

The Water Voice

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Newsletter



Drinking Water Quality

Is your water safe to drink?



DTF

Nwasc

Ensuring Better Services and Fair Value



From the Editorial Desk

Potable Water

All living creatures need water for their survival. But for human beings, this water has to be potable. Access to clean, safe and affordable water is the quest for every Zambian regardless of their status in society. A number of institutions have been set up to ensure that water supply and sanitation service provision is accelerated towards the Vision 2030 of universal access to water supply and decent sanitation. Among them are the water and sewerage companies (aka Commercial Utilities) whose mandate is to provide the service, and the regulator whose role is to monitor service provision for safety, affordability and sustainability. The Devolution Trust Fund has also been on-hand to assist the Commercial Utilities to extend services to the unserved urban poor. Consumers too have a role to play in ensuring this vision becomes a reality by paying promptly for their water bills.

This edition focuses on the safety of water that is provided for domestic use. The question that always arises is that 'is our water safe for consumption in light of the numerous outbreaks of water borne diseases?'

Water is taken through a process of treatment that among others involves disinfection with chlorine to ensure there is

no disease causing bacteria during the process of transmission.

Water quality checks are conducted periodically to ascertain the safety of the water, the results of which are stuck at every pay point for the customer's information.

Next time you walk into a paypoint to pay your water bill, Look out for the water quality results

As consumers, we should also ensure that we store our water in clean containers to avoid contamination. For those that have their own sources of water such as boreholes, ensure that your water is potable by disinfecting it with chlorine. Also ensure that periodic water quality tests are undertaken to ascertain the quality of your water.

Enjoy the read and do try out our puzzle at the back page and win yourself a hamper!!

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Director's Foreword



The question everyone asks is "Do people in Zambia still trust the quality of water supplied by the service providers?" This question is necessary because we all know that water is central to human's social and economic existence. Not having access to safe water therefore, is a form of deprivation that threatens life, destroys opportunity and undermines human dignity.

Water supply and sanitation in Zambia is characterized by achievements and challenges. Among the achievements are the creation of regional or provincial Commercial Utilities in the country to replace fragmented service provision by local governments; the establishment of a regulatory agency that has substantially improved the availability of information on service provision in urban areas; the establishment of a Devolution Trust Fund to focus donor support on poor peri-urban areas; and an increase in the access to water supply for ALL.

It is therefore imperative to say that the quality and service has improved over the years despite challenges that have affected the sector due to other governance aspects outside the water sector jurisdiction.

Whilst problems like appropriate water provision technologies, high transaction costs and possible regulatory requirements affect operations for these service providers, there is evidence of better performance in Commercial Utilities compared to the time the service delivery was run by the local authorities.

Trust and confidence in the service cannot be imposed but should be earned by the institutions charged with the responsibility of providing this service. We must endeavor to work towards having a time when potable water from our taps will be confidently trusted like bottled water. This does not mean that the quality of water is unsafe, but it is a few incidences that have created this myth about potable water supply from our taps not being safe.

Kelvin Chitumbo
NWASCO DIRECTOR

Launch of the National NRW Management Strategy and Framework

Main Event(s) in the Previous Quarter

As a nationwide effort to fight Non-Revenue Water, the Ministry of Local Government and Housing (MLGH) launched the National Non-Revenue Water Management Strategical Framework at Cresta Golfview Hotel in Lusaka on the 22nd of July, 2016. The strategy was developed by the National Technical Task Force (NTTF). Mr. Amos Malupenga, the Permanent Secretary MLGH, launched the document in the presence of members of the Ministry, GIZ, Commercial Utilities and NWASCO. The NTTF has been constituted by the Zambian Government to develop strategies to combat the high Non-revenue Water in the Commercial Utilities in Zambia and eventually reduce it from the current 52% to 25% by 2030.



PS-MLGH, Launching the National NRW Strategy



DTF Improves Water Supply in Katongo Township of Muchinga Province



production. The project benefited over 14,000 residents in Katonga.

A larger section of Katonga township had never had piped water for over 50 years. The community had been drawing water from shallow wells and nearby streams over the time.

Chambeshi Water and Sewerage Company is expected to increase its revenue base through this project by connecting properties to the new network.

This project was funded under DTF's General Fund portfolio and the objective was to improve the water supply as well as to promote health and hygiene among the beneficiary households.

Provision of clean and safe drinking water is vital to improvement of the health of people and contributes significantly to reducing incidences of diseases and deaths.

Improving access to water supply and sanitation services (WSS) has been an important item on the developmental agenda for decades and yet these services have failed to reach a substantial proportion of the world's population particularly in Sub-Saharan Africa.

In Zambia, more than one third of the population does not have access to clean and safe water while more than half lack access to proper sanitation facilities.

Every year, this has become more challenging due to factors such as geopolitical changes, rapid population growth and increasing urbanisation (UN, 2003).

The Devolution Trust Fund (DTF) has been funding Water Supply Projects in Peri-urban and Low Cost Areas of Zambia since 2005. Chambeshi Water and Sewerage Company (ChWSC) has been a

recipient of DTF funds since 2007 supporting projects in the two provinces of Northern and Muchinga. The districts that have benefited are Chinsali, Nakonde, Kasama, Kaputa, Mpika and Isoka.

The mandate of the DTF is to assist Commercial Utilities improve access to Water Supply and Sanitation Services to meet the Sustainable Development Goals (SDGs) by improving the livelihood of every Zambian, which demands providing clean and safe drinking water and improvement of hygiene.

In order to meet this obligation, the DTF funded the Katonga Water Supply Project at a cost of K1,615,350.00. The project scope comprised of construction of five water kiosks, laying of a 6.3 km new water supply network, connecting and metering 700 households as well as drilling and equipping two boreholes to supplement the existing



This has helped women and girls to take care of their families and attend school, respectively



Cry of the Sector: NRW

Water losses have a high price for water companies and their customers

Non-revenue Water (NRW) is a serious challenge: for the Commercial Utilities (CUs), for us (the consumers) and for the environment as a whole. We have all heard about water losses, which is just another term for NRW. The water we draw from the tap comes at a cost. We can observe that on the bill, which we receive monthly from our water service provider. The costs, or in other words, the tariff, is derived from the expenses incurred to deliver the water from the source to the customer and for treating it in order to make it potable. All this involves the input of electricity, chemicals, investments, maintenance of infrastructure and, the human resource to implement this.

How does Non-revenue Water affect this? Let us say, a town has a figure of 50% Non-revenue Water; meaning that only half of the water produced is being sold. Every second litre of water being produced, treated and distributed to the consumers is not being billed and thus considered as a 'loss'. The reasons for these losses can be many. In general, Non-revenue Water is being categorised as either commercial losses, physical losses or unbilled consumption. The latter being, for example, water drawn from hydrants used for firefighting. While this percentage is usually quite small, the commercial and physical losses are the problematic ones.

All of us have seen physical losses; water flowing out of burst or cracked

pipes. Even small leakages add to these losses. If not attended to, water drops add up to considerable amounts of water being wasted. These losses can happen everywhere in the water network: On large transmission pipes, tank overflows or consumer meters. This also includes all leakages and continuously running cisterns at customer premises that are unmetered. Technically, all losses on consumer properties (after the water meter) are not added to the Non-revenue Water. Still, these losses contribute to the environmental stress, caused by wasting water.

Commercial losses might not be so well-known to the water user, but can take up a considerable proportion of the Non-revenue Water. Reasons can be illegal water consumption (illegal connections, by-passes), a practice which is criminal, as well as inaccuracies of the meter (meter not properly calibrated) or data handling errors (errors in the meter reading process or false information in the utilities' customer register).

It has been emphasised that the water utility has to pay a high price for water losses. But how does it affect us and the environment? We have to pay the price in terms of less water available. On one hand this can be noticed in reduced supply hours, where the already limited volume of water has to be rationed. On the other hand we also pay for it in form of higher tariffs, where high production and treatment costs have already been incurred and therefore have to be passed on to the customer.

For the environment, Non-revenue Water means increased stress on the raw water sources. The groundwater is under stress in most parts of the country from both depletion and contamination and therefore it has to be protected. The only reason for an increase of the water production should be to supply more people with this valuable good not compensating for water losses.

In Zambia, the Non-revenue Water was at an average of 52%, with values ranging from 32% to 71% for the different water utilities. Though measures are being undertaken, the figure did not drop significantly over the last years. Water losses cannot be avoided completely, but examples from Asia and Europe show the high potential of reduction (Singapore has Non-revenue Water of 5% only).

Should we just hope that our water providers do their best to reduce on these water losses? Much can be done indeed by the utility companies: timely fixing of leakages and maintaining a clean and complete customer database are actions which can be taken immediately. More effort is needed to invest in measures like searching for underground leakages and apply proper monitoring and replacement schedules for pipes and water meters (asset management). But also the end user can assist in reducing water losses. We can make sure that water is not being wasted in our sphere of influence. The least we can do is to report leakages and water losses to the water utility company and sensitize our fellow citizens on this serious problem.



Drinking Water Quality in Zambia

Is Our Potable Water Safe?



The quality of potable water supply is a sensitive subject matter that has been discussed by all stakeholders from service providers to law makers and the general public in the quest to find a lasting solution to this very important facet of life. But the question of whether potable water is safe has eluded many depending on where you are and how much you understand the principles of water quality vis-a-vis treatment. Though the answer may not be straight forward, the complexity of this question should be defined as follows; “safe potable water is that which is safe for human consumption”.

Poverty can be the result of political instability, ethnic conflicts, climate change and other man-made causes. But one of the greatest causes of poverty

in Zambia is also the most overlooked...the lack of access to safe drinking water and adequate sanitation. If all of us agree that poverty is very much related to lack of access to safe potable water then no wonder therefore that poverty has become endemic in our country and Africa at large. The question therefore is **“Is our potable water, safe for drinking?”**

The risks of drinking dirty water are just as great as drinking no water at all. For every five children that die in developing countries, one will die because of water related diseases. The choice between life-threatening dehydration and life-threatening water related disease is not a choice that any person should have to make. There is no need for this choice to exist since there is a solution to make all potable water safe for consumption.

Whilst a lot has been achieved in the sector in ensuring that the majority of the people of Zambia have access to safe potable water, there are undercurrents that undermine these achievements in particular the sanitation issue which still requires solutions and investments. Remember that the majority of the Zambian people have gone for cheaper but non-environmentally friendly solutions for sanitation like traditional pit latrines, poorly designed septic tanks, VIPs and other unconventional methods. These options have impacted negatively on the sources of water supply for most people.

On the larger scale the treatment of domestic and industrial wastewater by the established Commercial Utilities is not up to acceptable standards due to either non-functional and obsolescence of

equipment and other related infrastructure inadequacy thereby allowing the discharge of the untreated effluent into the same water bodies where water is abstracted for consumption.

This trend has put a burden on the economic viability of the water sources due to the high cost of treatment for potable water. This is also compounded with the old network which gives higher chances of contamination of water during the distribution process.

Due to a few incidences where contamination of water sources has occurred during the distribution process, consumers have no guarantee to trust the institutions that manage the service provision. **THEN HOW FAR CAN WE GO TO TRUST THE QUALITY OF OUR POTABLE WATER SUPPLY?**

The choice between life-threatening dehydration and life-threatening water-related disease, is not a choice any person should have to make

We should remember that the history of potable water in Zambia had a positive and reassuring face until the early 80s when the economic downturn affected the water sector in general leading to the loss of confidence in the system to manage and provide safe potable water supply at all times to the people. Since then, this myth has left us with a huge sense of doubt and unforgivable sense of loss. The answer has been to depend on bottled water for drinking for those who can afford.



The water sector service providers have faced challenges of providing safe drinking water due to the high cost of treatment arising from the increasing cost of chemicals, energy and the ever stressed environment. The regulators have also therefore developed stringent standards to counter this challenge to protect consumers, but at the same time pushing the bar higher for service providers in terms of operations costs.



In conclusion, meeting the goal of assuring our people that the water we supply is safe for drinking water requires a multi-barrier approach that includes: protecting sources of water from contamination, appropriately treating raw water and ensuring safe distribution of the water to consumers' points at all times without any flaws. This can be achieved with the introduction of other technologies such as UV treatment in addition to the chlorine post treatment which even though may have high investment cost but may prove to be cheaper in the long term. Then, and only then, the sector may win back the trust that the service providers have lost over the last decade in guaranteeing safe potable water for ALL.





SCHOOL CORNER



Health and Hygiene in Schools

It is said that water is life. However, this can only be true if water is of potable quality. Health and hygiene in schools borders on the provision of potable water to the learners. In most schools however, the issue of supply of clean and safe drinking water has been highly compromised. The schools have taken the issue of water and sanitation service provision upon themselves, ignoring the mandated service providers. On one hand, there is a valid argument that this results in cost saving on the part of the schools as regards payment of water bills, particularly that they tend to face challenges with controlling the usage and maintaining the facilities. However on the other hand, this could be highly detrimental to the health of the students as often times, own supply does not conform to the water quality standards as prescribed by the regulator NWASCO.

The situation in most schools.

Most schools have resorted to providing their own water supply through boreholes and sanitation through septic tanks. The water is usually supplied without any disinfection. Further the water facilities such as storage tanks and water network are not well maintained. As a result, there are

leakages within the system which might lead to contamination. Storage tanks are hardly cleaned as there is no regular cleaning program in most schools. Generally water supply and sanitation service provision is managed as “a by the way” in schools that have resorted on own supply. Therefore, not much attention is given for as long as water is flowing.

What is the effect of this?

The general effect of own supply in schools is the deterioration of Health and Hygiene. This comes through a number of ways such as the following:

- ◆ Rampant water borne diseases- most schools are prone to water borne diseases such as typhoid and cholera because they rely on a wrong notion that ground water is “free from bacteria” hence safe for drinking. This could be attributed to the fact that water is not disinfected and therefore not safe.
- ◆ Poor response to breakdowns- since most schools have no dedicated staff to run the water supply and sewerage systems, there are usually delays in handling breakdowns and other related emergencies such as pipe bursts. As a result, students would go for long hours or even days without water prompting

them to demonstrate.

- ◆ Deplorable sanitary facilities- the maintenance culture of water and sanitation facilities such as showers, sinks and toilets is poor in most school. A typical ablution block in a school is characterised by leaking pipes and taps, continuously running cisterns and non-functional toilets.

What can we do?

Given this situation there is urgent need to ensure that health and hygiene is guaranteed in schools, the following measures can be taken:

- ◆ Disinfect the water using chlorine at the appropriate dosage to ensure conformity to standards.
- ◆ Regularly conduct water quality tests for residue chlorine, pH, colour, bacteriological parameters and other physio-chemical parameters. This should be done by a reputable laboratory.
- ◆ Ensure that dedicated and qualified staff are given the responsibility of running the water supply and sanitation facilities.
- ◆ Regularly undertake maintenance works on the water and sanitation infrastructure to avoid leakages and water wastage.

Know your sector players

Arab Bank for Economic Development in Africa



The Arab Bank for Economic Development in Africa (BADEA) was established pursuant to the resolution of the 6th Arab Summit Conference at Algiers on 28th November 1973. The Bank began operations in March 1975.

BADEA is a financial institution owned by 18 Arab countries members of the League of Arab States (LAS) which signed its Establishing Agreement on 18th February 1974. The Bank is an independent International Institution enjoying full international legal status and complete autonomy in administrative and financial matters. It is governed by the provisions of its Establishing Agreement and the principles of international law. The Bank's headquarters is located in Khartoum, the capital of the Republic of the Sudan

The Bank was created for the purpose of strengthening economic, financial and technical

cooperation between the Arab and African regions and for the embodiment of Arab-African solidarity on foundations of equality and friendship.

To achieve this end, the Bank was given a mandate to:

- ◆ Participate in financing economic development in African countries.
- ◆ Stimulate the contribution of Arab capital to African development.
- ◆ Help provide the technical assistance required for the development of Africa.

BADEA committed to work closely with other development partners with the objective of advancing the development aid agenda and maximizing aid effectiveness. BADEA's underlying strategy is to combine its efforts with those of the African beneficiary countries, multilateral regional and international development agencies, bilateral aid agencies, and non-governmental organisations.

Among the projects that have been funded by BADEA, and are complete in the water supply sector, are Luapula Water Supply Project in Mansa and Kawambwa at a total cost of US\$10,949,400. The project in Mansa involved the construction of an ultra-modern treatment plant in Mansa, storage tanks and new rising main, including rehabilitation of the weir and installation of new pumps and the distribution network.

In Kawambwa, the BADEA project covered the construction of a new falling main, rehabilitation of the water treatment plant, construction of storage tanks and distribution network and installation of pre-paid meters.

The completion of BADEA projects in Mansa and Kawambwa resulted in water supply increases from an average of 8 to 18 hours and 4 to 14 hours per day, respectively.



Projects completed under BADEA, weir rehabilitation and new treatment plant



Inspection Highlights

The third quarter of 2016 saw inspections conducted for two Commercial Utilities (CUs) namely Eastern and Luapula Water and Sewerage Companies. During the aforementioned inspections, some of the salient issues that were unveiled included the following:

Eastern WSC

- ◆ The KFW projects were completed and functional with very minor works remaining in Katete District. Projects in most districts were handed over to the CU in April pending commissioning. Service hours in all the project districts were improved to 24 hours and demand for new connections was very high.
- ◆ There was notable increase in billing, which was attributed to database verifications, increase in the tariffs as well as the customer base and hours of supply following the completion of the KFW projects. However, the collections were low owing to non-payment of bills by the various Government Institutions.
- ◆ Meter management in the CU improved although a good number of meters were old and had therefore outlived their useful lives. In this regard, over 1,000 damaged water meters were replaced in Chipata only.
- ◆ The CU addressed the challenge of sewage overflows in Kapata Township of Chipata. However, more still needed to be done to encourage residents to connect to the rehabilitated network.



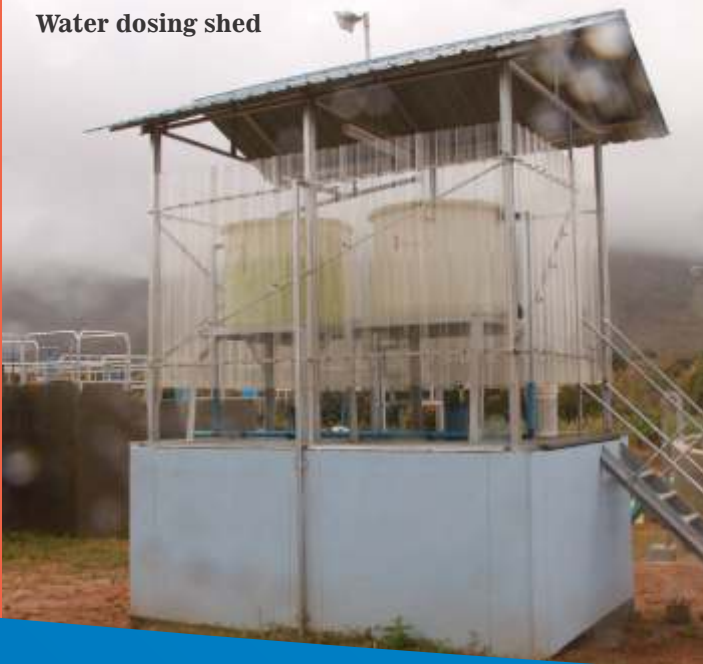
Kiosks constructed



Blocked pipes due to accumulation of deposits

- ◆ Sections of the water network in Petauke were found to be blocked with calcium carbonate deposits which had accumulated over time leading to no water or low pressure in some areas. This was despite installing the water treatment plant in 2010, which was aimed at softening the water. Further, the district was badly hit by fluctuating voltages resulting in the reduction of supply hours, i.e. from 18 to 12.
- ◆ Water levels in the new dam in Katete receded to very low levels due to unfavourable rainfall patterns in the 2015/16 season making the district to start rationing supply to manage the demand.
- ◆ Chadiza district registered a high number of complaints on low pressures in Mlolo Township. This was due to the ingress of sand in the system and choking meters exacerbated by the lack of washouts in the network. On the contrary, the rehabilitation of the filters at the water treatment plant resulted in getting rid of the challenges of high turbidity levels that were being experienced in the recent past.
- ◆ The water in the Lundazi Dam receded to seriously low levels in the previous year and the district feared that this year would most likely to experience even lower water levels in the dam. This situation would lead to rationing of water sometime in September, October and parts of November.

Water dosing shed



Luapula WSC

- ◆ The BADEA funded projects in Mansa and Kawambwa were completed and commissioned. This saw a great improvement in water supply hours in both Kawambwa and Mansa Districts which customers attested to. Other districts also experienced an increase in the hours of supply due to the improved power supply situation in most districts after the completion of the upgrade of the Zesco Pensulo Line from 33 to 66kV. The CU proposed to use the savings from the BADEA project to re-construct the collapsed tank in Mansa as well as extending the network to Chabalamuwe Township in Mansa. The Ministry of Finance, as per the bank requirements, wrote to the bank authorising it to go ahead with the CU's proposal.
- ◆ The CU was slowly tapping into the significant potential for growth in the customer base prevalent in most districts. This was evident from the growth of the customer base which stood at 6,364 from 5,555 in June 2015.
- ◆ The kiosks in Mansa's Kaole Area still had no sales as most customers preferred to use water from the shallow wells.
- ◆ The CU installed about 1,500 prepaid meters in Mansa and Kawambwa. However, there were a few concerns with the system which included the durability of the customer cards, not indicating the purchased quantity of water on customer receipts and generally not being able to procure required reports such as report on consumption in volumes.



Kiosks constructed



Prepaid meters installed

Water Storage tank



- ◆ Over 400 disconnected customers were reconnected, which amnesty was directed by Head Office. The amnesty was to waive off reconnection fees and to ensure that the reconnected customers make a commitment to pay off the outstanding balances over a period of time. For those with prepaid meters, 40% of every purchase was dedicated towards clearing of arrears.
- ◆ The Water Aid funded project in Samfya's Mwamfuli Area was completed. A check at the customer premises showed that water was flowing with very good pressure.
- ◆ **Mwense River**, the source of water for the district, was drying up due to too many upstream fishing and farming activities along the river banks which were resulting in challenges of siltation. Therefore, the district embarked on a project to rehabilitate and possibly increase the height of the weir with the support of the MLGH and DWA and part of the materials (aggregate and building sand) were already on site at the time of the inspections.
- ◆ There were a number of flaws in the water quality monitoring system exacerbated by a lack of water quality testing equipment and a laboratory.

Our Lady School

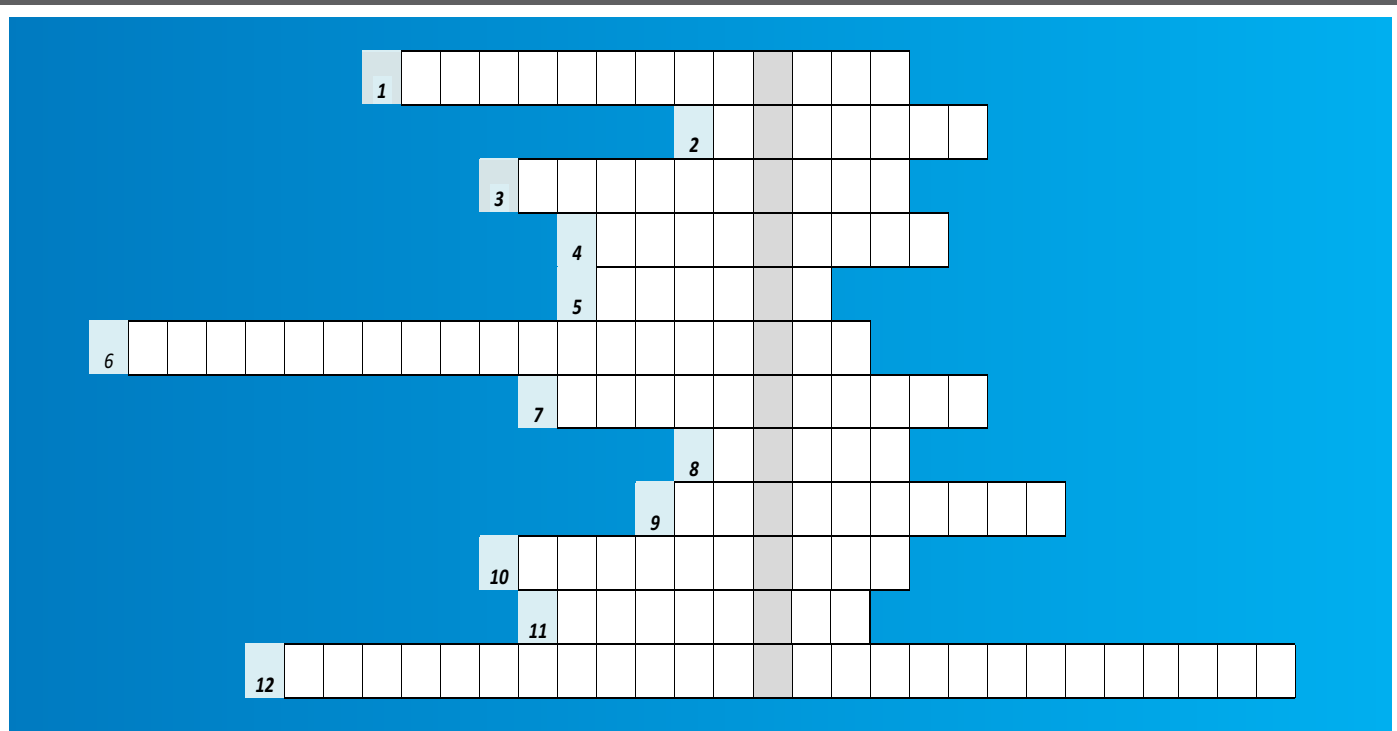
During this year's World Water Day Commemorations, NWASCO visited Our Lady School in Lusaka's Foxdale Area. NWASCO visited the aforesaid school because it was the only school which participated and performed very well in the puzzle in one of the previous issues of the Water Voice.

Interactions were made by NWASCO staff with both the school teachers and pupils, during which there was dissemination of information on the roles and functions of NWASCO and consumer rights and responsibilities. The other information that was disseminated was on the water treatment processes, water quality monitoring and water conservation practices. Thereafter, pupils were given questions and they were winning a number of different prizes. Some of the items that were being won included the branded

NWASCO diaries, calendars, pens, lanyards, t-shirts to mention but a few. NWASCO also donated eight pockets of cement as a contribution to existing construction programmes that the school was undertaking.



Crossword Puzzle No. 6



- | | | | |
|---|--|----|---|
| 1 | Commemorated annually to appreciate the value of water | 9 | Group of diseases, where pathogens are transmitted by water |
| 2 | Town in Eastern Province | 10 | Structure for vending water to people in peri-urban areas |
| 3 | Facility used for testing water | 11 | Head quarter of BADEA |
| 4 | One of the physio-chemical water quality parameters | 12 | Group created in Zambia to fight non-revenue water |
| 5 | Institution mandated to regulate the work of the water utilities in Zambia | | |
| 6 | Institution mandated to support water utilities to provide water supply and sanitation services for the urban poor | | |
| 7 | Another term for non-revenue water | | |
| 8 | Arab Bank | | |

*Get the word in grey and
Win K2,000 towards your water bill!
And a NWASCO Hamper.
Closing date: 16th December 2016*