Catchment – Addis Ababa

3.1 Formal Administrative Institutions

Woredas and Kebeles are the grassroots level administrative units of local government in Ethiopia. In the case study site, there are 6 administrative Woredas from Nefasilk lafto sub-city, namely Woreda01, Woreda 02, Woreda 05, Woreda 06, Woreda 11, Woreda 12. Another two adjacent two woredas are located in Kolfe Keranio sub city which are known as Woreda 01 and 02 (see their location on the map of the catchment)

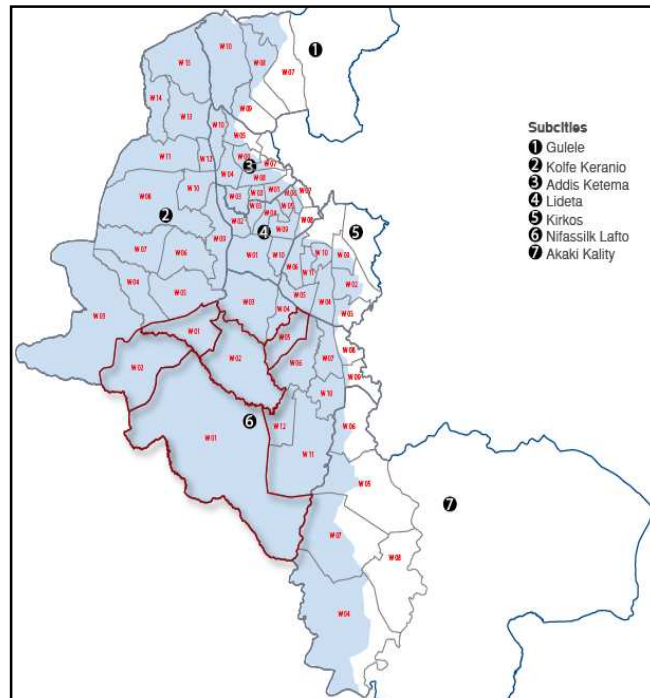


Figure 43: Little Akiki River catchment and sub city and Woreda administrative sub divisions
(source from WGA drop box)

The key roles of the Woredas include to oversee the planning and implementation economic and social services development programmes. As well as implement the policies and laws of the federal and state government. The Woreda Executive Council (WEC) is the executive arm of the of the woreda and has the duty to enforce policy and regulations as well as implement development programmes. The WEC also ensures the participation of the community in developmental activities and has the duty protect natural resources and heritages in a woreda. The head of the Woreda is the Chief Administrator (CA) whose responsibility is to coordinate and provide oversight to the implementation of plans and programmes in the Woredas and the Kebeles.

Kebele is the sub-division of the Woreda although it is at the lower level; it has the same duties and responsibilities as the Woreda. Therefore the CA has the key role to mobilise the community in cases where development programmes and activities have to be executed.

3.2 Formal Community Institutions

In the **Jemo** site where the condominiums are located, there are different formal community organizations established under the Biruh Tesfa House Owners Cooperative Association. These formal institutions are assigned different tasks and responsibilities related to overseeing the condominium community. They include the Block Coordination Committee, Technical Committee, Arbitration and Justice Committee. The house owners of each compound are also organized in a cooperative and among the cooperatives is Birhu Tesfa House Owners Cooperative Association which is the selected pilot case site of the WGA project. On the basis of the condominium proclamation, the House Owners Cooperative Associations are entitled to manage the compound and the communal facilities. Individual residents of the condominium grow vegetables and ornamental plants and trees in the common open spaces within the compound. There are also individual farmers and organized groups (MSEs) in urban agriculture working along the river bank outside the condominium compound.

Table 7:Jemo Birhu Tesfa Condominium Owners Cooperative Association

No	Institutions	Recognition and legal backing	No of members	Criteria for membership
1	Biruh Tesfa Condominium Residents Cooperative Association	Registered and recognized by the Woreda Cooperative Authority	316	Condo unit house owners
2	Hibert Le Limat Meredaja Edir	>>	95	Anybody who is elected & accepted the declaration of the Edir could be members
3	Women Edir	No recognition	60 (estimation)	>>
4	Block coordinators	Recognized by the declaration of the Cooperative	33	Member of the cooperative and house owner
5	Development committee	>>		>>
6	Technique committee	>>	5	>>
7	Arbitration and Justice Committee	>>	3	>>
8	Auditing committee	>>	3	>>

3.2.1 The Mekanissa Farmers Cooperative

In Mekanissa case study site the FGD participants from Mekanissa Farmers Cooperative identified institutions and stakeholders that have important roles in their everyday lives. These include the Addis Ababa Environmental Protection Authority (AAEPA), Addis Ababa Urban Agriculture Office, Cooperative Agency and NGOs. They also identified construction

companies, Addis Ababa Roads Authority (AACRA) and AAWSA as having negative role to the development of local green areas due to excavation.

The Farmers Association comprises development committees in Mekanissa who mobilizes the members to engage in various farming related activities such as soil conservation, planting trees and grass along the edge of farms, construction of terraces and the removal of solid waste in the soil that is deposited during flooding. In addition there are other committees who oversee the overall farming activity, inspection and enforcement of rule, bylaws and reporting to the Cooperative Agency.

Table 8: Legal recognition and members of institutions in Mekanissa Farmers

N ^o	Groups and associations	Year of establishment	Recognition and legal backing	Members	Membership criteria	Rights and obligations of members
1	Mekanissa Farmers Association	1975/6	Legally recognized by the Cooperative Agency	241	Founding members or heir of the membership	-Payment of annual dues -Attending general assembly -Electing committee members -Voting on general assembly resolution
2	Executive Committee	>>	Recognized by the declaration of the Cooperative		Elected members from the Cooperative	-Nominate and elect members of the committee -Cooperate with the committee
3	Water Committees	>>	Recognized by the declaration of the Cooperative	7-10	>>	>>
4	Development Committees	>>	Recognized by the declaration of the Cooperative		>>	>>

Table 9: Community Assets and activities

		Importance at community level	Relations with local green
Group or community assets	-Farming land -Irrigation canals -Cooperative office -Cooperative logistics -Shops -Meeting hall -Accumulated knowledge -Vegetable distribution center	-Sharing and Efficient utilization of resources -Useful for undertaking Cooperative activities	Community resources used to conduct and manage the farm activity
Group or community activities	-Cleaning irrigation canals -Planting trees -Rationing irrigation water -Building terracing -Inspecting farming and irrigation activity -Reporting & auditing cooperative activity -Setting rules and bylaws	-Coordinating farming activity -Irrigation water distribution -Maintenance of canals -Protection of erosion	-Jointly conducting farming, irrigation and harvesting “Debo” -Assimilating and mobilizing resources at community level for maintenance of irrigation canals -Inspecting and monitoring farming activity -Planting of protection trees and plants

In Mekanissa the Cooperative also oversees irrigation activities. Each member pays 600birr annually to the cooperative for the maintenance of irrigation canals. The Cooperative has by laws to regulate the use of irrigation water. Different committees are organized to manage the irrigation canals, to conserve the soil, and to monitor, inspect, enforce and report the overall farming activity and the bylaws. Livestock keeping was also an activity but the Woreda prohibited the keeping of livestock through its *Woreda* Sanitation Agency and Environmental protection authority of the City Government. As a local government authority, the Woreda also has the role of protecting the environment as discussed earlier.

3.3 Informal institutions

The settlers of Repi have formed *Eddirs* which are traditional institutions in communities established for supporting members during the time of crises and mourning. One Edir in Repi has developed borehole in order to cope with the challenge of severe water shortages. The borehole supplies to the members of the Edir with 50cents price for 20liters and the same amount of water for 1birr price for non members of the Edir One of the *Eddirs* formed by the settlers at the lower

slope of the hill has built a traditional well. These mutual associations are prevalent across the study site and have also dug two bore wells to mitigate the acute water problems of the neighbourhood communities. There are 8 NGOs operating on community development works but are not engaged in water supply programs. The Woredas and Kebele often use the Edirs which are recognised by the community to get in touch with households when information needs to be disseminated.

3.4 Individuals at households level

In the two case study sites of Jemo and Mekanissa, individuals carry out activities related to LSM such as vegetable farming in small and medium scales. Individual residents of the condominium grow vegetables and ornamental plants and trees in the common open spaces within the compound



Sand filled sacks piled as a flood protection in Repi

Common areas for farming are available but in lower slopes of the Repi Mountain, farmers grow vegetables in their own backyard for their own consumption. A number of collective endeavours such as the Mekanissa boreholes, the common gardening areas in the condominium are examples of LSM.

Table 10: Individuals and household level initiatives related LSM in Jemo Condominium and Repi/Mekanissa

Issue	Type of action at household/individual level	Remarks
Water shortages	<ul style="list-style-type: none"> - In Jemo households residing in upper floors collect rain water for washing and other household cleaning activities - In Mekanissa households practice rain water harvesting collecting water in small containers. 	<ul style="list-style-type: none"> - Water shortage especially in the upper floors of the condominiums is a critical problem of the project area - 83% of households interviewed in Mekanissa collect rainwater from the roof and use it for household consumption.

Floods	Building dykes to deter floods. Building of ditches to check run-off -	- Dyke built by Evangelical Seminary to protect the it from flooding. Action has increased flooding on the farms exposing them to river flooding
Green structures/spaces	- Planting erosion resistant trees and plants (such as bamboo, false banana, sugarcane, elephant grass) to prevent erosion. - Piling sand bags along front of house to prevent flood water/run-off	-

Source: Fieldwork interviews, 2016 in Jemo and Mekanissa Farms

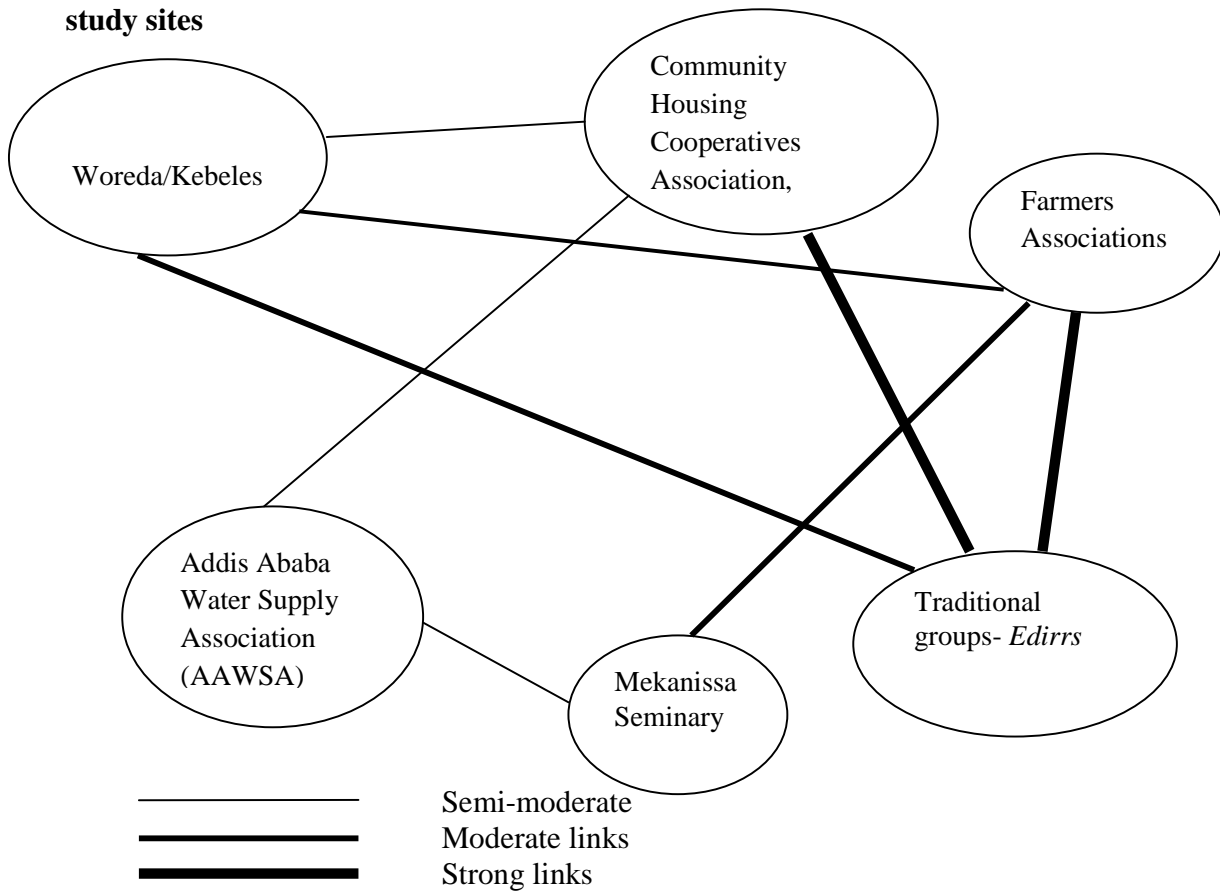
3.5 Nature of the existing linkages in the study areas and potential for LSM

As pointed out in the preceding sections, linkages among the local institutions are critical as they mediate interaction among individuals, groups, communities and organisations rather than having individuals working alone. In the condominium sites, the housing associations provide important links between the tenants and the Woredas (Figure).

The Woreda in Mekanissa assists farmers by organising them into micro scale enterprises and allows them to sell ornamental plants and seedlings along the main road of Mekanissa. The FGD participants from Mekanissa Farmers Cooperative identified institutions and stakeholders that have important roles i.e. Addis Ababa Environmental Protection Authority (AAEPA), Addis Ababa Urban Agriculture Office, Cooperative Agency and NGOs like ENDA. They also identified construction companies, Addis Ababa Roads Authority (AACRA) and AAWSA as having negative role to the development of local green.

The traditional community community groups, *Edirs*, are commonly used as conduit point by the Woredas and Kebeles. It is suggested that the local community are more willing to listen the Edirs than to calls from the Kebele. However community based organisations do interact with the Kebeles in cases where they need the officials to enforce, for example, membership payments.

Figure 6 ..Strength of Linkages between the local level institutions in Addis Ababa case study sites



The formal institutions such as the Housing Associations/Cooperatives and Farmers association have a working relationship with the Woredas in terms of technical support and service delivery. On the other hand, Woredas and Kebeles have mobilization, control and enforcement relations with the groups, associations and community in general. They also assist in reporting and for renewal of licenses for the groups which is similar to the relationship that Wards and Mtaas had with community groups in Dar es Salaam namely facilitating identity documents and acting as go-between between the community and other government duties in general.

Some members of the Associations are also members of the Woredas. The formal areas such as the Condominium and the Mekanissa Seminary enjoy water supply from AAWSA and are therefore in a position to assist households during times of water stress. However it appears that one of the most important institutions, the Edir has strong links especially with the other community associations because the *Edirs* are traditional groups and more trusted by the people, indeed people feel socially compelled to join Edirs because they are of great assistance during hardships such as death and mourning.

3.6 Capacity and modalities for operation relevant in the management of the urban landscape and storm water

The key functions of the Woredas and Kebeles are to oversee the planning and implementation economic and social services development programmes in their areas of jurisdiction. However like many local government grassroots institutions, the Kebele and woreda were faced with financial and human resource constraints. The development of informal housing along the Repi Mountains reflects weakness in the enforcement of regulations related to the protection of rives and wetlands. However with regards to LSM, organisational and technical support is needed if the Woreda officials are to play a significant role in its adoption. The sub-city and Woreda level stakeholder workshops that have been conducted by the WGA project are an entry point for basic capacity building in LSM concepts and participatory planning for the the management of the urban landscape and storm water.

Community –based groups and associations employ their own resources to conduct their activities. Contributions from members are mandatory and these assist in many of the operations. Since they are formal institutions (Jemo and Mekanissa), they have operating premises (offices) and are more or less organised. The Associations on the Jemo Condominiums undertake activities of the cooperative and engage in managing common resources. However the Housing Associations are also hampered by human and financial constraints.

The Mekanissa Farmers Association has the capacity to oversee farming activities and they also own a number of assets as outlined below in Table More importantly, the association has accumulated knowledge in farming and looking after green structures in Repi, some of which can be used to advance LSM.

Table 11: Community/group level assets in Mekanissa

No	List of assets	Tenure and use rights	Remarks
1	Farming land	Individual use right Farmers Cooperative entitled to manage farm land on the basis of the license	
2	Irrigation canals	Common asset managed commonly by water committees	
3	Cooperative office	Common asset and property of the Cooperative Association	
4	Cooperative logistics	Common asset and property of the Cooperative Association	Previously the coop. had tractor and truck
5	Shops	Common asset and property of the Cooperative Association	
6	Meeting hall	Common asset and property of the	

		Cooperative Association	
7	Distribution centers	Common asset and property of the Cooperative Association	But confiscated by weredas (under dispute)

4. Comparative analysis

The institutional analysis of local institutions in both Dar es Salaam and Addis Ababa has shown how active grassroots institutions are at filling the gap brought about by deficits in service provision. Both case study areas suffer from storm water run-off albeit at different degrees. There are areas that are more prone to flooding i.e. downstream along the Little Akiki river and the Mbezi river. Water shortage is also critical for both cities and the local institutions play a critical role in supplying households with water. Along the Mbezi River catchment, individual community members provide water as an income generating measure, there are hardly any community-based water services but in Repi there are community boreholes built by the Edir (informal/traditional institutions).

Local government institutions like the Wards and Woredas have an important role to play in community development however; they are hampered by human, financial and technical resources. They are an important link between the city and the community.

Unlike in the Dar es Salaam sites, the Edir in Addis Ababa have an important role as a community group that is anchored on mutual assistance. The Edirs are more homogenous and are built on ethnic or religious affiliation and membership to an Edir is common in the communities of Addis Ababa. Informal groups in Goba and Mbezi are not homogenous, rather they are built on the need to address a common problem such as increasing incomes or providing welfare support group membership is based on neighborhood and income status.

Generally the local institutions in both Dar es Salaam and Addis Ababa can be grouped along the following characteristics:

Socio-cultural institutions: These are groups that are formed along ethnic, religious or gender affiliation. They appeared very cohesive because of a common cause and life experiences. Members of the socio-cultural groups mutually assist each other and provide to each other access to cash and in-kind support to cope with life hardships. They operate as an other mutual assistance group i.e

- (i) Pooling of resources,
- (ii) Expression of trust based on shared identity (ethnicity, religion, gender, economic status) and reciprocity;
- (iii) Psycho-social support during times of stress such as bereavement; and
- (iv) Commonly agreed rules norms and values sometimes written or un-written.

The above are good building-blocks for LSM.

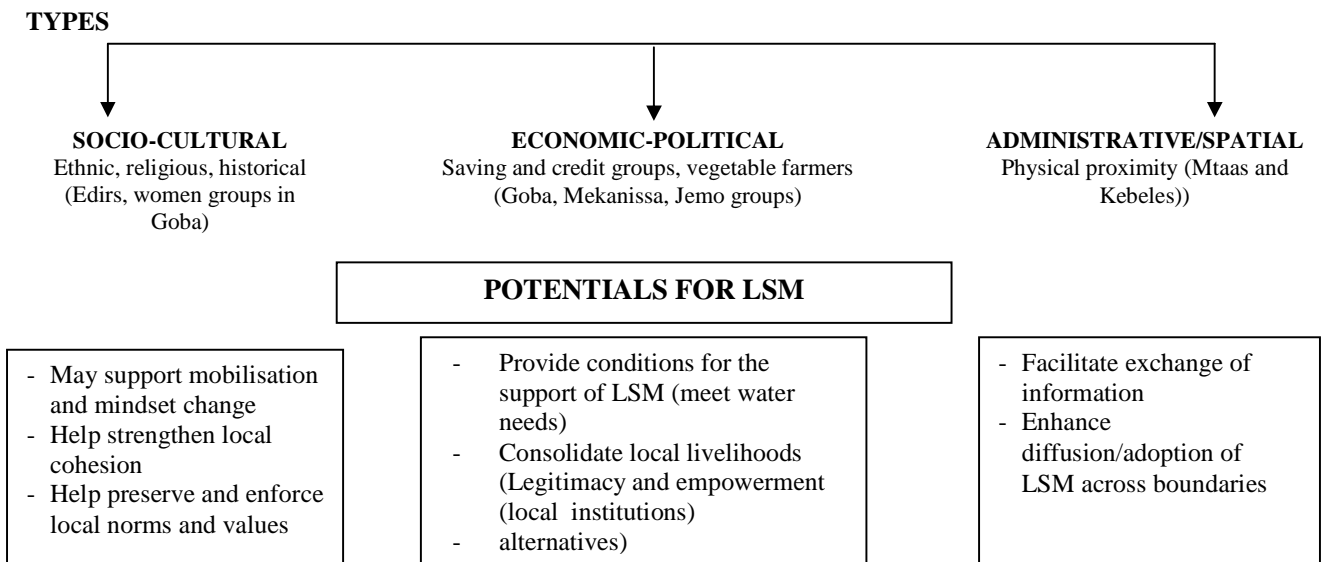
Economic-political institutions; Many of these are formal institutions and they include the Ward Development Committees (WDC) in Dar es Salaam and the Woreda Executive council (WEC) in Addis Abab. Since they are local government entities, they are structured and organised and operate with rules and regulations. They therefore provide structure and form to development activities. Sometimes they support at improving the livelihoods of the members-based organisations.

The savings and rotating groups (Goba Kibululu women’s savings groups, Farmers associations in Mekanissa) are economic groups aimed at improving the livelihoods of their members. They are more or less organised and are an important link to other community members because the success of their activities help to give them legitimacy and recognition in the community.

Administrative/Spatial: Wards and Kebeles are important administrative institutions that operate within a bounded spatial entity. However in dealing with the catchment areas, these institutions become important especially where collaboration across boundaries is concerned. Stormwater run-off has no boundaries and flows across several administrative entities and as described in the preceding sections, the actions of the community upstream can affect the environment downstream.

Needless to say; all the above local institutions understand the value of cooperation and collaboration especially in addressing community problems. The Table is an attempt at summarising the characteristics of the local institutions and the opportunities they present for LSM.

Figure 7: Summary of characteristics of existing institutions in Dar es Salaam and Addis Ababa and potential for LSM



5. Conclusions for LSM

Institutions at the local community or grassroots level have a critical role to play in the planning, management and exercising overall oversight role in public service delivery i.e. supply of potable water, management of storm water run-off and the protection and consolidation of green spaces in general. While institutions at city and municipal level may provide resources and technical support required as well as monitor delivery of municipal services, community institutions are at a critical position where the problems and concerns for public service delivery and more importantly, SWM and flooding management, environmental quality, health, protection of green structures and storm water management are directly felt or experienced.

Also matters related to the effects of poor and inadequate service delivery and their impacts on livelihoods are first felt by the individuals, the local community and then the city as a whole. Studies suggest that local institutions play a critical role in evolving and implementing local coping and general adaptation to floods and other adverse impacts of climate change (Agrawal and Perin, 2008). Furthermore if stormwater is to be managed, especially in cities of developing countries which are often experiencing chronic land and other governance deficits (Kombe and Kreibich, 2006); it is important that local institutions with the potential to advance LSM are identified and brought on board. Stakeholder workshops and the Design Charette held in both Addis Ababa and Dar es Salaam by the WGA project has been an important platform to work with local institutions. Representatives of local community groups attended the design charettes and were able to gain an understanding of LSM and to relate the principles to their own storm water coping strategies. But if such collaborative planning activities are to be meaningful, it will be vital to provide the community groups with the capacity to advance LSM such as basic training on organisation and how to forge links that go beyond affiliation and borders; knowledge sharing on LSM and how to sustain and apply the knowledge.

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