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# Case study: Arusha

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# Introduction

This case study explores how the city of Arusha is experiencing political and financial challenges of ensuring improved sanitation. Comparing political interest in sanitation, diverging political priorities at the national and municipal level, sources of finance, and population characteristics, the case study aims to assess the potential for government-led improvements in the whole sanitation chain. These case studies are based primarily on interviews conducted for the main report and on government sources.

## Decentralisation and urban governance of sanitation in Tanzania

Local government in urban areas is comprised of city, municipal and town Councils, ward development committees (WDCs), and mitaa (neighbourhoods). However, local government in Tanzania, as in many other sub-Saharan African countries, remains heavily controlled by the centre (Boex and Martinez-Vazquez, 2006). For instance, national party leaders nominate candidates for local Council positions and the ruling party Chama Cha Mapinduzi (CCM) has, until recently been strongly represented by Councillors at the local level, and there was limited political opposition (Venugopal and Yilmaz, 2010). The situation has changed following the last national election in 2010, which saw a significant increase in representation of the opposition parties at the local level, especially in the urban areas, where some are governed by opposition parties. Examples include Dar es Salaam and Arusha City Councils, and Kinondoni and Ilala Municipal Councils in Dar es Salaam. Likewise, the Public Service Recruitment Secretariat (PSRS), which is a central government agency, recruits civil service staff for local government positions, and the most senior positions are appointed by the President or the President's Office - Regional Administration and Local Government (PORALG) (Ridder, 2015).

The relatively high centralisation of political and administrative power in Tanzania persists despite two national decentralisation reform programmes; the Local Government Reform Program (LGRP) I and II. By 2008, after the first phase of the LGRP, responsibility for some basic services had been decentralised to LGAs along with the deconcentration of some responsibility for water, sanitation and roads (Government of Tanzania, 2016). However, the second phase of the LGRP has not been fully implemented and central government has recentralised the

management of local government staff (Government of Tanzania, 2016).

For urban water and sanitation, decentralisation processes have resulted in significant management changes. At the national level, sanitation is primarily the responsibility of the Ministry of Water and Irrigation (MoWI) which develops water policy and strategy. However, urban water supply and sanitation authorities (UWSAs) have been introduced which are now responsible for water and sanitation in urban areas. UWSAs are accountable to the MoWI and are regulated by the central Energy and Water Utility Regulatory Authority (EWURA).

The provision of sanitation and wastewater management concerns public and environmental health, local infrastructure development, human settlement planning, and road development which is the responsibility of local government authority (LGA) departments as well as their respective ministries; the Ministry for Lands, Housing and Human Settlements Development (MLHSD) and the Ministry for Health and Social Welfare. LGA plans and budgets are also closely overseen by the PORALG. UWSAs are accountable upwards to the MoWI but not to the LGAs operating in the same area, and so UWSAs can contradict LGA by-laws and plans which may obstruct cross-sector coordination of urban sanitation services at the local level (Government of Tanzania, 2016). Financing for urban services has also changed as a result of decentralisation. The LGRPs led to an increase in intergovernmental transfers to local government budgets due to higher intergovernmental transfers, although the proportion of public funds transferred from central government to LGAs has hardly changed (Tidemand and Msami, 2010). LGAs are highly dependent on intergovernmental transfers, on average receiving 91% of their revenue from central government (Government of Tanzania, 2016; Tidemand and Msami, 2010). To support LGAs to generate greater revenues themselves, the government has passed a Public Private Partnership Act (2010) and a Public Procurement Act (2011), which allow UWSAs and LGAs to seek private sector involvement in the provision of services (Government of Tanzania, 2016).

A new mechanism for financing infrastructure at the local level was introduced in 2004 in the form of the Local Government Capital Development Grant (LGCDG), which has now become the Local Government Development Grant (LGDG) System (Government of Tanzania, 2016). However, central government strongly influences how these transfers are spent resulting in the alignment of

nearly all LGA plans with central government spending priorities (Fjeldstad et al., 2010; Tidemand and Msami, 2010). Besides, central government often issues directives to LGAs that have significant expenditure implications for the approved budgets. A massive drive to provide primary and secondary schools desks and a previous directive on construction of laboratories in all secondary schools are recent examples. In addition to this development funding, LGAs receive intergovernmental transfers for recurrent and concurrent costs, of which the bulk is for concurrent expenditure and this is managed by central government. Intergovernmental transfers for local recurrent costs are mostly spent on staff salaries, over which LGAs also have little control because the number of staff recruited locally and their salaries are largely decided by central government (Venugopal and Yilmaz, 2010). Consequently, local government has limited power to direct its budget towards locally determined development planning priorities.

LGAs also have very little control over their tax rates, the ceiling for which is set by central government and any changes to LGA taxes require the approval of the PORALG (Venugopal and Yilmaz, 2010). The central government agency, the Tanzania Revenue Authority (TRA) is charged with collecting simple local taxes, such as taxes on large businesses and hotels, while LGAs are responsible for more time intensive revenue collection, such as business licencing (Kombe and Namangaya, 2016). LGAs may lack up-to-date databases to collect such taxes, and these are also politically unpopular taxes to impose. Moreover, LGAs have limited power to enforce local taxation, and as a study by Braathen et al. (2004) reports, 51% of people interviewed in Tanzania towns and cities thought that people should refuse to pay taxes until services improve. The Local Government Finance Act does allow LGAs to impose fines for non-compliance but pursuing this can be a lengthy process (Venugopal and Yilmaz, 2010). A recent programme (the Support to Local Governance Programme- SULGO), co-funded by the Government of Tanzania and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), supported the technical capacity of local governments to collect property tax and so widened urban authorities' tax bases (Masaki, 2015). However, the responsibility to collect property tax has recently been transferred to the TRA. It is not yet known how this will be redistributed and given that property tax is often a large proportion of local revenues, this could have a significant impact on local government budgets. Considering the limited local power to allocate intergovernmental transfers towards locally defined needs, expanding forms of revenue available at the local level could be important for funding improvements in services which are not prioritised at the central level.

### **National government approach to urban sanitation**

At the national level, wastewater management and wider sanitation services are not prioritised in budget or policy.

Budget allocations to solid waste management are much greater than allocations to wastewater management, and sanitation is not very visible in the national budget. Policy on sanitation is also limited. A central government policy on sanitation was begun in 2005 but this is still in draft format and responsibilities for sanitation across government departments have not been clearly defined since legislative changes in 2009. Consequently, there is some confusion over the sanitation responsibilities of different departments. Most of the responsibility for sanitation rests with the MoWI but the EWURA and the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) also have roles to play and this leads to institutional disagreements

The lack of funding and clear policy around sanitation services is primarily because neither central nor local government perceive sanitation as a priority activity. The sector lacks political appeal because there is little demand from the general public for improved sanitation. In addition, the MoWI assumes that the urban water and sanitation authorities can provide sanitation services on a cost-recovery basis, cross-subsidising sanitation services with revenue from water services. This means that central government does not provide substantial grant funding to expand urban sanitation services.

National government priorities strongly influence local development and these are channelled to local governments through the PORALG. In line with national government plans, PORALG priorities include education, infrastructure, health, energy and the urban sector. Investment in infrastructure in urban areas aims to support employment creation and revenue generation. Most of this infrastructure is built using donor funds and local government is expected to be able to manage and resource the operation and maintenance costs. For example, the Tanzanian Strategic Cities Project is a World Bank funded scheme which is investing in urban infrastructure, in particular roads.

Sanitation is not a national government priority but following a recent cholera outbreak, government interest in hygiene increased. For example, the President has issued a directive designating every last Saturday of the month for public general cleansing. It is telling however that this directive focuses on solid waste management, which is more visible than wastewater management, but not as important for preventing cholera.

### **The National Sanitation Campaign**

One government scheme which is focused on sanitation, however, is the National Sanitation Campaign (NSC). This was initiated in 2012, is funded primarily by donors, and is led by the MoHGEC in collaboration with Ministry of Education and Vocational Training, MoWI, and the PORALG (SHARE Consortium, 2016). The Campaign is focused on sanitation in schools and in households in rural areas. Community leaders worked with Health, Education

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and Community Development Officers at the local level to develop a sanitation profile of their community. Households in the community then collectively committed to improving their own sanitation facilities (ibid).

The experience of the NSC is particularly interesting for two reasons. Firstly, it shows that national government, with support from donors, takes a more proactive role in improving rural households' access to sanitation. In contrast, in urban areas households are not given any support to build latrines and the focus is only wastewater collection and treatment despite there being many households without access to an improved latrine. Secondly, as more households have flush or pour latrines and so the volume of wastewater increases, local government has to address the later stages of the sanitation chain as well. This highlights the need for government to address the whole sanitation chain and view it as a system which needs integrating with wider urban or rural development plans.

### **Sanitation transfer to urban water supply and sanitation authorities**

Government responsibility for sanitation in urban areas is currently being transferred from urban municipal governments to urban water supply and sanitation authorities (UWSA). This is meant to delineate responsibility for these services and relieve local governments of what is perceived to be technical urban development task. LGA directors in urban areas will no longer have planning control over water and sanitation infrastructure in their city as the UWSAs are controlled centrally by the MoWI and EWURA.

In order to improve management of sanitation and improve hygienic standards, MoWI now requires every water supply project to have a wastewater and faecal waste management project included alongside it. More investment is being put into the construction of dry beds and oxidation ponds and the acquisition of vacuum emptying trucks. Noticeably, however, this only addresses the latter part of the sanitation chain and so urban households which do not have a latrine connected to a septic tank or sewerage pipe will not benefit from these investments.

In urban areas, only a few NGOs such as the Centre for Community Initiatives (CCI) and WaterAid are supporting

household sanitation, on-site wastewater treatment in informal settlements, and latrine subsidisation. CCI, for example, champions micro-financing to households to improve their latrine; giving out loans and working with communities.

Overall, sanitation in urban areas receives very little government attention. Low political interest in sanitation services or in informal urban settlements, and high public demand for investment in more visible urban infrastructure, such as roads and schools has pushed sanitation to the bottom of the list.

### **Sanitation at the city level**

Urban sanitation provision across Tanzania continues to be a serious public health problem. In urban areas, the proportion of residents using traditional pit latrines is high, at 50% in Dar es Salaam, 54% in Arusha, and between 36% and 44% in other cities (CPCS, 2015). Sewerage is very limited in Tanzanian cities and so nearly all sanitation facilities are on-site. On-site sanitation requires systems for wastewater collection, treatment and disposal. If household latrines are not connected to secure containment facilities, such as septic tanks, they are liable to overflow. Households may not always pay for emptying services and instead empty the contents of septic tanks into stormwater drains which leads to underground water sources being polluted (CPCS, 2015; Government of Tanzania, 2016).

The following two case studies explore the factors underlying these problems in detail in the cities of Mwanza and Arusha.

### **The case studies are structured as follows:**

- An introduction to the city
- Urban governance arrangements, and the formal governance structure for urban sanitation.
- The fiscal profile of each city and its water and sanitation utility
- Accessibility to and quality of sanitation services in the city
- International donor and NGO support to sanitation in the city
- Analysis of how the governance arrangements and financial capacity of the city affects sanitation services

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# The case of Arusha – an introduction to the city

The Arusha region is located in the north-eastern corner of Tanzania. In the north and to the east it borders with the Kilimanjaro and Tanga regions. To the south it shares a border with Dodoma region and to the west with Singida, Shinyanga and Mara regions. It is comprised of seven districts; one of these, Arusha City, is the focus of this case study (Tanzanian National Bureau of Statistics, 2014). Arusha City is the capital of Arusha region and is an important administrative centre for regional and continental activities. In 2010, Arusha Municipality was upgraded to a city, expanding its boundaries and thus increasing its area from 93km<sup>2</sup> to 208 km<sup>2</sup> (Wenban-smith, 2015).

In 2012, the population of Arusha City was 416,442, 100 percent of this was classed as urban. This was an increase of 103,438 from 2002, an annual growth rate of 2.9 percent. (Tanzanian National Bureau of Statistics, 2016). The 2012 population results in an average population density of 2002 people/km<sup>2</sup>. Over 70% of the population in the Arusha Municipality live in informal settlements (AMC, 2005). 61% of residents depend on informal sectors for their livelihood. Due to insecure land tenure most of these small business owners are unable to access loans since they are unable to use their land as collateral (Paulo et al., 2009).

## Urban governance and politics

In 2016 Arusha City was governed by a majority of councillors belonging to the national opposition party, CHADEMA. The council is headed by Hon. Mayor of the City who is elected by the Full Council, consisting of 32 Councillors. The Council comprises of 19 elected councillors, seven nominated councillors under special seats, one elected Member of Parliament and five nominated Members of Parliament under special seats for women (Arusha City Council, 2016).

The main interest groups in city governance are local politicians, religious leaders, business owners, Community Based Organisations (CBOs), Community leaders, Tourism and Conservation Societies. In Arusha city council, issues of public concern include solid waste management, roads, health services, clean water supply and education. Sanitation does not appear to be a public concern in spite of disease outbreaks. According to field

study interviewees, the Arusha Urban Water and Sanitation Authority (AUWSA) is blamed for these outbreaks because it is perceived to not take responsibility for waste water management.

Budget preparation and planning is a participatory process that takes several stages before it's passed. It begins at the Mtaa (neighbourhood) level where residents propose priority projects and submit these to the Ward Development Committees for discussion and consolidation into a ward development plan and budget. Each ward councillor presents the proposed projects from their wards to the council. The city planning and coordination unit then compiles the proposals received from the wards and recommends which priority projects should be allocated a budget. This is for discussion by the Council Management Team who then submits recommendations to the council standing committees. Resolutions of the standing committees are submitted to the full council meeting for approval after consultations with all key stakeholders, including the Regional Secretariat for sector experts to advise on national policies, priorities and government directives. Thereafter, the budget is submitted to the President's Office, Regional Administration and Local Government (PORALG) and Ministry of Finance for approval.

However, local government spending decisions are influenced by central government in a number of ways. Firstly, central government applies the same ratio of spending requirements across all councils, regardless of specific needs or funding priorities of each locality. Secondly, although in theory ACC has control and decision making authority over their own source revenue, in practice that is not always the case as decisions are often determined by 'off budget' orders from the central government.

## Governance arrangements for urban sanitation

### Water Arusha Urban Water Supply and Sanitation Authority (AUWSA)

The Arusha Urban Water Supply and Sanitation Authority (AUWSA), is responsible for the overall production, distribution and delivery of clean and potable water

including collection, treatment and wastewater disposal in Arusha City. AUWSA was established and registered under the Water Works Act CAP 272 amendment (Act No. 8 of 1997), now superseded by the Water Supply and Sanitation Act No. 12 of 2009. It was declared a fully independent entity by the Minister responsible for water affairs (AUWSA, 2012).

AUWSA is regulated by the Energy and Water Utilities Regulatory Authority (EWURA) for quality of services (AUWSA, 2011). AUWSA operates, performs and discharges its functions in accordance to the Water Supply and Sanitation Act 2009, Waterworks Rules 1997, Waterworks Regulations 1997, Memorandum of Understanding (MoU) between MoWI, and AUWSA (including Operational Guidelines), Public Finance Act No. 6 of 2001 (Revised 2004), Public Procurement Act 2004 and its Regulations (2005) and EWURA Act CAP 414.

AUWSA's major roles and functions are:

- to continuously plan, develop and maintain the provision of clean, potable and wholesome water in Arusha Municipality while conserving the water sources for sustainability,
- to plan, develop and maintain the sewerage system on any public land acquired or lawfully appropriated for that purpose so as to ensure hygienic sewage collection and safe disposal,
- to set realistic water and sewage disposal tariffs and hence collect revenue from customers for water consumed and sewage collected by the Authority,
- to educate and provide information to the public on public health aspects of water supply and wastewater disposal and carry out all functions in an environmentally friendly manner,
- to create and maintain a good public image, while focusing on meeting customers' expectations,
- and to put in place and implement medium and long term investment programmes, financial plans and annual capital and recurrent budgets (AUWSA, n.d. a).

AUWSA owns, operates and maintains the water supply and sewerage infrastructure and has responsibility for its own financial sustainability. Therefore, it is expected to function as a commercial organisation covering its own operating costs. However, it does not have unrestricted authority to set its own tariffs. Rather, EWURA decides the tariff boundaries with a view to making them affordable for customers.

### Arusha City Council

The Ministry of Water and Irrigation (MoWI) has issued directives that all water and sanitation responsibilities are to be transferred to AUWSA. Arusha City Council (ACC) is now only responsible for the supply of water and sewerage services in the peri-urban areas.

## Local government fiscal profile

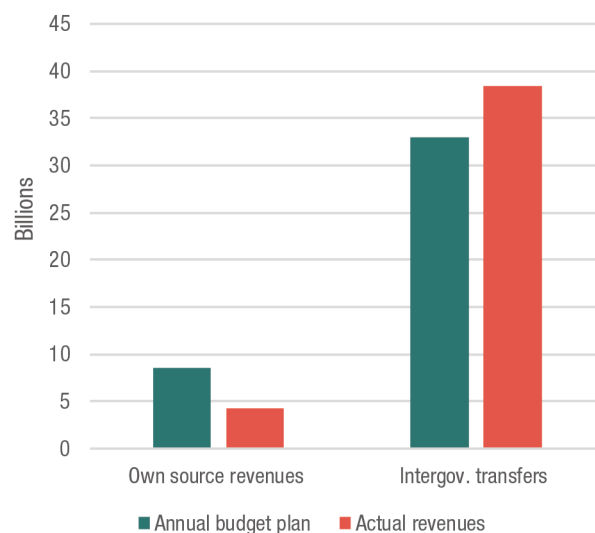
Arusha City Council has two main sources of funds: conditional and unconditional grants, and their own sources of revenue.

Information obtained from the PORALG website (PORALG, 2013) shows that ACC received TZS 38,361 million (circa TZS 92,100 per capita) in intergovernmental transfers and generated TZS 4,313 million (circa TZS 10,400 per capita) of its own source revenue in the year 2012/2013. As Figure 1 shows, the actual amount received from intergovernmental transfers was higher than the amount expected in the budget. This more than offset the lower than budgeted own source revenue, giving a total budget 3% higher than expected. The council's total expenditure was TZS 32,895 million (circa TZS 79,000 per capita), which was 22.9% lower than its approved total revenue (PORALG, 2013).

The central government transfers funds to local government as annual block grants for recurrent costs and for the implementation of development projects. In 2012/13 these were TZS 32,653 million and TZS 5,707 million respectively (PORALG, 2013). As shown in Figure 2, 89% of the transfers for recurrent costs were allocated in health and education sector, as is typical in Tanzania.

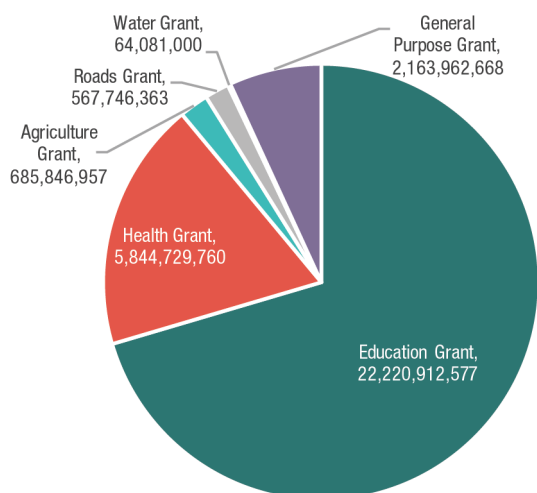
As shown in Figure 3, in 2012-13, the majority (60%) of the total revenue was allocated to staff salaries, with 22% on other recurrent costs and only 18% of the total revenue on development programmes.

**Figure 1: Budgeted and actual revenues of Arusha City Council, 2012-13**



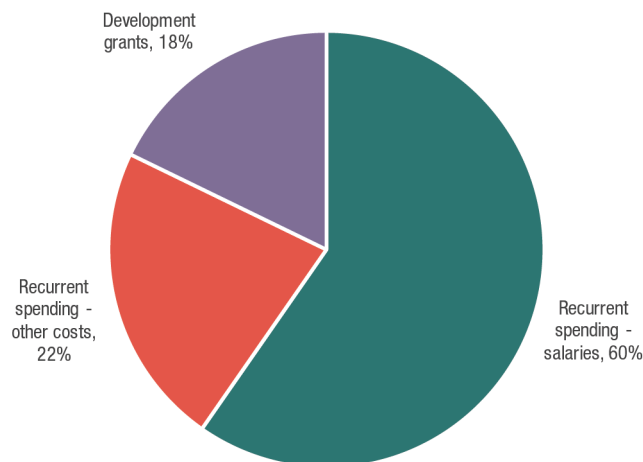
Source: PORALG, 2013

**Figure 2: Allocation of the recurrent grants, 2012-13**



Source: PORALG, 2013

**Figure 3: Arusha City Council - total expenditure, recurrent vs. development, 2012-13**

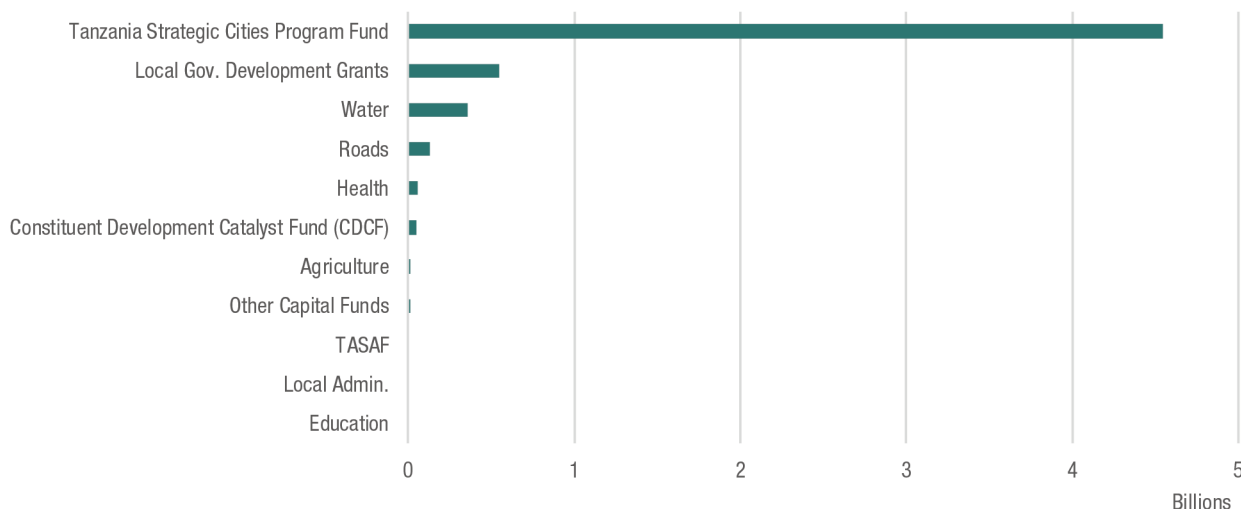


Source: PORALG, 2013

The majority of the development grant funding from central government is through the Tanzania Strategic Cities Program Fund, Figure 4. While this provides a significant amount of finance to ACC for development projects, the overall priorities for the funding are set in conjunction with central government and donors, with only 3% of the total funding from the project being planned for water or sanitation projects (World Bank, 2016). Again, this demonstrates the limits of the planning and decision making influence that ACC actually has.

Arusha City Council does have some of its own sources of revenue. These include development levy, livestock levy, land rent, licenses and fees, charges from markets, business permits, market revenues, and taxes on agriculture production. However, as noted above, these are small compared to central government grants. They were only 10% of total revenue in 2012/13 (PORALG, 2013). They could also be set to reduce further as property tax collection has now been transferred to central government.

**Figure 4: Arusha City Council development grants and funds - actual budget allocation, 2012-13**



Source: PORALG, 2013



## Financial profile - AUWSA

The annual income of the AUWSA for 2014/2015 was TZS 9,817 million, which was above the total annual expenditure for the same year at TZS 8,498 million (EWURA, 2015). The following figures show the sources of this income and distribution of expenditure. As can be seen from Figure 5, almost all of the authority's revenue comes from its provision of water and sewerage services, not from grants or transfers. The majority of this income is spent on staff salaries (AUWSA has 237 employees), water production and administration expenses, together accounting for 66.4% of all expenditure; sewerage expenses amounted to only TZS 77 million, less than 1% of the total, as shown in Figure 6.

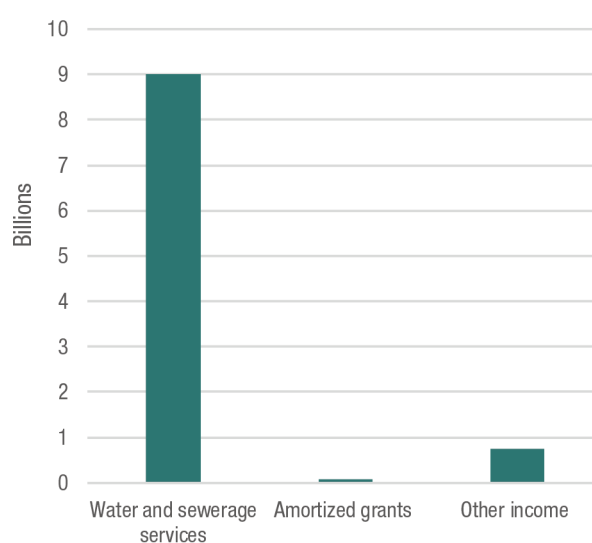
The information obtained from IBNet suggests that the authority has managed to be financially self-sustaining since 2012, with revenue exceeding operational costs per m<sup>3</sup> of water sold. Before 2012, the financial situation was less robust, with operational costs more closely matching, and in four years slightly exceeding, revenue, as shown in Figure 7.

However, poor performance has been observed on non-revenue water. This has been increasing over the past four years from 37% in 2011/2012 to 44.9% in 2015 (EWURA, 2015) which suggests that the authority could be more financially sustainable if it reduced non-revenue water and improved control over water and sewerage billing. Financial sustainability and the possibility of investment may also be helped by the planned increases in the tariffs, Table 1.

AUWSA prepares its own budget and plan for the year based on projected revenue but this has to be approved by the Ministry of Water and Irrigation (MoWI), EWURA and the Treasurer Registrar. Budgeting is based on anticipated

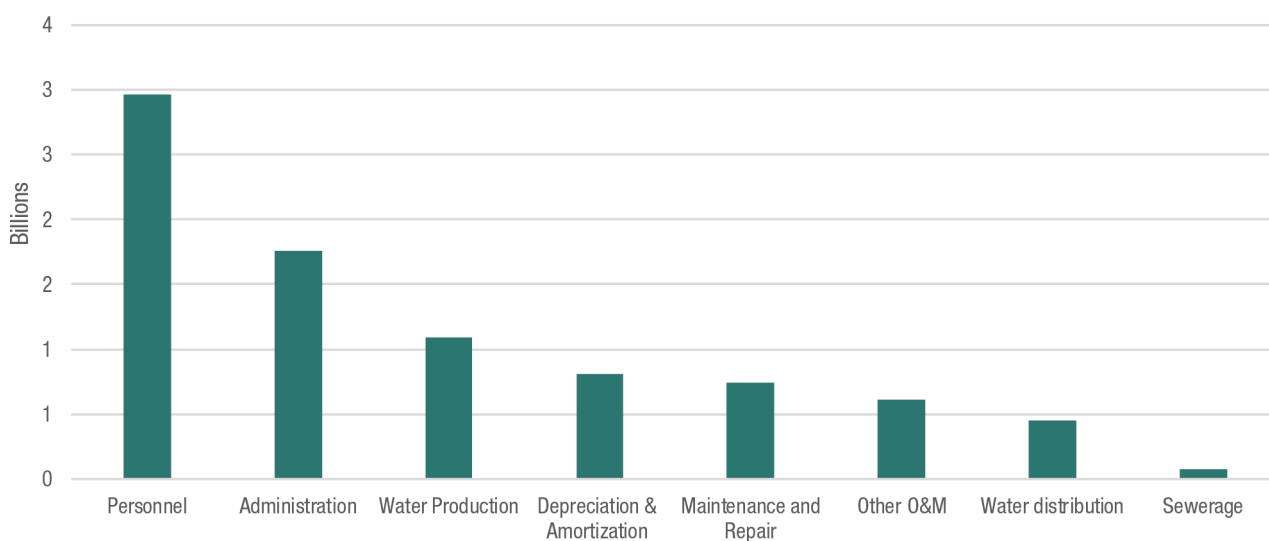
activities to supply clean water and to treat and dispose of wastewater according to EWURA's standards. A small proportion of the budget is allocated to sanitation relative to water supply. EWURA regulates the proposed tariffs and the MoWI and EWURA set guidelines and performance indicators, which AUWSA has to meet. Indicators measure service quality, such as the quality of water provided, and coverage of population for sewerage. These central government bodies state that at least 30% of the population should be connected to sewerage, at present this is only approximately 8% (Tanzanian National Bureau of Statistics, 2015).

**Figure 5: AUWSA - Sources of income, 2014-15**



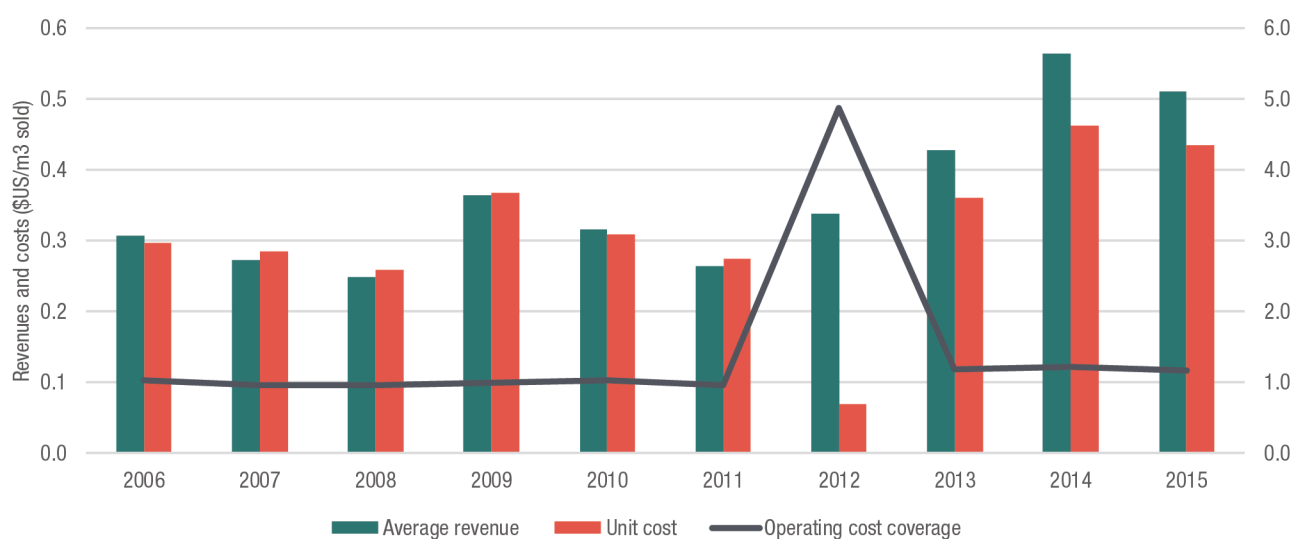
Source: EWURA, 2015.

**Figure 6: AUWSA - Expenditure, 2014-15**



Source: EWURA, 2015

**Figure 7: AUWSA – Annual operational cost coverage, 2006-15**



Source: IBNet, 2015

**Table 1: Proposed and approved multi-year sewage tariff**

Customer category	Current charge TZS/m <sup>3</sup>	Approved tariff (TZS/m <sup>3</sup> )			
		2014-15	2015-16	2016-17	2017-18
Domestic	170	270	300	330	
Institution	270	350	400	450	
Commercial	460	560	610	660	
Industrial	570	670	720	770	

Source: EWURA, 2013

## Water and sanitation profile

In ACC 94.6% of residents had access to an improved water sources in 2012 (Tanzanian Bureau of Statistics, 2016). This is in line with other urban areas in the region and significantly higher than the average for rural areas, 68.3%. It is also higher than the national average for urban areas, 78.6% (Tanzanian National Bureau of Statistics, 2015).

Table 2 shows the distribution of sanitation provision by type in ACC, urban areas in the Arusha region, the Arusha region generally and urban areas nationally. Coverage of improved facilities in ACC is higher than urban areas nationally and regionally, 87.6%. Connections to sewers in ACC, in common with other urban areas in Tanzania is low, 8.5%. This means that the vast majority of residents in ACC will be reliant on either septic tank / latrine pit emptying or onsite containment, storage and treatment.

The data obtained on type of toilet facility in Arusha region reveals a decrease in the use of traditional pit latrines from 73% in 2002 to 58% in 2012 while people with flush toilets increased from 7% to 19% in the same period (Tanzanian National Bureau of Statistics, 2015). This increase in the use of flush toilets is likely to have increased the volume of fecal sludge created in the city.

AUWSA's area of responsibility has a total population of 444,365 people, as projected from 2012 census report. Currently, AUWSA has 4,703 sewage connections including domestic, commercial, institutional, industrial customers. According to an AUWSA officer, in 2016, 2269 of these connections are for domestic users. The number of sewerage customers is small because the sewerage network only covers the central area, Unga Limited and the areas surrounding the Lemara waste water stabilization ponds. The total number of customers has increased from 4,191 in June 2012 (AUWSA, n.d. b). This is only a marginal increase in proportion of connections over a four-year period when compared to the total number of households in ACC, 103,377 in 2012 (Tanzanian National Bureau of Statistics, 2016).

AUWSA's current service coverage challenges are partly the result of Arusha city's upgrading from a municipality to formal city status and the associated increase in population and area that AUWSA was responsible for. As a result of this change, the sewer coverage from 17% to 7.6% and a coverage of AUWSA supplied water dropped from 98.5% to less than 44%. This was because the majority the population in the expanded areas were outside of the areas covered by AUWSA sewers or water supply network (AUWSA, 2014).

The wastewater treatment is carried out using waste stabilization ponds at the Lemara treatment facility. These are the responsibility of AUWSA. There are five ponds

**Table 2: Percentage distribution of households by household toilet facility, 2012**

	Improved toilet facility	Unimproved or no facility	Flush/pour to piped sewer system	Flush/pour to septic tank	Flush/pour to covered pit	Other improved
Nationally - urban	71.9%	28.1%	4.5%	10.8%	17.0%	39.6%
Arusha region	49.6%	50.2%	2.9%	6.2%	8.6%	31.9%
Arusha region - urban	85.9%	14.1%	7.0%	15.1%	18.0%	45.8%
Arusha city (ACC)	87.6%	12.6%	8.5%	18.0%	18.2%	42.9%

Source: Tanzanian National Bureau of Statistics - 2012 Census – Arusha regional profile and Housing Condition, Household Amenities and Assets Monograph

working in parallel and series. The first pond is anaerobic, followed by two facultative ponds working in parallel and finally two maturation ponds working in series. There are two sludge ponds within the pond area to treat sludge brought by cesspit emptier facilities (AUWSA, 2014). The effluent is ultimately discharged into Themis River which is mainly used for irrigation downstream. Monitoring of the ponds performance is done on a weekly basis by taking samples of incoming and outgoing waste water and analysing them to check the treatment efficiency of the ponds.

### ACCs involvement in water and sanitation

According to an ACC official, ACC is currently taking responsibility for the supply of water and sewerage services in the peri-urban areas. Water supply in these areas is typically through communal/public water distribution points, and ACC's involvement includes investments in community water supply schemes.

ACC Ward Health Officers explained that ACC's role in sanitation provision is largely through implementation of the National Sanitation Campaign (NSC). The campaign has two components, Household Sanitation and School Water, Sanitation and Health (WASH) programme. At the household level, the main goal of NSC is to improve sanitation through appropriate usage of toilet sanitary facilities. Communities are encouraged to build latrines through a Community Led Total Sanitation type approach. The communities are 'triggered' into taking action through a sensitisation process that aims to foster a feeling of disgust in current insanitary habits. This takes place at meetings convened by the Mtaa leaders. Members of the community are also trained to build standard toilets with hand washing and waste storage facilities as well as on using clean water.

As part of the NSC, ACC are expecting to build two demonstration toilets in the Muriet and Terat wards. These wards were selected because they had the highest statistics of cholera cases in the previous outbreak and the high number of low income residents. However, in general subsidies for funding are not provided to the communities as part of the NSC and is the responsibility of

the communities to develop mechanisms for assisting poor households to build toilets.

The ACC has one wastewater suction truck for emptying onsite sanitation facilities from households, markets, government owned schools public health facilities and other public places not connected to the sewerage network. The trucks discharge the wastewater at the AUWSA sludge ponds located at Lemara.

### Costs of water and sanitation services

Based on interviews with AUWSA staff, the costs and water and sanitation services are as follows:

Water bills are based on consumption per month plus a service charge. At present, the service charge is TZS 2,000 per month and consumption is billed on a rising block/bundled tariff. Customers pay TZS 925 per unit for the first 0 to 5 units; 1,080 for the next 6 to 15 units and 1,260 for more than 15 units; One unit is equivalent to 1,000 litres of water. Sewerage charges are 80% of the water bill for domestic customers, 70% for commercial customers and 60% for industrial customers. There are no mechanisms for subsidies but, at present, 200 very low income households receive water and sanitation services at no cost.

New connections to the water or sewer network are currently paid for by residents. The cost of the connections depends on the distance from the main pipes.

The charges to customers for emptying on-site facilities vary depending on the household location. Private sector operators charge approximately TZS 70,000 per trip for emptying household latrines or septic tanks within the city and up to TZS 150,000 per trip outside the city. The ACC charges up to TZS 65,000 per trip.

The charges for disposal of waste at the Lemara waste stabilization ponds are TZS 2,000 per trip for each truck with capacity of 5m<sup>3</sup>; TZS 5,000 per trip for trucks with capacity of 5 to 10m<sup>3</sup>, TZS 10,000 per trip for trucks with capacity of 10-15m<sup>3</sup> and TZS 12,000 per trip for each truck of capacity exceeding 15m<sup>3</sup>. The sludge discharge fees generate about TZS 3m monthly on average while the charges from customers connected to sewerage system is between TZS 350m to 400m monthly.

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## Household sanitation challenges in Arusha

There are deficiencies throughout the sanitation service chain in Arusha. These deficiencies are having a direct impact on residents' lives. ACC Health Officers explained that diseases linked to poor sanitation practices in Arusha city include diarrhoea, typhoid, dysentery, worm infections and cholera outbreaks. The last cholera outbreak, in which 856 cases were recorded, was from October 2015 to April 2016.

The first major sanitation challenge is the lack of effective containment of excreta at the household level. According to multiple interviewees, this is largely due to poorly constructed latrines and latrines and septic tanks overflowing. There is also still a small percentage of the population that practice open defecation, adding to the problem.

The impacts of this challenge are magnified when houses in an area are not connected to the AUWSA water system and so obtain water from shallow wells. These can be contaminated from shallow pit latrines and overflowing latrines and septic tanks. This risk is heightened further when there are water shortages which prompt more people to use shallow wells.

The second challenge is blocked sewers. This was identified by residents, ACC staff and AUWSA staff. They explained that the existing sewer system is old, does not have sufficient capacity and is misused by some residents (disposing of solid waste). This results in a significant number of blockages and subsequent spillage of wastewater. AUWSA staff reported that there are over 1300 blockages in the sewer system annually.

An AUWSA engineer explained the third major challenge of ineffective treatment of wastewater. The outflow from the wastewater treatment plant does not meet the required Tanzania standards or ISO standards of treated water quality. The average BOD<sub>5</sub> at inlet and outlet was 605 and 65mg/l respectively. Furthermore, an average E.Coli in influent was 19.3x 10<sup>6</sup> count/100ml and effluent was 3.3 x 10<sup>4</sup> count/100ml respectively.

## AUWSA urban water and sanitation plan

AUWSA's current medium-term strategic plan from 2015 to 2020 (AUWSA, 2014) does have proposals to address these sanitation challenges in Arusha, at least to some degree.

It has the goal of increasing sewer connections to 7500 by 2020. While this will reduce the impacts of inadequate containment at the household level, 7500 connections is still a small percentage of the total number of households in ACC and so a large proportion of the population will still rely on onsite containment and emptying. This will mean the problems associated with inadequate household

level containment will remain if it is directly addressed. The plan does include the goal of 'Measures to deal with onsite sanitation services prepared by June, 2016 and implemented annually'. However, no details are provided to the extent or type of measures that are planned. The plan also includes proposals to rehabilitate the existing sewer network. Therefore, partially addressing the challenge of blockages in the sewer network due to old and under capacity pipes. The final challenge, the ineffective treatment of wastewater, is addressed in the plan by the construction of a new wastewater treatment facility at Themis Holdings grounds. The project is expected to be complete in 2019. This new facility is designed to have sufficient capacity for the whole city.

An AUWSA engineer explained that the African Development Bank (AfDB) is providing financial assistance for the implementation of some of AUWSA's plans through a soft loan of approximately TZS 476 billion. This assistance will be used to assist with connections to and the extent of the sewer network and the construction of the new treatment facility. The AfDB has also funded a project that is going to help AUWSA to acquire five new wastewater suction trucks. The costs for emptying latrines and septic tanks are expected to be adjusted/ lowered as soon as these new trucks arrive. This should assist with the challenges associated with on-site containment. One of the trucks is going to be equipped with a pressure pump for de-blocking the sewer pipes and so will assist with the problems of sewer blockages.

## Arusha City Urban Master Plan

By the year 2035, the Arusha Planning Area is expected to experience further rapid urbanisation and population growth – resulting in increased pressures and challenges for urban sanitation. A new master plan for Arusha city has been prepared by a consultancy organisation and endorsed by ACC. The plan contains clear details on future plans for solid waste and liquid waste management for the next 20 years. Final approval of the master plan is pending because Arusha and Meru District Councils are yet to endorse the master plan in protest against it not allocating land for investment purposes in their areas of jurisdiction. The master plan has set aside land for the new waste water treatment and it includes the proposed extension of the AUWSA's sewerage network.

The development of the master plan indicates that ACC plans to formalise and improve some of the informal settlements and resettle some of the residents to new formal housing. ACC also plans to acquire land, have it surveyed and allocate plots that can be sold to the residents at an affordable cost. These improvements to informal areas and the resettlement of residents to planned areas could make households' access to formal services easier.

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## Donor and NGO support to sanitation in Arusha

### Donor supported projects

International, national and local donors and NGOs are supporting improvements in sanitation provision in Arusha.

**Tanzania Strategic Cities Project (TSCP)** is a World Bank funded project that aims to improve the quality of and access to basic urban services in Local Government Authority's (LGAs) in Tanzania. There are three components to the project. The first is to support improvements in core infrastructure and key urban services. The second is institutional strengthening. This component supports the strengthening of the fiscal and management capacity of LGAs for improved operations and maintenance (O&M) and infrastructure development. The third component of the project is implementation support and preparation of future urban projects (World Bank, 2016). As noted above, the project is providing funding to ACC but the sanitation component is focused on the construction of storm water drainage and solid waste management. This has included solid waste collection trucks, solid waste management equipment for the Muriet landfill and construction of an access road to the landfill site. The priorities for the city were negotiated between the ACC, PORALG and the World Bank.

The Second Phase of **Tanzania Social Action Fund (TASAF II)** is a programme established by central government that aimed "to empower communities to access opportunities so that they could request, implement, and monitor sub projects that contribute to improve livelihoods linked to MDG indicator targets in the Tanzania Poverty Reduction Strategy. The target groups to benefit from the designed Project were i) households with limited access to and use of specified service packages; ii) vulnerable individuals that needed assistance; and iii) food insecure households with limited employment opportunities." TASAF II was to be implemented for the period of five years from May, 2005 to June 2010. This project received funding from the World Bank. (Tanzania Social Action Fund, 2016). In Arusha, TASAF funds have been used for the completion of the Daraja Mbili sewerage system. This project was planned to empower people with low incomes so that they can also connect to the sewerage network via community contributions. This was in an effort to solve the problems of residents in the area that were using septic tanks that were below standard.

As noted in the section on the AUWSA urban water and sanitation plan, the African Development Bank is providing financial assistance for the implementation of AUWSA's plans.

### Tanzanian Federation for the Urban Poor

A coordinator from TFUP described the organisation and its activities in Arusha as follows:

It is a community organisation that is focussed on helping the poor people living in urban areas, especially those residing in informal settlements. They do this through activities such as, mobilising communities to form saving and credit groups, supporting latrine construction, and promoting prevention of HIV/AIDS.

They have six groups in Arusha city, each having five members in the ward. The leadership is a team of 11 people, six are in the central committee and five in the regional team. Leaders are paid an allowance by a national NGO, the Centre for Community Initiatives (CCI). CCI also assists them with capacity building and supports them to carry out peer-to-peer learning activities between community organizations.

In Arusha City, the federation focuses on low-cost housing, solid waste collection and waste water management including construction of low cost latrines, HIV/AIDS, community profiling, community advocacy, mobilisation, empowerment and income generation projects. The Arusha branch has managed to build its own office but has not yet built any low cost houses because they could not acquire land. They have submitted applications for land to the ACC to see if they can obtain it at an affordable price. They then plan to request donor assistance to help to build low cost houses for their members.

The organisation has built 82 improved latrines from 2009 to date. These were built for Federation members and non-members. The average cost was TZS 400,000 per unit. This was higher than the expected initial price of TZS 150,000 per unit.

They have trained a group of artisans to build two kinds of toilets, Mshazari and Ecosan. Mshazari type takes about 4-5 days for construction but the latter takes slightly more time. When the Mshazari toilets fill up they can be emptied by vacuum suction. The Ecosan latrine has a tank with two separate chambers. When one chamber fills up it is closed and the second pit is used, then after a year the sludge in the first pit dries up and it's excavated for use as manure.

The organisation provides loans to residents for construction of the toilets. Initially they were providing TZS 150,000 loans towards the construction of facilities, this rose to TZS 200,000 and lastly to TZS 400,000 for the total construction cost. This was because they found that residents that were given loans for part of the construction cost were failing to finish construction because they didn't have sufficient money to top up on the loan and repay the loan after construction. This illustrates the importance of the lack of financial capacity of low income residents as a barrier to sanitation provision. It also shows there could be a role for a larger micro finance scheme for sanitation in Arusha.

The Federation in Arusha works with AUWSA on water supply activities. Applicants who complete the AUWSA forms and obtain the estimates for connection costs can be given loans to partially pay the water connection

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fees. If, for example, the connection fee is TZS 200,000 they receive TZS 150,000 loan from federation and they are required to pay back TZS 165,000, which includes administrative cost. The organisation does not charge interest on the loan.

The organisation does collaborate with the city council health officer but only to a limited extent.

## Factors explaining the funding and regulation of fecal sludge management in Arusha

The following questions guide our analysis of how the governance arrangements and financial capacity of Arusha shape provision of sanitation to the city's residents.

- Who is responsible and who is considered responsible for the different stages of the fecal waste management chain?
- What importance is given to household sanitation and faecal sludge management (FSM) compared to other government activities?
- Who influences how the different stages of the sanitation chain are managed at the city level?
- What conditions have led to the different types of sanitation provision (or non-provision) in different areas of the city? E.g. compare rate of expansion, potential for cost-recovery, formalisation of settlement etc.
- What drives private sector investment in which types of sanitation technology and for whom?
- What are the overall factors which are preventing the safe disposal of *all* fecal waste in the city area?
- Are there emerging areas of improvement in the city's sanitation provision re. FSM? What is driving this? What limits this?

### Perceptions of responsibility

There is no single actor who has overall responsibility for the safe management of fecal matter from households through the sanitation service chain.

### Containment and emptying

Individual residents are responsible for the construction of toilets, the safe containment of excreta and emptying of storage when a property is not connected to the mains sewer system. This is irrespective of their income. Some collective responsibility between residents is required in peri-urban areas where residents are expected to establish ways to assist low-income residents with the cost of latrine construction. Emptying of storage is largely carried out by private contractors. Individual residents are responsible for the costs of a connection to the main sewer system. Again, this is largely irrespective of their income. ACC plays a role at this stage through sanitation promotion as part of the

National Sanitation Campaign and through monitoring and enforcement by the Environmental and Health officers.

AUWSA is responsible for expanding the sewer network and they currently subsidise a small number of resident's sewer connections. AUWSA currently does not play a role in this stage of the sanitation service chain for households that are not connected to the sewer network. However, the recent policy changes mean they are responsible for all sanitation provision and so may take on additional activities in the future.

Local and National NGO's are currently taking some responsibility for containment through the assistance provided to low-income residents for the cost of latrine construction.

### Conveyance

Conveyance from households that are not connected to the sewer network is the responsibility of the private contractors carrying out the latrine emptying. AUWSA has the responsibility to maintain the sewer network. A difference between actual and perceived responsibility is evident at this stage of the sanitation service chain. Residents contact ACC with complaints about blockages in the sewer network even though they do not have responsibility for this. This may mean that some public pressure for improvements in the sewer network does not reach AUWSA.

### Treatment

AUWSA is responsible for treatment of all of excreta that is collected from onsite latrines and from the sewer network. This includes ensuring that treatment facilities have sufficient capacity. The National Environment Management Council (NEMC) and Pangani Water Basin Authority (PWBA) have responsibility for inspection of the quality of discharges from the treatment plant.

### Other roles and responsibilities

The ACC urban planning department does not have a direct role in sanitation except in the processing of building permits. The department is represented in a joint team that scrutinises building plans and designs to ensure waste water management is adequately addressed.

International NGOs and donors are also taking some responsibility for all sections of the sanitation service chain. This includes funding for sewer construction, purchasing vacuum suction trucks and construction of new treatment facilities. However, significant support from international donors for households at the containment stage has not been identified.

This complex mix of responsibilities illustrates that coordination of interventions for water and sanitation provision is important to ensure that interventions by different actors are complimentary. This problem has already occurred in water provision when plans by

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AUWSA, PBWA and ACC for a certain area were not coordinated.

### **The relative importance of FSM**

Interviews with ACC officials reveal that the main priorities for ACC include education, health, roads and solid waste management. This focus on solid waste management is linked to the political push from the President of the Republic Tanzania Dr. John Pombe Magufuli on solid waste management and hygiene. This national level interest includes establishing the last Saturday of every month as a general cleaning day for members of the public. On this day all business is suspended between 6am-11am so that people clean the environment around them. The Ward Executive Officers (WEOs), Ward Health Officers, and Mtaa chairs conduct intensive inspections and provide public education. Offenders pay an on-the-spot fine of TZS 50,000 – 300,000 and households not participating in the cleanliness exercise or failing to pay the fine are arrested.

According to one city council officer, solid waste is also assigned a higher priority than wastewater management because the latter is a responsibility of AUWSA. This is linked to the financial incentive for ACC to focus on and promote solid waste management because ACC receives 15% of the revenues of private contractors who provide solid waste removal services and so solid waste management is a source of revenue. Other ACC officials noted that litter and solid waste are also more visually obvious problems than liquid wastes and so are considered more important by residents and officials.

An employee of AUWSA pointed out that politicians, including the Councillors, show a strong interest when blockages of sewers occur. This shows there is political interest in sanitation in some situations. This could be because this problem results in impacts that are more visible than inadequate containment at household level or that it has a more direct impact on a larger number of people at the same time.

### **Influential actors in FSM management**

Now that AUWSA is solely responsible for sanitation provision it means that the most influential actor is national government, through the regulation of AUWSA by the MoWI and EWURA.

ACC does play a role through the enforcement actions and sanitation promotion campaigns by health and environmental health officers and through its urban planning activities.

International donors also have a significant influence on sanitation provision through financial assistance. The majority of this is on large infrastructure, for example the proposed wastewater treatment plant and expanding the sewer network. They are thus largely promoting this form of sanitation provision. However, the AfDB funding for vacuum suction trucks will also assist with household level wastewater collection problems.

On a smaller scale, local and national NGO's are also influencing the type of sanitation provision by supporting the construction of certain types of toilets.

### **What factors are preventing the safe disposal of all wastewater in the city area?**

The factors preventing the safe disposal of wastewater are different for the different parts of the sanitation service chain.

#### **Lack of effective containment at household level.**

According to interviews with ACC staff and residents, the main cause of the lack of effective wastewater containment at the household level is the inability of households to pay for it. Many residents cannot afford to construct improved sanitation facilities nor pay for the emptying of latrines and septic tanks. This problem is exacerbated by a number of other factors.

Many areas in Arusha City have a high water table and so wastewater containment units are shallow and so can fill-up within a short period of time. This results in a more frequent need to empty the storage – thus increasing the cost. The density of many informal areas also increases the cost of emptying the storage because vacuum suction trucks cannot easily access the properties and so charge residents a higher price. A private sector vacuum suction truck operator explained that inaccessibility to some areas meant that pipes up to 120m long were needed to access septic tanks/ pits.

In some cases, the lack of access means that storage cannot be emptied at all. In this situation, residents could seal latrine pits and dig an alternative (a potentially safe containment method). However, the density of the areas can mean that there is insufficient space to do this. One of the reasons for the high density of the informal areas is the high land and property prices in the city. Again, this links back to the financial challenges that low-income residents face.

A potential solution to the containment problem is the connection of households to the sewer network. However, as noted by an AUWSA employee, this solution is hindered by the limited financial resources of AUWSA, meaning it cannot extend the sewer network to all areas, and many residents would not be able to afford the connection costs. Again, this problem is exacerbated by problems related to the unplanned areas. In this areas there is often insufficient space to construct the sewer network. This makes construction of sewerage more technically difficult and more expensive. Public awareness and willingness to be connected to the sewerage networks is low in some urban areas. Even when the sewer pipes are close to households, they do not always want to connect to them. However, in other areas of the city where the water table is high, residents do express a desire to a sewer connection thinking that it will be cheaper than regular emptying by

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vacuum suction trucks. This illustrates the complex and context specific drivers for sanitation provision.

Many of these challenges could be addressed with support from local and national government, for example by subsidies for low income residents for latrine construction or for connection to the sewer network. However, at present as ACC officials described, latrines are generally viewed as a private responsibility.

### **Blocked sewers**

AUWSA staff explained that the main reasons for the blockages in sewers are that they are of insufficient size and have not been maintained. These are both directly related to the financial situation of AUWSA because investment in maintaining and upgrading the sewers could prevent this. ACC officials also explained that poor enforcement of urban planning has exacerbated the problem of insufficient capacity because the impact of new developments to the sewer system has not always been assessed.

### **Ineffective treatment**

Similar to the problems of blocked sewers, AUWSA staff explained that the treatment plant is not able to process the wastewater effectively. The main reasons for this are that the ponds receive 6500m<sup>3</sup> of wastewater per day while they are designed for only 3500m<sup>3</sup> per day, and they need to be able to de-sludge the anaerobic pond. AUWSA staff point to a lack of finance to address these problems.

### **Emerging areas of improvement**

One potentially significant area of improvement should be through the funding that the African Development Bank is providing for the treatment of wastewater and to rehabilitate the existing sewer network. This has the potential to help AUWSA to reduce their losses through non-revenue water and resolve problems with blocked sewers and ineffective wastewater treatment.

The problems of containment and emptying of latrines at household level are now beginning to be addressed too. Using funding from the African Development Bank, AUWSA aims to connect more residents to the sewer network and purchase additional vacuum suction trucks. ACC also has an Urban Development Master Plan which includes proposals to upgrade existing informal areas and resettle some residents to planned areas of the city. If this goes ahead, it may be easier for these residents to access formal sanitation services.

Within Arusha, the work by ACC to promote sanitation and hygiene, and the efforts of a community-based organisation, Tanzanian Federation of the Urban Poor to support latrine construction are helping to improve household usage of improved latrines. However, this work would need to be scaled up significantly if it were to have an impact across the city. It is with this last point that the current national campaign for solid waste management offers some scope for optimism. The campaign, which is led by a Presidential directive for cleaner cities, has resulted in consistent efforts by local governments to improve solid waste management. If national government were to champion the improvement of household sanitation facilities in cities, a similar strategy could be used to promote local level action on household waste containment and removal.

## **Conclusion**

There are several breaks in the sanitation service chain that have been identified in Arusha. Two of these, blockages in sewer pipes and ineffective treatment, are potentially about to be addressed through donor financing. However, to maintain any improvements that are made will require ongoing financing and coordination between different stakeholders. Both of these have been challenges in the past and are likely to require government leadership, which currently appears limited.

This leaves the problems from inadequate containment at the household level. The principle reasons that this is not being widely addressed seem to be because it is treated as a private matter and so not one that requires government intervention. To make significant progress in this area, government leadership at the national level may be necessary. Coordination of the various stakeholders and public bodies at the city-level will be important for them to work collectively to enable households in all areas of the city to access improved sanitation.

*Please see the full report for detailed conclusion and recommendations.*



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