

# Institutional Coordination Challenges in Service Delivery the Case of Water Supply in Dar Es Salaam, Tanzania

Kachenje, Y. E \*

Institute of Human Settlement Studies (IHSS), Ardhi University, Dar es Salaam

\*Corresponding author

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## ABSTRACT

This paper presents challenges related to institutional coordination of actors across systems of municipal services delivery, using the case of water supply in Dar es Salaam, Tanzania. Towards the end of the 20<sup>th</sup> century, municipal services delivery in the country and other developing countries underwent myriads of institutional reforms, which led to increased participation of private and community-based actors, along with the conventional public actors. Such dynamisms influenced the coordination processes and the rules that determined how such actors related and pursued their respective roles. Despite a number of studies in this subject, a knowledge gap still existed on the challenges that affected coordination of multiple actors. The paper therefore discusses the factors against effective coordination of actors in municipal services delivery, and recommends how such factors could be overcome. The instruments of data collection included key informant interviews, focus group discussions, household interviews and document analysis. The study found out that the challenges that hindered effective institutional coordination in municipal services delivery included multiplicity of competing actors; insufficient responsiveness of actors; and lack of clear collaboration mechanisms for actors of different institutions. As such, poorly enforced institutional reforms contribute to poor accountability in the coordination processes, and subsequently poor performance of the water supply sub-sector. Although studies have indicated the importance of water vending in many cities of developing countries, this study did not involve it, as the researcher considered water vending to be a wide sub-system that requires more time and attention as a separate entity.

**Keywords:** Municipal services, water supply, roles, institutions, inter-organisational, coordination.

## INTRODUCTION

The need for improving municipal services delivery became one among the key global issues, mainly starting from the 1990s, following concerns on underperformance of such services (IDRC, 1997; Makurira and Mugumo 2003; WSP et al 2004; Bel and Fageda, 2008; Philippe, 2009; Kachenje, 2017). In addressing the underperformance, towards the end of the twentieth century, many countries embarked on ambitious institutional reforms that allowed inter alia privatization in service delivery (Philippe, 2009). A number of municipalities institutionalized privatization of many local services, including solid waste collection and water supply (Bel and Fageda, 2008). Among others, the reforms called for improved institutional coordination, given the increased number of actors and new relationships that resulted from the institutional dynamisms.

In Sub-Saharan Africa, just like in Latin America, institutional coordination was problematic in municipal services delivery. Following the global level discussions and thoughts on the new approaches to service delivery, the governments in this region had to adapt to the penetration of market mechanisms and therefore re-defined the roles of the public and private institutions (Jaglin, 2000 in Msangi, 2005). Zimbabwe, South Africa, Zambia, Swaziland, Malawi, Uganda, Kenya and Tanzania are among the countries where reforms in managing municipal services were introduced (Makurira and Mugumo, 2003). The reforms generally involved a major change of legal, regulatory and institutional frameworks and in many cases entailed some forms of public-private partnership (WSP et al, 2004).

In Tanzania, just like in many other Sub-Saharan countries, the government embarked on the Local Government Reform Policy with the overall objective of improving the delivery of services to the public (URT, 2005). The main strategy in fulfilling that objective was decentralization by devolution, which entailed the transfer of powers, functional responsibilities and resources from central government to local government authorities (ibid.). The government and local authorities engaged in institutionalization of an enabling framework for permitting community-based organizations (CBOs), non-governmental organizations (NGOs), individual households and the private sector to contribute towards the provision and maintenance of urban services (Kombe and Kyessi, 2008; Kombe, Ndezi and Hofmann, 2015). This implied a growing need for coordination, given the institutional changes and the increased number of participating actors in such activities.

For the case of water supply, a new institutional arrangement was put in place, whereas the central government decentralized its powers to the water supply and sanitation authorities (WSSAs) in municipalities, and community-owned water supply and sanitation organizations (COWSOs) in districts (URT, 2010). The new Water Supply and Sanitation Act referred to COWSOs as Community Based Water Supply Organisations (instead of the old Community Owned Water Supply and Sanitation Organisations) (URT, 2019). Although the structure of these COWSOs remained the same, their change from 'community owned' to 'community based' entities appeared to insist that these institutions were not under exclusive mandate of the local community, but rather, had to be in the line of accountability with other institutions at higher and lower levels of local government.

Thus, in the new institutional arrangement for water supply and sanitation, the National Water Sector Development Strategy (NWSDS) gave the mandate of service delivery to those two institutions (WSSAs and COWSOs) in their respective contexts and service areas (URT, 2010). The NWSDS also gave WSSAs and COWSOs the power to enter into contract with service providers including public, private and community-based, so that they could continue supplying water within such areas in accordance with the signed contracts (Triche, 2012). The law also established a regulator for the sector, namely Energy and Water Utilities Regulatory Authority (EWURA) (URT, 2001). And, according to the Water Supply and Sanitation Act of 2019, the regulation of water supply and sanitation authorities (WSSAs) was put under EWURA, while that of COWSOs was placed under the Ministry of Water, through the newly established Rural Water and Sanitation Agency (RUWASA) (URT, 2019).

Despite the institutionalization of a clear enabling framework for participation of the various actors in the new context of decentralization, still the situation indicated managerial problems in water supply and other municipal services. Provision and management of such services featured many ad hoc, individual and piece meal attempts referred to as 'spaghetti' type of initiatives, indicating problems in coordination (Kyessi, Kombe and Kachenje, 2019; Kyessi, 2011; Kombe and Kyessi, 2008; Kjellen, 2006). However, little had been documented on the factors that influenced coordination of actors in municipal services delivery in Tanzanian urban centres. On that line, therefore, this paper aimed at analyzing the coordination process and challenges in water supply, being one of the municipal services. The underlined argument here was that, more knowledge on coordination and its challenges could contribute to improved provision of water supply and other municipal services. This argument concurs with research findings by Stewart et al (2011) that, coordination has had the potential to improve efficiency in delivery of services.

The study was mainly qualitative and used water supply as a premise for studying institutional coordination in municipal services delivery. It was pursued in Dar es Salaam, Tanzania, in which the public, private and community-based schemes of water supply were studied, one from each scheme. The research tools applied in this study included document analysis, key informant interviews, household interviews, and focus group discussions. Selection of the tools was justified by the nature of this study and the need to apply as many data collection tools as possible. The study's research questions facilitated delineation of the study and determined the choice of the methods. The data that was collected was analyzed based on the study's research questions, aided by quick impression summaries; thematic analysis; and content analysis.

Endeavoring to conceptualize institutional coordination of water supply in urban areas, this study deployed mainly three theories, namely coordination, institutional and network theories. In the first place, the coordination theory advances that actors, roles and relationships are the key variables in analyzing coordination (Malone,

1988; Malone and Crowston, 1994; Crowston et al, 2004). Contextualized in the study, the theory was relevant for explaining actors' coordination in water supply services in the city, apparently due to the existence of the many actors with many reciprocal and interdependent roles. However, the definition of the individual actors and their respective roles and relationships was observed to be based on rules, a situation that compelled the application of the institutional theory. The theory states that formal and informal rules empower organisations to pursue what they pursue (Hodgson, 2006; North, 1990). Since there existed equivalent status and roles among many water supply actors, this study applied the network theory as well, in explaining such kind of relationships among actors (see Kadushin, 2004; Hudalah et al, 2010). The sets of actors that portrayed existence of equivalent roles and status mainly included private and community-based water suppliers; the city's water authority (DAWASA) and the Wami Ruvu Basin Water Office; as well as NGOs and CBOs. None of these actors was answerable to the other within the same set. Hence, their relationships could be better explained through the network theory.

The importance of water supply is cross-cutting, a situation that makes the service to have many stakeholders who have different interests, with some implications on the coordination processes as well. The availability of water supply influences most other sectors and services including health, housing, urban agriculture, construction, as well as environment. Hence water is a developmental issue as well (Kachenje, 2019). The preceding section has presented the context and background to the study, while the subsequent sections include reflection of relevant literature and concepts for coordination of municipal services, particularly water supply; the methodology applied in the study; the study findings and discussion, and finally conclusions and recommendations based on the study findings.

## **LITERATURE REVIEW ON COORDINATION AND MUNICIPAL SERVICES DELIVERY**

### **Introduction**

The delivery of municipal services remains a pressing issue in the developing countries. The fast-growing urban population in this region has been an evident indication of increased pressure on the already overstretched municipal services such as solid waste, sanitation, water supply, health and transportation services. The management of municipal service delivery is closely linked to two factors, namely, demand and investment funding (Kyessi, 2011). This is because demand has some influence on the type of investment, and there is a need to ensure that the investment made addresses the demand effectively. And that is where the role of management gets in. According to Gupta (2006) the essence of management is coordination, in the sense that the basic objective of management is to integrate and harmonize human efforts, a notion also supported by Konteh (2000). That integration and harmonization of human efforts in this context is for ensuring that the demand for which the investment was done is adequately met through that particular investment. On that basis, management is a very important factor, similarly implying also that coordination is an important factor to consider in municipal services delivery. In East Africa and many other SSA countries delivery of most municipal services is mainly done through municipal council departments responsible for a particular service. However, there are many other actors outside the municipal council structure who take part in one way or the other, including NGOs, CBOs, private companies and individuals, as well as other governmental institutions. As such, there are various systems through which municipal services delivery is managed, as presented in the following section.

### **Systems of Municipal Services Delivery**

Systems of municipal services delivery are the institutional structures of municipal services delivery within which coordination is pursued within and among organizations that make up systems and sub-systems. Gupta (2006) defines the term 'system' as a composite entity that consists of several interdependent and interacting elements, known as sub-systems. That is applicable in this study, but of more importance is the type of arrangement through which urban water supply is managed. Discussion on how the elements/components interact and impact one another by being in one system makes an important definition of a particular system (ibid.). Similarly, in this context, systems of managing service delivery constitute a combination of actors, activities, interactions, rules and procedures, inputs and outputs. Variations in these elements along with the

nature of the key organizational authority distinguish one system (for managing urban water supply) from the other.

Explaining the situation of service provision in East Africa, Therkildsen and Semboja (1995) identified presence of four systems, namely public (state) system; private systems; NGOs systems, and donors' systems. In essence however, donors and NGOs have just been taking the role of financial and technical assistance in water supply. Hence it could be inappropriate to refer to them as standalone systems. Apart from that, Water Aid (2008b) identified four systems of coordinating urban water supply, in Lilongwe, Malawi. These included: the management by the water board (public); management by private operators; management by water point committees, and management by water user associations. On the other hand, discussing about Dar es Salaam water supply systems, Kjellen (2006) singled out private and public systems, some of which funded by international organisations. Yet he focused mainly on water vending as a sub-system. In view of Kyessi (2011) there existed three main systems of urban water supply in the city, namely public, in which services are through formal parastatal organisations; private system, through which services are delivered by privately owned entities, and community-based systems, in which the served community takes part in organizing for their own service delivery. WSP et al (2010) observed three main systems of managing water supply in West, Central and East African countries, whereas the non-public systems (private and community-based) were reported to gain more importance. The three specific systems are private, community-based and municipal. That categorization could almost be the same with the one noted by Kyessi (2011) since the municipal system matched the public system of managing water supply. This study adopts the categorization put forward by Kyessi (ibid.). The grounds for adopting such categorization are that it may be considered the most relevant for the understanding of water supply in Dar es Salaam. However, some modifications could be proposed, whereas water vending is also considered as part of the private system of urban water supply, essentially as viewed from Kjellen (2006) notion of 'private hands.' The NGO and donor systems put forward by Therkildsen and Semboja (1995) are hereby collapsed into the community-based system, since both of such systems normally tend to involve the local communities. The following section reviews organisations as part of the systems for managing municipal services delivery, particularly water supply. Analysis is also made between this form of management and the concept of coordination.

## Organisations and Institutions

The term "organization" can be defined as a process but also a unit. In this study, the term organization in most cases is used as a unit. Similarly, regarding organization as a subject matter of organization theory, it is defined in the sense of an organized unit (Walonick, 1993). Deviating from focusing on organization in the sense of organized unit, different theorists have defined the term in different ways, each insisting different characteristics of organization. Max Weber's definition mainly focuses on legitimate interaction patterns among organisational members as they pursue goals and engage in activities. He insisted the idea of order, thus defined organization as a corporate group, differentiated from other social units such as family and community (ibid.). Weber's definition is applicable in the institutional coordination context of urban water management in Tanzania, on the basis of the said required legitimacy of interaction patterns among the actors in the system. This is because organisations as institutional actors in the coordination processes have to be clearly known and defined based on the established and acceptable rules. Barnard and his followers had a somehow different emphasis to that of Weber (Walonick, 1993). He defined an organization as a system of consciously coordinated activities or forces of two or more persons. This conceptualization emphasizes that activities are accomplished through conscious, deliberate, and purposeful coordination. Underlined here is the role of individual organisations that must communicate, get motivated and make decisions (ibid.).

Retrospectively, organizations are defined as social units deliberately constructed and reconstructed to seek specific goals (Etzioni, 2009). Etzioni's definition implies that corporations, armies, schools, hospitals, churches, and prisons are included in the list of organizations; while tribes, classes, ethnic groups, and families are excluded. Etzioni further puts forward three characteristics of organization, namely division of labour, the presence of one or more power centres and substitution of personnel. In that sense, even departments, water committees and private companies qualify to be regarded as organisations. In sum, the three characteristics so far discussed are the necessary features of coordination, meaning that the accomplishment of the overall tasks requires inter-alia, integration, balancing and timing of the sub-tasks (Gupta, 2006). The foregoing definitions



and discussions imply the concepts of organization and coordination are so intricately linked. They both portray a system consisting of actors, tasks and goals. Coordination is part and parcel of any organization. Entities are called organisations due to inter alia, their respective number of actors and tasks that require coordination so as to achieve specified goals.

Within these individual organizations, there are coordination mechanisms by which the organization members' activities are integrated. These mechanisms often involve systems of embedded rules. Structures or networks in these organizations cannot function without rules of communication, membership or sovereignty. Thus, organizations have to be regarded as institutions since they cannot avoid existence of rules in them (Hodgson, 2006). That also applies to this study, whereby various organisations that participate in managing water supply are also interchangeably referred to as institutions. Apart from that, organisations may also be treated as actors in some circumstances, while generally they are still regarded as institutions (ibid.).

This happens when organisations are within other encompassing institutional rule systems. There are multiple levels, in which organizations provide institutional rules for individuals, and possibly in turn these organizations can also be treated as actors within broader institutional frameworks (ibid.). That being the case, Community Water Committees, regulatory authorities, urban authorities and agencies for water and sanitation, as well as utilities' Area Offices are all actors in the broader institutional framework of water supply in the study area (Dar es Salaam), although each of them is an institution. Some of those have various organizations and actors within them, including departments and sections. Based on the preceding discussion, therefore, defining organization as a unit (rather than a process) is more relevant in the discussion about numerous coordinating entities. This is due to the fact that, defining organization as a unit captures sufficiently other relevant elements in this study such as institutions and networks.

### **The essence of coordination**

Coordination has been a long-standing interest of organizational scholars and more recently of computer scientists (Crowston et al, 2004). The interest can be revealed through many definitions that the scholars have proposed for this term. Those definitions differ significantly on their orientations. While some scholars focus on the dependencies arising between activities, others have looked at dependencies arising among actors. It is important to pay attention to this difference, since dependencies are the basis on which coordination mechanisms or tools are developed or selected and applied. Crowston et al (2004) and Weigand et al (2003) listed down some of the definitions put forward between early the 1960s and mid-1990s, as follows:

- Structuring and facilitating transactions between interdependent components (Chandler, 1962).
- The protocols, tasks and decision-making mechanisms designed to achieve concerted actions between interdependent units (Thompson, 1967).
- The integrative devices for interconnecting differentiated sub-units (Lawrence & Lorsch, 1967).
- Composing purposeful actions into larger purposeful wholes (Holt, 1988).
- The integration and harmonious adjustment of individual work efforts towards the accomplishment of a larger goal (Singh & Rein, 1992).
- Establishing attunement between tasks with the purpose of ensuring that the execution of separate tasks is timely, in the right order and of the right quantity (Reezigt, 1995).

While the first three of the above definitions from the organization studies literature conceptualize dependencies as arising between individuals or units, the rest conceptualize dependencies as arising between activities. Crowston et al (2004) argue for the latter approach, emphasizing that it has more advantage in making it easier to model the effects of reassignments of activities to different actors. They also insist that it is common in process redesign efforts. Though the argument may be acceptable, the effects of re-assignment may currently not weigh more than accountability in municipal services delivery, especially given the multitude of actors currently engaged in the provision of municipal services. That means dependencies among actors (rather than

activities) are more relevant in defining coordination in the delivery of municipal services, particularly water supply. The definition by Gupta (2006) also based on the dependencies between actors, defining coordination as conscious and rational process through which the different parts of an organization are pulled together and get unified into a team, so as to achieve predetermined goals in an effective manner. Henry Fayol (in Gupta, 2006), included in the definition of coordination *inter alia*, harmonization of all the activities of a concern so as to facilitate the working and success.

That relates to the unification put forward by Gupta. In a well-coordinated enterprise, each department or division works in harmony with others and is well informed of its role in the organization (*ibid.*). Such a notion also supports the definition by Konteh (2000), who defined coordination as harmonious working together guided by the extent to which the work activities of the major actors or partners are logically consistent and coherent. In essence, all the definitions so far presented differ depending on the nature of dependencies adopted. The coordination theory defines coordination as managing dependencies among activities (Crowston et al, 2004; Malone and Crowston, 1994). This implies that the issue of relationships among actors and their respective roles is important in defining coordination. Thus, in this study, coordination is defined as managing dependencies among actors. Essentially, it is the actors who take responsibility and perform activities. Those responsibilities are geared towards fulfilling some defined goals.

### **Justification for coordination in municipal services delivery**

Coordination is inevitable where there is an organizational system (see Etzioni, 2009; Gupta, 2006), as it increases the ability of various entities to successfully deal with and solve problems that could be impossible to a single organization (Konteh, 2000), and provides mechanisms for joint action. Given that coordination is the essence of management (Gupta, 2006), various actors in municipal services delivery will have their efforts integrated and harmonized through it, applying one or more among the coordination mechanisms. Developing countries very much require coordination as a tool for addressing issues of underdevelopment and their complexities (Konteh, 2000), based on a number of justifications. Firstly, it is through integration of the work processes of various actors that resources in the fast-urbanizing countries can be pulled together for efficiency in any initiative. Since resources are considered scarce in relation to needs, this scarcity could be addressed through pulling such resources together. For instance, different departments in an organization may achieve some collective goals better through synchronizing their work processes instead of each department applying efforts on individual basis without communicating with the other departments (Stewart et al, 2011). Good working relationships are normally associated with good communication, which is a very essential component of effective coordination (Gupta, 2006; Konteh, 2000; Malone, 1988).

Secondly, many initiatives in service delivery and other development endeavours involve a multiplicity of actors in various sectors and sub-sectors (Kessides, 2004; Kombe and Kyessi, 2008; Gulpinar et al, 2009). That calls for effective institutional coordination both within and among organizations, as all such processes and actors require communication, transparency, trust and harmonious operation so that the initiatives are unified, subsequently leading to the required efficiency (Henry Fayol in Gupta, 2006; Konteh, 2000). Effective coordination is the only method by which organizations can avoid potential sources of conflicts among the various actors (Gupta, 2006). This will result to a situation in which activities of various actors will be guided by a single pre-determined goal. The multiplicity of actors implies multiple interests, strategies and goals, all calling for synchronization so as to minimize conflicts and attain the required efficiency (Malone, 1988). While most of the developing countries could boast of institutional reforms that give room for participation of multiple actors in service delivery, enforcement of regulatory instruments is another crucial factor for effective coordination of actors in delivering municipal services (Makurira and Mugumo, 2003). Thirdly, in most developing countries, there has been an increasing demand for quality services, manifested by people's willingness to pay more for higher quality municipal services, including water and education (Kombe et al, 2019; Ocloo, 2013; Kombe and Kyessi, 2008), as well as solid waste services (Wang et al, 2011). Given the deteriorated financial capacities among most of the local and central governments in these countries and the paradigmatic shift of such governments' role from provision to facilitation, the ideal way to achieve the demanded high-quality services could be to improve the institutional coordination (Kyessi, 2011; Kessides, 2004; Tomison and Stanley, 2001; Therkildsen and Semboja, 1995). That could attract technical and financial resources required for investment in the service sector to meet the community's demand for quality services.

Applying some innovations could prove fruitful for both, institutional coordination processes and production processes (Water Aid, 2008b; Philippe, 2009; Philippe et al 2010). Fourthly, in order to sustain municipal services delivery, it is important to address resource management issues such as underutilization, overutilization, misutilization and non-utilization (Crowston, 2003). Such issues require effective sharing of information, allocation of tasks and compliance to agreed actions for efficient use of the resources and improved working relationships (Stewart et al, 2011). Therefore, sustainable delivery of municipal services, particularly water supply requires inter alia effective coordination.

## METHODS

### Materials and Methods

This paper used water supply as a premise or ground to comprehend coordination challenges in municipal services delivery. It drew mainly from three theories, namely coordination, institutional and network theories. The study was largely qualitative, and deployed a case study methodology. Adoption of case study methodology was based on the need and room for applying a combination of methods in pursuing the study phenomenon. In the city of Dar es Salaam (see Figure 1), the study sampled three water supply schemes, one each from three water supply models, which included the public, the private and the community-based models. The individual schemes were the units of analysis for the study. In the process of selecting the studied schemes, this study minimized subjectivity by applying some specific selection criteria, which were relevant to the research

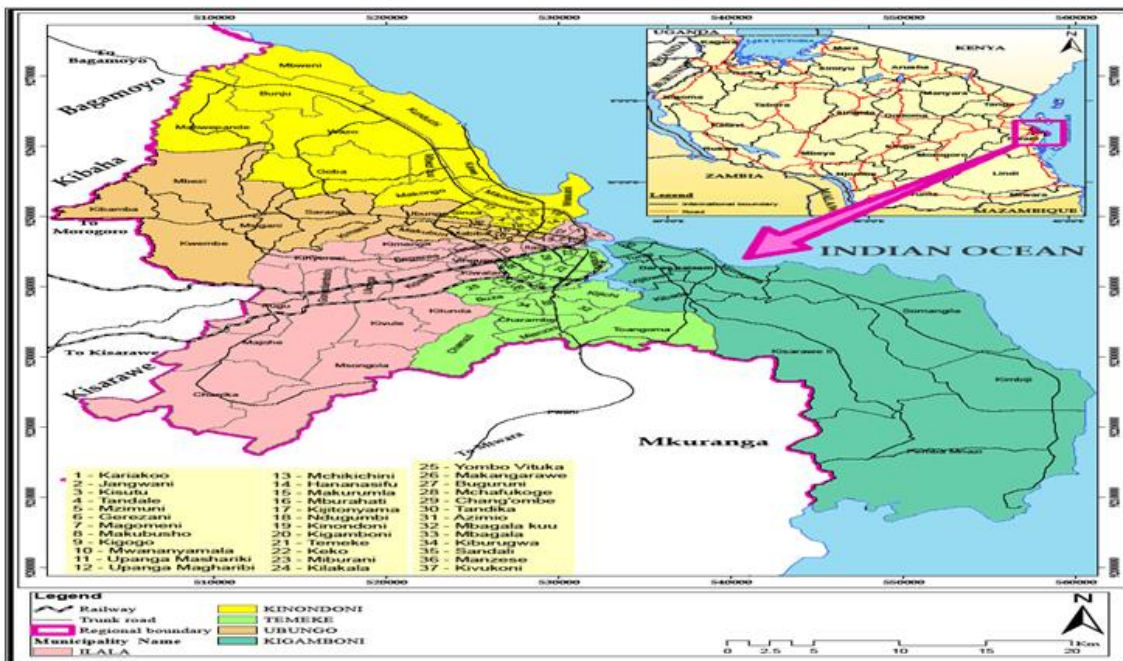


Figure 1: Location of Dar es Salaam and its municipalities

Source: Ministry of Lands, Housing and Human Settlements Development (MLHSD).

Analytical factors were developed and applied in explaining the research phenomenon in each of the schemes, starting from the general city level, to individual water supply schemes level. The instruments of data collection used in this study included document analysis, key informant interviews, focus group discussions and household interviews.

### Research Design and Process

Research design facilitates the smooth sailing from the initial questions to be answered to the conclusions (answers) to the questions. It constitutes a number of major steps including collection and analysis of relevant data (Yin, 2014:28). For that purpose, this study has accordingly included appropriate research questions for



guiding the study towards reasonable findings. For each of the research questions, data/variables and their respective methods for data collection were identified. In this study, the individual water schemes<sup>[2]</sup> are also the units of analysis, as they are the lowest level on which the researcher could be able to say something about institutional coordination. It is in these schemes that one can find actors who have to coordinate in the process of urban water supply provision. This study groups the schemes into public, private and community-based, whereas the naming gives a hint of the operator's nature.

A case in this context is defined *inter alia* by the organization unit for managing water supply and its geographical service area, whereby the nature of the scheme's operator organization defines the type of the case. The different types (public, private, community-based) were included in this study to capture what is taking place in those different types, as far as coordination is concerned, since their service level management differs. Schemes have been used as a frame for the mapping of actors who take part in urban water supply along with their respective roles. The selected variables were applied in generating and analyzing information from those water schemes.

### **Sample design and the smallest unit of analysis**

The individual schemes of water supply are the units of analysis for this study. Since this study is on coordination in urban water supply management, the sample design and the units of analysis have based on the components of the urban water supply management system in the city. According to the institutional framework for water supply in the country, the provision of urban water supply at service level constitutes the public, private and community-based water supply schemes. Each of these schemes constitutes a service area defined by geographical boundaries and an organization unit devoted to water supply in that service area. The varying actors and structures of organization in these schemes presented a room for studying coordination in the individual schemes as integral units of analysis from which conclusions were drawn on the subject matter. Schemes as units of analysis involve interactions of actors with different roles, mandates and interactions under a particular set of rules. It is on the basis of what is happening in these schemes (as far as coordination is concerned) that conclusions were drawn.

### **Data analysis**

In this study the quick impression summary was mainly applied parallel with data collection. Through that method, a contact summary was made after most of the interviews. After the main data collection, the analysis mainly used the thematic approach in which the data was sorted in specific codes/themes and patterns. Specific learning, insights and quotes around each category were noted and captured (Bhattacharjee, 2012) in the same stage. The data collection process yielded a broad variety of data, basically qualitative on the study phenomenon. Before the beginning of data collection, the questions were grouped on the basis of variables. During data analysis, the variables were used as a frame around which explanations were built. Since there were three different water schemes in which these variables were tested, the analysis went from one scheme after the other. As such, the analysis of data in this study based on and around the conceptual framework and its application in the distinct three schemes. The variables (taken as thematic areas) constituted indicators on the basis of which, sub-headings were developed to facilitate further analysis of the data and the building of explanations. A systematic way to ensure that every relevant data was analyzed had to be adopted, through which the data sources/respondents were clustered into homogenous categories. These categories were the water schemes. For each of the schemes, the respondents were listed separately. What followed was identifying and collecting or grouping responses and information on the individual variables/issues from each of the respondents/sources in those three categories. Tables, figures, photographs, summaries, direct quotations and boxes were used for analysis and presentation of the information. Emerging issues and patterns were thereby observed.

## **RESULTS AND DISCUSSION**

The study found out that the main challenges that hindered effective institutional coordination in municipal services delivery included multiplicity of competing actors; insufficient responsiveness of actors; lack of clear mechanisms for collaboration of schemes across water supply models, and poor mindset among actors. Along with that, poor enforcement of the regulatory instruments constrained the efficacy of coordination processes in



the city's water supply. The following discussion of the city's institutional environment for water supply coordination provides the essence, and lays a foundation to the understanding of the above highlighted coordination challenges.

### **The institutional environment for water supply coordination in Dar es Salaam**

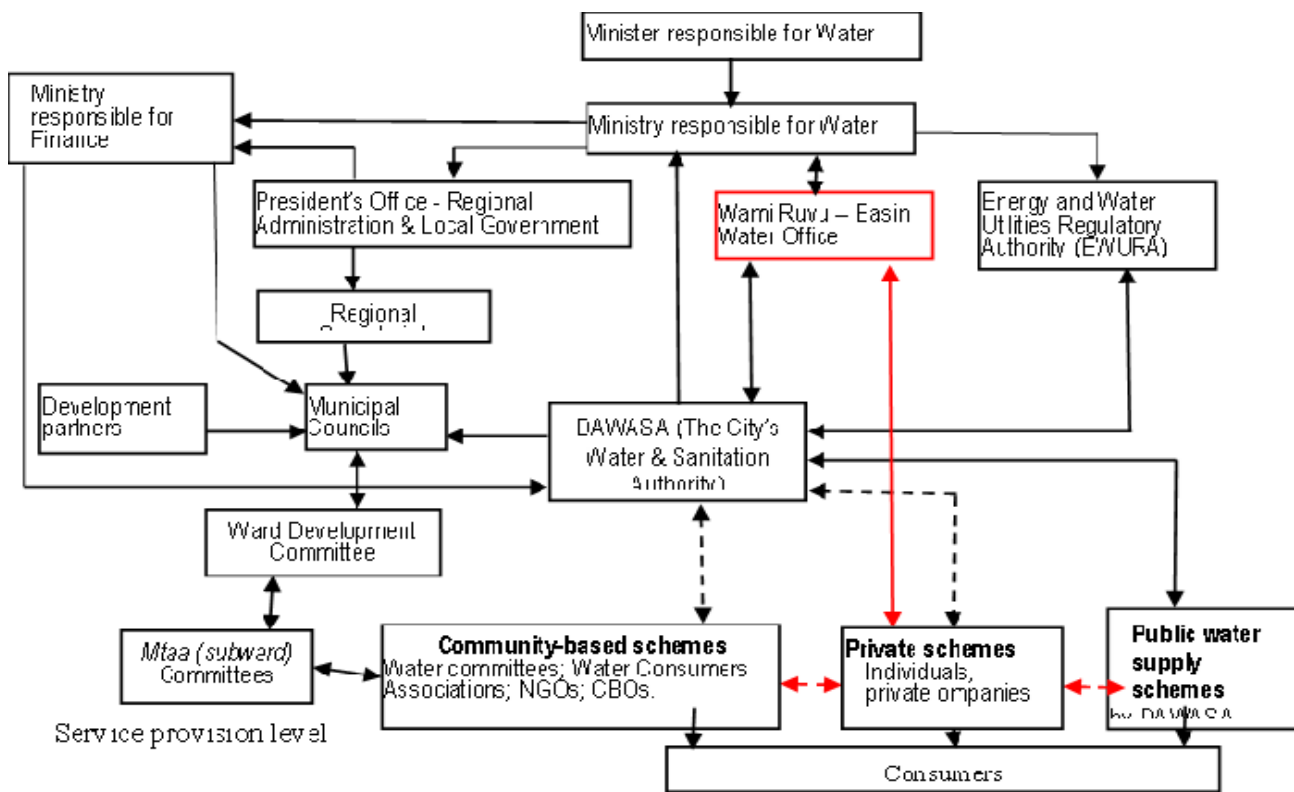
Dar es Salaam is one of the fastest urbanizing cities in Tanzania. It is ranked 3rd in Africa, and 9th globally, in terms of the urbanizing rate (Mcgranahan et al., 2016, in Dakyaga et al 2022). In 2012 the city had a population of over four million, which was almost 10% of the country's total population (URT, 2013). Approaching the country's national population census of 2022, the city's population was projected to have reached six million (URT, 2018). Instead, it reached 5.4 million, which is almost 9% of the country's total population (URT, 2022). The city was observed to be particularly expanding in peri-urban areas, following the main trunk infrastructure lines, especially the major roads (Msangi, 2014). As such, in the past three decades the city's rapid urban population growth had outpaced service provision capacities of the institutions responsible for municipal services provision (Kyessi, 2019; Kachenje, 2017; Kombe and Kyessi, 2008). This was observed to be the case for almost all the municipal services in the city, including water supply. The situation implied a need for inter alia enhancing coordination of actors, so as to sufficiently address the inadequacies. Based on the status and governance arrangements that existed in the period before February 2021, the city of Dar es Salaam had five municipal councils (see Figure 1 above), vested with responsibility for delivery of various services related to health, education, fire and solid wastes.

However, delivery and management of potable water and sanitation were not directly under the City or Municipal Councils. Like in the other Tanzanian cities and municipalities, the delivery and management of these services was directly under a semi-autonomous public parastatal organization, known as Dar es Salaam Water and Sewerage Authority (DAWASA), which was the main public agency responsible for delivery of water and sanitation services in the city. This public institution was responsible for planning, mobilization of resources, construction and operation of water supply and sewerage systems, monitoring and overall management, including tariff setting and billing. However, tariff set by this public company for water and sanitation services was regulated by the national Energy and Water Utilities Regulatory Authority (EWURA), which was also responsible for monitoring the services delivered by DAWASA (URT 2001; Triche 2012; URT 2019). Furthermore, DAWASA being the city authority for water and sanitation was responsible for day-to-day routine activities, including operating and maintaining water and sewer system, providing service connections, building and rehabilitating the major network systems. It has to be noted that the involvement of the then five municipal councils of the city was limited to maintaining public health by, for instance, inspecting pit latrines and constructing and monitoring boreholes in areas where the DAWASA supply network was lacking (Kombe, Ndezi and Hofmann 2015).

Apart from those limited activities, the governance arrangements gave neither the City Council nor its five municipal councils (Ilala, Kigamboni, Kinondoni, Temeke and Ubungu) the major responsibilities or the mandate on the delivery of water supply and sanitation services in the city (ibid.). This also implied that the city's water and sewerage company was not accountable or answerable to the city and its municipal councils, but to its governing board and the ministry responsible for water. That situation hindered efficiency of the water supply coordination process/system. According to the National Water Policy 2002, grassroots institutions of local government authorities, including the Village/Mtaa (sub-ward) Water Committees, were responsible for the management of water supply schemes in their localities. But this was somehow contradictory, since the municipal councils did not have the mandate over water supply and sanitation services in their areas of jurisdiction.

Furthermore, it was also the responsibility of DAWASA (being the city's water and sanitation authority) to monitor and regulate the activities of the non-public actors involved in providing water and sanitation services in the City. The actors included small- and large-scale water vendors, operators of deep wells and cesspit emptier, among others. In so far as the delivery of water services in the city was concerned, some individual consumers or users had contracts and maintained direct contacts with DAWASA and not with their respective local municipal authorities (Kombe, Ndezi and Hofmann 2015). Apart from the constraints resulting from the prevalence of complex organizational and governance arrangements, which seemed to provide for an upward

accountability to the state Ministry by DAWASA; there were also other governance deficiencies particularly with regard to vertical and horizontal coordination and communication (Triche 2012; Kombe, Ndezi and Hofmann 2015). The highlighted relationship between the five municipal councils (which were the statutory urban ‘Planning Authorities’ in their respective areas of jurisdiction), and DAWASA (the city water supply and sanitation authority), clearly depicted this problem. As such, problems of linkages were evidenced between actors at service provision level, contracting level and regulation level, implying prevalence of a challenging environment for water supply coordination processes in the city. Apart from the linkages as provided for in the institutional framework, water supply in the city featured some linkages that practically existed, but were not recognized in the formal institutional arrangement for water supply. Similarly, one actor who was principally responsible for water resources management, was observed undertaking water supply service roles. The actor (Wami-Ruvu Basin Water Office) issued the private water suppliers water use permits, which the suppliers, the local government (ward and sub-ward) leaders, as well as the residents regarded it to be adequate. Also, there were some linkages provided for in the formal institutional arrangement for water supply, but were not practiced. For instance, some private service providers consulted neither the city authorities responsible for water supply, nor the regulatory authority (see Figure 1). This situation implied a gap of coordination, as opposed to what the formal institutional framework provided for.



**Figure 1: Institutional framework for water supply in Dar es Salaam, Tanzania.**

Source: Modified from Kachenje (2017).

**Legend**

- Formal and regular linkages
- ← - - - Formal but irregular linkages
- (red) Regular but largely informal linkages, with no formal recognition in water supply services
- ← - - - (red) Important but non-existent linkage among actors of water supply services
- (red border) An actor not directly recognized in water supply services
- (black border) A formal actor for water supply services provision.

The need for prevalence of inter-scheme linkages of water supply service providers in the public, private and community-based schemes, was also observed at the service provision level. However, the National Water Policy (URT 2002) and the National Water Sector Development Strategy did not provide for a defined coordination mechanism among such actors. Additionally, in practice, even an informal mechanism rarely existed for that purpose, a situation that further complicated the possibility for coordination of actors at that level. Further discussion of challenges related to coordination of actors in water supply, based on the case of Dar es Salaam is presented under the following sub-headings.

### **Multiplicity of competing institutions in the supply of potable water**

Among other issues, Figure 1 has helped explaining that the city's water supply was a function of a number of service providers, including public, private and community-based. The city's unmet water demand along with the reforms in the water sector were among the key factors that prompted a need for greater number of actors to engage in the water sector. The actors included formal and informal ones. While the National Water Policy of 2002 might be justified to promote participation of more actors, the increase in the number of actors culminated in the emergence of a myriad of critical challenges, all of which prompting a need for improved coordination. For instance, some of such actors had similar roles, implying competition, conflicts and duplication of efforts. Another challenge was the difficulty in finding the modality for harmonizing the closely interdependent actors who had similar roles.

Taking the particular case of the private and community-based water supply schemes in the study area, collaboration was not possible for the two schemes. Given their equivalent roles and status as service providers, they could use their respective positions to forge some interactions through mutual adjustment, being the appropriate coordination mechanism under such a situation (Kadushin, 2004; Malone and Crowston, 1994). But their failure to collaborate indicates the difficulty inherent in applying what the coordination theory provides for (mutual adjustment) under such circumstances in which one actor believes in having more right than the other, and would be ready to see only one's interests fulfilled, not the mutual interests.

On top of that there was no reliable information regarding the share of the city's households who used water from vendors to meet their daily water needs (Kombe, Ndezi and Hofmann 2015). The fact that the public water supply system served about 70% of the city's population indicated the presence of other multiple non-public actors who addressed the remaining percentage. For instance, before 2010, there were two known key development partners working with one of the municipal councils in the city, implementing water supply and sanitation projects. Though both of the development partners (Water Aid Tanzania and Belgium Technical Cooperation) were working on water supply and sanitation in the same municipality, they neither collaborated nor shared information on such issues. Possibly the situation could have been better if there was proper coordination among them.

Despite the water supply actors' interdependencies and the need for them to coordinate so as to effectively manage water supply services in the city, some of these actors were observed to compete against one another. These competitions occurred when some actors pursued the roles related to water provision in piecemeal and independently, instead of applying collaborative efforts. Likewise, a tendency was observed in which the actors did not build up from what other actors had done before. The lack of integration of actors might largely be due to the fact that there existed no master plan that guided water supply in the city.

Over the past few decades DAWASA was observed attempting strongly to improve water supply in the city, although most of what they planned did not involve the local government authorities (apart from representation in the DAWASA Board meetings), who were important stakeholders. The fact that the utility and the local government authorities were in two different chains of command and accountability was also contributing to widening disparities among such key stakeholders. Similarly, local governments implemented a number of water supply projects, in attempts to alleviate water scarcity in the city neighborhoods, whereas consultation with DAWASA was in most cases minimal. As a matter of fact, the prevalence of competition among institutions suggested a need for improved coordination, in terms of managing cross-institutional interdependences that could facilitate attaining goals of such individual institutions, as put forward by Malone and Crowston (1994) and Crowston et al, (2004). Such kind of coordination could at the same time contribute to improved water

supply services in the city.

**Poor enforcement of regulatory instruments**

The available regulatory instruments that guided urban water supply in Dar es Salaam included the National Water Policy (NAWAPO) of 2002; the Water Resources Management Act (WRMA) No.11 of 2009; the Water Supply and Sanitation Act of 2019; the National Water Sector Development Strategy (NWSDS) of 2006; the Energy and Water Utilities Regulatory Authority (EWURA) Act No.414 of 2001, and the Local Government (Urban Authorities) Act No.7 of 1982. The existence of these instruments was supported by the view that coordination processes, relationships and coordination mechanisms among actors needed to be derived from specific rules (Hodgson, 2006). Thus, good enforcement of regulatory instruments was established to be of paramount importance for effective coordination.

Indisputably, the regulatory instruments for water supply in Dar es Salaam, were not well enforced. Some variations existed among the individual water supply schemes, but the problem of poor enforcement was cross-cutting. In the private schemes, this problem was more evident to the extent that informality became the order of the day. For instance, most private service providers were not registered as service providers but were only recognized by the residents they served. Given the persistence of poor enforcement of the regulatory instruments, the defined roles and relationships could seldom be achieved. Consequently, the required extent of coordination proved hard to achieve.

Meanwhile, community-based water supply schemes were observed to differ in practice with the private schemes in the sense that the former were mainly guided by a constitution, which was a formal regulatory instrument, while the private schemes’ operations to a large extent did not adhere to the formal rules, but norms and informal rules.

**Bureaucracy in the water schemes**

The time taken in the three different schemes in the processing of applications before customers get water connections is an important component as far as responsiveness is concerned. The public scheme is an extreme case with the highest number of days spent, while the community-based and the private-based schemes do not differ much. While that situation could be justified by the variation in the number of actors playing various roles in such schemes’ processing of the applications, it is contradicting with the minimal variations in the billing and maintenance processes among the three schemes. The number of actors in the billing and maintenance processes does not significantly differ from that of the water connection processes. However, the time spent in the processing of water connection applications varied between the schemes, as presented in Table 1.

**Table 1: Time spent and number of actors in processing water connection applications**

|                      | Type of scheme |         |                 | Remarks                          |
|----------------------|----------------|---------|-----------------|----------------------------------|
|                      | Public         | Private | Community-based |                                  |
| Number of days spent | 30             | 3       | 6               | Maximum duration from applying   |
| Number of key actors | 5              | 2       | 3               | Key actors include the applicant |

Source: Kachenje (2017).

The variations among these schemes were basically attributed to the waiting period after the applicants had already paid the connection and materials charges. At this stage in the studied public scheme, the applicants waited for up to four weeks for the plumbing materials to be prepared, and the requested connection to be affected.

As opposed to the private and community-based schemes, public schemes were observed to have vertical



linkages in the processing of water supply connections, something that added unnecessary bureaucracies during the processing. The preparation of materials in the public schemes was delayed partly because the water connection process was centralized at the Headquarters, where the Area Office forwarded the application documentation. These included the bank pay-in-slips from applicants. That procedure contributed to delays.

Although the public utility (DAWASA) was organized into area offices, the usefulness of that structure was not sufficiently realized, since there were a number of functions needed at the area office level which were still centralized at the headquarters. For instance, some financial and procurement services were badly missed in the area office, as the structure did not provide for them there. Hence, the organization structure somehow has had negative influence on the responsiveness and efficiency of the public scheme's Area Office.

As advocated by Robbins and Coulter (2006), the designing and re-designing of organization structures has to do with inter alia, centralization and decentralization. The current organization structure of the public utility's Area Offices appeared not favorable enough for the required level of efficiency in such schemes. This is because, although the utility was decentralized, the area office still missed some important roles (which were based at the headquarters), for improved efficiency. Subsequently, the processing took unnecessarily long time before the water connection was finally achieved. The coordination theory explains this inefficiency by underlining the need for effective connectivity between actors and roles, interdependencies, responsiveness and effectiveness (Malone and Crowston, 2003; Gupta, 2006). While the actors with responsibilities on finance and procurement at the headquarters perform their roles and relate well with the actors in the Area Office, the problem was on the timing of their actions. The interdependency between actors in the area office and the actors in the headquarters was not followed up with good timing of the actors' work processes. A mismatch was observed between the work schedules of the headquarters and those of the area offices. As a result, up to one month was spent by the public utility (DAWASA) in processing an application for a new water connection.

The afore explained situation in public schemes, differed to a great extent from the situation in the community-based scheme, whereby the processing took less than a week to be accomplished, as all the key actors were located within the same geographical service area. Ultimately, there was a timely combination of such actors' work processes in the community-based scheme, a situation that minimized delays in the processing of a single water connection to a maximum of one week. That concurs with Gupta (2006) and Stewart et al (2011) who noted that effective coordination required not only integration of the actors' work processes but also good timing, in the sense that everything has to be done at the right time. In overall terms, the poor timing in the presented public scheme, as opposed to good timing in the private and community-based schemes, underlined the importance of timing as a necessary factor for effective institutional coordination.

### **Lack of mechanisms for inter-model coordination of actors**

Studies have indicated that, to a varying extent, underserved communities relied on water supply from schemes that can be grouped into three main models, namely the public, community-based and private (Kyessi, Kombe and Kachenje, 2019; Kyessi, 2011). The schemes under the public model supplied water through a local urban water and sewerage authority (DAWASA for the city of Dar es Salaam), a supply that normally used piped network. Meanwhile, schemes in the community-based model normally used piped network, but distributed water from boreholes. The latter model's schemes were managed by individual local water committees, answerable to the municipal water engineer. The schemes under the private model of water supply in this paper were confined to private water suppliers, who normally supplied households with piped water from boreholes, operating under a mixture of formal and informal rules.

The fact that these schemes happened to supplement and even compete with one another in some cases, underlined the need for their coordination. Although the National Water Policy of 2002 promotes participation of non-public actors (that is private and community-based schemes) along with the public ones in water supply, it has not explicitly stated how inter-model coordination could be affected. The interdependence among these schemes in terms of their supplementarily and competition, implies the need for defined mechanisms that could be used to coordinate the actors in those cross-model schemes of water supply (see Crowston et al 2004; Kyessi, 2011). This lack of clear inter-model coordination mechanisms highly contributed to the inability to address

interdependencies among the inter-model actors in the schemes. The highlighted lack of common understanding among the inter-model actors in their roles and position was also observed to weaken the actors' interactions. The actors' similar roles and status could be an opportunity for them to coordinate and strengthen their ties for mutual benefit and improved water supply services. But these actors were not able to establish and exploit informal linkages, normally associated with social networks, as suggested by Kadushin (2004) and Hudalah et al (2010).

### **Poor mindset among service providers**

The country's water sector development strategy and the water supply legislation provide for both public schemes and non-public (private and community-based) schemes of water supply in the city. However, relations between the public, private and community-based schemes reveal that still something has to be done if at all they are to function in a way that is more favorable to the community they serve. For instance, interviewed officials of the public utility (DAWASA) regard the existence of non-public water supply schemes as transitional in front of the public schemes. Under that mindset, it is very unlikely to achieve effective coordination in the sub-sector because some actors will always be less regarded since they are taken as temporary. It is widely accepted in literature (Kyessi, 2011; Lobina and Hall, 2006; Philippe et al, 2010) that the driving force for the introduction of non-public schemes was the unmet water demand due to poor performance of the public schemes. Emergence of the non-public schemes could arguably prompt arrangements to provide an entry point for collaboration among different schemes of water supply (Lukas, 2019). But that has not been really the case. The establishment of the non-public schemes in the law does not provide for them as temporary schemes. Conversely, it gives them importance as collaborators with the public schemes of water supply. The failure of the public utility (DAWASA) to meet the city's water demand, coupled with the persistence of unaccounted for water supply is making the utility suspicious over the operations of the non-public schemes, particularly the private schemes, as one respondent at the public utility pointed out: Private service providers are our enemies. We are in conflict with them. They do not have the mandate. We are just monitoring their actions.

Such kind of thinking does not favor collaboration between the public schemes and the private ones. Hence, any potential benefits from collaboration of the actors in these schemes may not be realized for the community. Research by Kyessi (2011) indicates that sharing of the service area among non-public schemes (that is community-based and private schemes) of water supply brings about some supplementary, meaning that the schemes fill each other's gap of the required service, at the customers' advantage. That has also been observed in this study, albeit with a slight difference in terms of relations among some key actors in those two different schemes of water supply.

The Mtaa Committee which is the lowest level of local government was observed to have imbalanced relationship with the community-based and private-based schemes of water supply operating in the study area. Worse still, those two different schemes did not have good relationship among themselves. The Mtaa Committee received 5% of the monthly net water sales from the water committee of the community-based water supply scheme, while the private scheme of water supply refused to pay the 5%. This situation culminated into the said relationship with the local government. Consequently, the community-based scheme felt like they had more right than the private-based scheme in providing water supply services in the study area. That poor mindset expelled any possibility for forging collaboration among them, for improved provision of water supply services to the community.

## **CONCLUSIONS**

This paper aimed at explaining institutional coordination challenges, using the case of water supply in Dar es Salaam, Tanzania. The paper demonstrated that water supply in the city of Dar es Salaam faced institutional coordination challenges that were directly linked to the nature of the actors, their interdependences and the available rules, as well as the mechanisms of their collaboration. The major institutional coordination challenges pointed out in this paper included multiplicity of uncoordinated and competing actors; inadequate adherence to the governing rules; insufficient responsiveness of actors; lack of clear mechanisms for inter-model collaboration, as well as poor mind-set among actors.

The paper, therefore recommends improvement in the enforcement of the regulatory instruments, since these instruments were observed to be central in the definition of actors and their respective roles, as well as interactions of actors in those particular schemes of water supply. This is in line with the theory of Institutions (Hodgson, 2006) as discussed earlier in part 4 above. The elements requiring improvement in their enforcement include the role of the city's water and sanitation authority (DAWASA) in managing water supply in the city, and the requirement for service providers to be contracted by this authority. Similarly, the EWURA Act that emphasized regulation of service among providers, has to be adhered to. In 2020, the city water authority made a commendable step of advertising and welcoming aspiring private service providers to get formally registered and contracted. More effort is however needed, since the informal suppliers are very numerous and vary in their scale of operation, leave alone the tendency of entrepreneurs to remain informal, so as to avoid costs that are related to formal operations.

The paper also recommends the need to reduce bureaucracies, so as to improve responsiveness in terms of speeding up the processing of water supply licenses, and reducing the time spent for processing new water connections. Reduction of bureaucracies could be realized through establishing a single desk to perform a combination of functions required for the licensing, in that way encouraging the unlicensed private service providers. This action might prove useful not only for the time of clearing the backlog of informal service providers, but also after the backlog gets cleared.

Furthermore, in order to improve relations among the inter-model and inter-scheme actors, there is a need for building scheme level capacity, so that the schemes could benefit more from their co-existence and services. This could be through training, which would not only enhance the understanding of their respective roles, but would also increase awareness of the actors across the schemes, and their statuses. The proposed training is expected to reduce unnecessary misunderstandings, conflicts and confusions between the inter-scheme and inter-model key actors. Besides, the paper recommends improvement of autonomy of the city water authority's area offices, for the purpose of addressing the issue of poor responsiveness of actors. The proposed improved autonomy at the area office level would allow actors to proceed interacting, with minimized need for the head office regular interventions in managing water supply services. The paper considers this to be important for improved performance in terms of water provision, revenue collection and customer services for the city water supply authority.

In so far as broadening of the research-based knowledge is concerned, the study recommends a need for a comparative analysis on the application of the existing main sets of regulatory instruments for community-based water schemes. Over the past 10 years in Tanzania there was application of two sets of regulatory instruments - the framework constitution of the water committees and the framework for water users' associations. Those two sets significantly differ in terms of their definition of the structure of the schemes and actors, and the actors' roles and relationships. Research could be required to compare suitability of the two sets of instruments in relation to effective coordination of actors in managing water supply services, particularly in the community-based water schemes.

On top of that, research is proposed to investigate on the future of non-public schemes of water supply and the associated policy implications. This could be justified by the current apparent revival of the public water supply and sanitation authorities, to extend services to a wider coverage, claiming back their conventional role from the small scale non-public and informal service providers. In connection to the afore proposed research, the public water supply and sanitation authority for the study area (DAWASA) recently called on the informal service providers to register and work with the authority in supplying water to the neighborhoods. Adhering to this call may require some incentives for operationalization. Hence, a study is similarly recommended for establishing appropriate incentives for facilitating readiness of the informal service providers to register and work with the city water supply and sanitation authority.

Although this research investigated institutional coordination in the three main systems of water supply in the study area, that is, public, private and community-based water supply systems, it did not include water vending. This decision was based on justification that, water vending is a broad and complex sub-system that requires a separate study in order to sufficiently derive findings from it.

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### Ethical considerations

Apart from formally requested permission through letters written to the various institutions, the author sought for the respondents' consent to participate in the research.

### Data availability

The data from which this paper was developed is available mainly in the Ardhi University repository [www.aru.ac.tz](http://www.aru.ac.tz)

### FOOTNOTES

[1] Water vending is not pursued in this study, as it is considered to be a wide sub-system requiring more time and attention as a separate entity.

[2] A water supply scheme in this paper refers to a combination of the service area and the organization that is devoted to water supply services in a defined service area.