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Challenges in operation of the Abuja water distribution system: headquarters and area office perspectives

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Often effective management of a water resource will involve cooperation and understanding between concerned stakeholders. An inquiry into the challenges in operation of the current water distribution system at the Headquarters and Areas Office of the Federal Capital Territory Water Board (FCTWB) showed that reluctance to share information (where present) to maintain a level of control over was routine and often led to differing views between them on various subjects including non-revenue water and cooperation with the city development agency. It also revealed the need for integration of the operational staff of the area offices in the affairs and decisions of the headquarters in order to ensure practicality of programmes during the planning phase and promote cooperation and initiative in implementation.

Introduction

Since its creation, the Federal Capital City (FCC) also called Abuja has played a vital role to other Nigerian cities as setting an achievable standard for better infrastructure especially in the water sector; meanwhile, a dominant percentage of the lower class workforce in the Federal Capital Territory (FCT) live outside the coverage of the existing water network (COHRE, 2008) and rely on boreholes or trailers for water. Despite the wide spread migration of residents (particularly very small business owners and squatters) out of the FCC from 2003 – 2007, the population is still expected to rise quite significantly by 2018.

The Federal Capital Territory Water Board (FCTWB), which has been given the mandate to supply potable water of adequate quantity and quality has acknowledged this increasing demand and has set out to improve its management and operational deficiencies, along with its water system. So far, the FCTWB has tried to address its short comings by looking into its change management strategy and human capacity development (Chambers and Ekanem, 2007). It has also constructed additional infrastructure (treatment plant, transmission lines, distribution pipes, etc.) using agencies such as the Federal Capital Development Authority (FCDA) and thereby increased its water supply capacity. Although recommendations have been given and followed through by the FCTWB, there is still the need to improve on its operation management in order to create efficiency and a good environment for growth.

Unlike the approach used by the Partners for Water and Sanitation (PAWS) in their assessment of the FCTWB, which gave a great deal of attention to the head of departments and units (Chambers and Ekanem, 2007), the strategy employed here looks at the management of operations from the bottom up. It assesses the challenges faced in managing the FCTWB, as it affects the people who undertake the task of running the water system in its current state, and making every day operational decisions with direct impact on the customers. It comparatively assesses the views of some of the staff and field operatives who work in sections known as Area offices, against those of the management at the headquarters.

FCTWB, Area Offices and water supply capacity

While the FCTWB holds the responsibility of supplying water of a suitable standard in the FCT, the FCDA is responsible for the provision of infrastructure for FCTWB to carry out their duties. The FCTWB has
typical departments and units that are be found in most standard water utility management including: Public Relations; Distribution; Reservoir and production; Commerce; and Rural water and sanitation (Ali, 2012).

The Area Offices are extensions of the Distribution and Commerce departments. They act as liaison offices with primary duties including: dealing with customer complaints; collecting bill payments and operation and maintenance of their distribution system. The staff in the area offices are divided into two (Distribution or Commerce) according to the department they represent. This research focuses on the staff in the Distribution department. There used to be six Area Offices but with the gradual increase of the distribution system these now total 18, listed below:

The FCT water system was designed for an eventual population of 3.2 million people (IPA, 1979). Its water treatment plant was initially to be completed by 2004 and when complete, produce 1440 Million Litres per Day (MLD) of water (FCTWB, 2000). The demand on the water system has exceeded its initial design population but the system is still incomplete and operating with only 720 MLD functional treatment plants (Ali, 2012).

**Findings: challenges in operation**

**Methodology**

In order to understand the challenges that are faced by the management of the water board, especially those that concern and affect the area offices and their operatives, interviews were conducted with several staff members including the Director, Head of Distribution department, Head of GIS unit within the Distribution department, an Area office manager, and a few operatives. Facilities such as booster stations and reservoirs were visited including sites of smaller appurtenances and reported leaks.

An area office was strategically selected on the basis that its individual or collective characteristic will depict what can be found in other area offices in terms of demand, supply, infrastructural and operational conditions. The area office houses one of the major reservoirs with six pumps in its site and much like other areas also hosts a smaller (minor) reservoir. It has three booster stations of three pumps each (although one booster station is not functional). This area office is within the FCC and is responsible for distributing water to major areas such as presidential villa, all army barracks (within FCT) as well as its consumers; it also supplies water to a smaller satellite reservoir of 10,000 m³ and due to its strategic location, it usually plays a major role in the rationing of water within and outside its area.

In order to comparatively assess these challenges, the responses received were separated into two categories, the first set of responses which were given by the director, and heads of distribution department and GIS units who work in the Head Quarters are hereafter referred to as HQ while the responses of the Area Office Manager and Operatives are hereafter referred to as AO. Finally, the responses were weighed against practices from other institutions and other internal reports in order to gain recommendations.

**Challenges**

The results of the interviews have been grouped into topics that came up when people responded to the interview questions. It also includes observations made during site visits.

**Non-revenue water (NRW):** According to HQ the distribution systems are currently experiencing a NRW of about 38-40% of the produced water. This statement was confirmed in the assessment carried during one of the board’s special projects using the International Water Association standard (JICA, 2015). HQ pointed out that the AOs had to be a lot more proactive in the collection of water bills and in checking of illegal connections and vandalism. The AO mostly viewed NRW as physical losses (leakages) and did not concern themselves much with proactive bill collection except when they were asked to close valves and cut off non-paying customers from water supply.

**Information management:** When it came to managing and sharing information, HQ was of the opinion that AOs are given access to all resources they need to carry out their duties effectively, meanwhile the AOs pointed out the long protocol they have to go through to get certain information which they feel should be given to them “by right” and when they compare the protocol versus the value of information, they would rather make a guess and move on. AO gave an example of such information: most area offices do not have a map of their distribution system and make a lot of operational decisions based on their experience and
knowledge of the system. HQ did however mention that their copy of the system was in the form of the Geographic Information System (GIS) model that was not circulated but in the possession of the GIS unit.

**Cooperation with the FCDA:** HQ believed that the FCDA which has been given the mandate of delivering the master plan do so based on their (FCDA) own cognition; they see the evolution of the FCTWB based on the growth and expansion of the network and infrastructure and they have no real knowledge of the challenges faced in operating these systems. Usually when a project is completed, the plans are given to the FCDA although the management is handed over to the FCTWB. Although the AO does not have to deal much with the FCDA, when it comes to larger maintenance works such as replacement of a burst pipe, they have to go through the FCDA but inform HQ about it and typically, certain procedures which they envision should be carried out within 24 hours because of the importance of that section of network, take longer than it would if it were handled by the FCTWB themselves.

**Irregular Demand:** HQ and AO both agreed on the problems caused by settlement patterns. AO revealed that some streets did not have pipe-borne water because settlements and estates popped up along those roads and into areas which were not covered in any of the phases of development planned for the FCC water distribution; and although the “lucky ones” i.e. top government officials, who were not deterred from building in these location by the lack potable water, managed to get their locations added to the network, the “not so lucky ones” had to sink their individual or community boreholes.

HQ which had a bigger picture on this challenge pointed out that the insurgency in the north which caused a number of people to become Internally Displaced Persons (IDPs) was beginning to have an effect on some parts of the system as some of these IDPs squatted irregularly in some locations with access to piped water (for instance open fields in estates) and used the community reservoir, increasing demand on that system. FCDA was also blamed for approval of certain infrastructural developments (hospitals or schools) in some unplanned areas that lead to an unforeseen attraction of land developers and owners to build in those areas.

**Rationing of water:** Rationing of water, which is a major concern for both HQ and AO, is viewed as a temporary solution to the problem of insufficient water supply - whilst they increase their treatment plant (production) capacity. Although the treatment plant runs 24 hours, ordinarily, the amount of water being produced should be able to supply water to the functional parts of the system. HQ inferred a challenge that emanates because at the moment, they do not have a proper way of monitoring over use from small industries and businesses that may be run in restricted areas behind people’s houses, neither do they have the information to stop those people or make them pay for the water they are using, so they have to assume the meter reading indicates the “residential water demand” of the whole area. Some major parts of the FCT receive 24 hours of water.

AO viewed the issue of rationing water from a technical perspective, they addressed the fact that the pipes leading to different reservoirs were of different sizes, and although these reservoirs are also of different sizes, it meant that they could not supply water simultaneously to the different functional reservoirs because they would fill up too slowly and unevenly. They both agreed that the uneven nature of the topography and location of some reservoirs meant that if they allowed continuous unrationed flow from a reservoir, only some places would receive water and not until those sections are fully satisfied would others receive water. Some areas lie above the level of the reservoir and need water pumped and this can only be done when there is electricity to pump it. This means a conscious effort has to be made to pump water to consumers on the hills when there was electricity and sufficient water in the reservoir.

**Labour:** it was observed from their mode of operation, that the nature of operatives on sites of reservoirs and booster stations was unskilled, and could be seen as some worth unmotivated. Although there was significant investment by FCTWB into training of staff along with other ‘bonus’ training given by companies when delivering projects, it was observed that such training was mostly given to senior staff at the headquarters.

**Deterioration of Infrastructure:** The AO which had direct access to the facilities made a case that the network was incomplete yet already the facilities which were in use were already degrading and sooner or later operating it would be a challenge.
Recommendations and conclusion
The FCTWB has effectively seen its duty as running the infrastructure given to it by the FCDA. It has been put forward by the current director of FCTWB that it needs financial autonomy in order to operate effectively and with this autonomy, it would have control and prioritise its construction and development projects. Autonomy here, in its most basic understanding, would be freedom from the FCDA but of course even with autonomy, you cannot bury a pipe, sink a reservoir, or erect a sump and booster station in the FCT without the approval of the FCDA. A good way to do this would be to create an official platform for interagency interaction to promote cooperation involvement between the FCDA and the FCTWB and also have stakeholder in the implementation, delivery and handover of both new and maintenance projects.

Platforms such as the Geographical Information System (GIS) will help improve the overall operation of the network as immediate impact to other areas can be seen when making operational decisions and rationing of water can be timed fairly. Although several years after the creation of the GIS unit, the GIS model still does not have certain information, Area managers/offices should be granted access to the GIS model of their network area completed to date, to serve as a guide to the operation of their network areas.

The FCTWB needs to put more pressure on the FCDA to get their infrastructure complete and in the order of their (FCTWBs’) own precedence, while they wait for laws establishing them as an entity. Furthermore, the Area offices need to be seen more as branches of the FCTWB instead of just liaison offices or extensions of the distribution and commerce departments. This could be achieved by having representatives of other relevant departments such as the rural water and sanitation and quality control in the area offices especially those outside the FCC. These representatives should reside in the area offices and attend regular departmental meetings at the headquarters and in doing so, will breach the communication gap between the headquarters and the area offices. This will get other staff within the area office informed of the strides taken in the headquarters and possibly enable them to send feedback on what would practically not work in their particular area. It could lead them to be more proactive and knowledgeable in adapting the measures put in place by the headquarters to their unique situations because they would see not just the technical points but also other factors that are put into consideration in taking decisions. This will also reduce the redundancy of personnel by engaging more of them in an interrelation and cohesion tasks.

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References
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