Water, a Core Element for Human and Sustainable Development: Challenges of Portable Water Availability in Buea Municipality, Cameroon

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Abstract

Water is a vital natural resource for human survival and socio-economic development. The absence of portable water poses a major threat not only to humans in term of water related diseases but also to sustainable development as a whole. The challenges of water unavailability in Buea, the South West Regional capital of Cameroon, includes trekking long distances, crossing major roads and queuing for hours to fetch potable water and has far reaching effects on human survival and sustainable development at both micro and macro levels. The nature of water management in Cameroon largely depends on a single water company appointed the state, which has rather been nonchalant despite the alarming setbacks. Consequently if safe drinking water is a basic human right as stipulated in Sustainable development Goal 6 and imperative for the achievement of sustainable development and poverty reduction, then the risks surrounding this need must be addressed through informed policies and at all levels, to enhance optimum participation and contribution by users to economic and social development.

Keywords: *Portable Water, Challenges, Human and sustainable development*

1 Introduction and Problem

The vigorous role water plays in accompanying socio-economic development goals cannot be undermined. Water is at the core of sustainable development and is critical for socio-economic development and human survival. Accessibility to clean water is a human rights issue recognized by the United Nations. Every human being has the right to sufficient water for personal and domestic use (UNDESA, 2014). According to Economic Commission for Africa (2004) water serves as an instrument for lifting peoples' lives in terms of their accessibility to portable water and sanitation. But when water is limited in quantity and quality, it functions as a restraining

factor in alleviating poverty, resulting to poor health and low productivity, food insecurity and generally constrained socio-economic development.

About 748 million people today still do not have access to an improved source of drinking water, (UN World Water Development Report, 2015). In sub-Saharan Africa up to three quarters of households fetch water from a source away from their home water (United Nations Children Fund/ World Health Organization (UNICEF/WHO, 2012). In a study of 25 countries in sub-Saharan Africa, by UNICEF (2012), an estimated 16 million hours is spent by women in collecting water each day. In Urban Cameroon water shortage is a general and an age old worry that is part of the daily life of the people. It forms a considerable part of daily discussions and it is common place to find children and women carrying empty containers and trekking long distances in search of portable water. It is also not unusual to see crowded water points and at times long queues waiting for their turns to fetch water. Water scarcity and rationing affects water related activities (household cooking, cleaning and laundry, restaurants, fruit, vegetable, barbing and hairdressing business, public toilets etc.) that indirectly but significantly impacts human and sustainable development both at the micro and macro levels.

Despite the trend of inadequate water supply and distribution, water resource and its sustainability is also threatened by more by human factors (poor governance such as sustainable financing of water investments and sanitation) than natural ones (climate change) (Economic Commissions of Africa, 2004). Water in Cameroon is solely managed by the state through Cameroon Water Utilities Corporation (CAMWATER). This company is noted for its inadequate and old infrastructures, poor services and most of all the issuing of exorbitant water bills. Such inherent challenges to the management of water resources pose threats to health and sanitation, food security, poverty reduction and economic development (Fonjong & Abongwa, 2014).

The Sustainable Development Goal (SDG) 6 is to “ensure availability and sustainable management of water and sanitation for all” and achieving this contributes to the achievement of other SDGs relating to health, education, environmental etc. Consequently, meeting water urgent needs and strengthening water governance through appropriate management will not only make water an instrument of growth and poverty alleviation but will also contribute enormously in economic development and social well-being.

The premise of this study is to describe the challenges involved in accessing portable water for both domestic and productive uses and assess the effects on the human development and economic growth. It also aims at identifying strategies to improve portable water availability in Urban Buea.

1.1 Research Questions

- What are the challenges in accessing portable water for both domestic and productive uses in the Buea Municipality?
- What are the effects of water unavailability on the human development and economic growth in the Buea Municipality?
- Which management strategies can improve portable water availability in the Buea Municipality?

2 Literature Review

For decades now water related problems have remained a permanent feature and a priority in international development agendas. Though it is only one of the major severe problems plaguing Africa incessantly, it is a challenge that is directly intertwined with the daily lives of people because it is a key life support. Water is also a limited but crucial resource for generating and sustaining economic growth (European Union, 2010a). According to UN World Water Development Report (2015), water resources are fundamental to achievement of public health, food security, inclusive growth and most of all poverty reduction.

Water resource is vital for diverse human activities including domestic, agriculture, farming, livestock, energy generation, industry uses. Also, water is indispensable for healthy ecosystems, which reinforce our quality of life (Avolio, 2016). This notwithstanding less than 1% of the world's fresh water is accessible for direct human use (European Union, 2010b), thereby presenting a pertinent problem to humans especially in terms of its availability. Consequently, good and sustainable water management is strategic to the development of people and their societies.

The UN world water Development Report (2015), indicate that about 748 million people still do not have access to an improved source of drinking water. In Sub Saharan Africa and urban parts

of Cameroon in particular, where population growth is fast increasing as a result of births and migration (Kuitcha et al. 2008), access to portable water remains an uphill task. In Cameroon less than 30% of the population have access to potable water in urban areas and less than and 40% of the populace in rural areas (Missions Economiques, 2005). This exposes the people to major avoidable health risks. According to the WHO 2018 Fact sheet, 844 million (1 in 9) people lack access to clean portable water and water, sanitation and hygiene-related diseases kills nearly one million people every year.

Other challenges related to access of portable water availability includes trekking long distances, crossing major roads and queuing for hours to fetch potable water. In most cases women and girls fetch water both for domestic and productive use and sometimes are vulnerable to threats of violence. Others get involved in quarrels and fights in the course of fetching while some suffer from head, neck and back aches as a result of carrying heavy containers (UNICEF/WHO, 2012). These all have far reaching effects on human survival and sustainable development at both micro and macro levels.

Globally, local, national and international organizations have been involved in the promotion of portable water supply and sanitation programmes for decades (Prokopy, 2005). However, in most areas these endeavours are constrained by poor management (Lockwood and Smits, 2011) in terms of lack of sustainability of the water supply infrastructures (Harvey & Reed, 2007). In developing countries, leaks, inadequate infrastructures and inefficient management and provision schemes highly increase this percentage in contexts of worse water scarcity (Aviolo, 2016). The challenges faced in water and sanitation in Cameroon include due to poor management and development of resources, lack of political will and poor governance, rapid urbanization etc. (Fonjong and Fokum, 2017; Ako, Shimanda, Eyong and Fantong, 2010).

It is important to note that access to water is a fundamental human right. The UN in 2010, affirmed access to safe drinking water and basic sanitation services to be a human right, and the 2012 Rio+20 Declaration confirmed this right' (European Commission, 2013:25). Sustainable management of water resources was one of the main development pillars of the Millennium Development Goals (MDGs) that committed to reducing by half by 2015, the number of people without sustainable access to safe drinking water and basic sanitation; and is embedded in the

Sustainable Development Goal (SDG) 6 to "Ensure availability and sustainable management of water and sanitation for all".

However, Alexandros et al. (2019) indicate that by 2050 about 40 per cent of the global population will experience severe water stress, particularly in Africa and Asia. This point is buttressed by the UN which noted that water scarcity is projected to become a more important determinant of food scarcity than land scarcity and the World Economic Forum of January 2018 established that water crisis is the number 5 global risk in terms of impact to society (water.org). Therefore, focusing on improving water resource management can contribute not only to reduce future vulnerabilities, protect one of the most precious environmental resources but also contribute to poverty reduction. This is because the interdependence between water availability and development is exemplified by the link between water and poverty. Due to poverty, access to adequate water and sanitation is low in Africa. Yet due to the inadequate access to safe water and sanitation, there is a high incidence of communicable diseases that reduce vitality and economic productivity on the continent (Economic Commissions for Africa)

3Materials and Methods

This research is carried out in Buea, the capital of the South West Region of Cameroon. The South West Region is one of the two English-speaking regions out of ten (the other eight being French-speaking). Due to its colonial history, Cameroon has both French and English as official languages. Buea is located at $4^{0}10^{'}0^{''}$N longitude and 9014'0''E latitude of the equator and with an elevation of 870m above sea level and can be found on the eastern slope of Mount Cameroon. Temperature ranges from 200C to 280C and an annual rainfall which range from 3000mm to 5000mm. Buea municipality is made up of 67 villages, and an estimated population of 100,000 inhabitants (Council Reports, 2015).

Before the early 1990s Buea was a rural area with limited social amenities like portable water, electricity, roads and hospitals. However, there existed a water Company owned by the state called Société Nationale des Eaux du Cameroun (SNEC) which managed water generally with the use of one catchment and small reservoirs. After the creation of the first Anglo-Saxon University of Buea in 1993, the population of Buea almost tripled and the town became very cosmopolitan with the influx of both students and business people. Unfortunately, these

increased the population and significant changes was not accompanied by significant development in terms of improved infrastructures to supply water to the population. This imbalance has created a lot of chaos in the availability and accessibility of water in the Buea Municipality. The main sources of portable water in Buea municipality are pipe borne water, bore holes, springs and mineral water, but other sources included rain water harvesting, wells and streams.

The research design is broadly descriptive and explanatory. A sample of 81 respondents was selected for the study using the stratified random sampling procedure. The respondents were stratified according to neighbourhoods and then randomly selected from the different strata. More respondents were selected from neighbourhoods that are experiencing acute water shortages to accentuate the challenges for the generalizability of the results (See Table 1 below). There were two criteria for selection: The respondent must be 15 years and above, must be a water user and must be present at the time of data collection process. The selection also considered the socio-economic composition of the society in terms of age ranges, marital, education and occupational statuses.

Table 1: Selection of Respondents

Neighbourhood	Number(n)	%
Mile 16	5	6.2
Mile 17	5	6.2
Mile 18	5	6.2
Bomaka	5	6.2
Muea	5	6.2
Molyko	5	6.2
Bonduma	5	6.2
Great Soppo	5	6.2
Small Soppo	5	6.2
Likoko Membea	12	14.8
Bokwaongo	12	14.8
Buea Town	12	14.8
TOTAL	**81**	**100.0**

*Areas with acute water shortage; goes for months without portable water (Source: Field work, 2023)

The instruments for data collection included, questionnaire addressed to respondents and interview guide addressed to hierarchical superiors in the water management. The questionnaire

was pre tested in Bwassa which is a neighbouring village to Buea also having water challenges. The data collection process lasted longer (three months) that planned due to the socio-political situation in the region where a separatist armed group is fighting against the government for the independence of what they call Ambazonia (the English-speaking regions of Cameroon). Under such circumstances the living conditions of people has worsened and water has become more scarce. The data collection process was done at different public taps and water collection points in the different neighbourhoods on different days. The questionnaire was administered randomly to those who were present at the time of data collection at the different water collection points. One point was visited more than once and at different times of the day to give opportunities to people with different time schedules to participate. Primary data collected was analyzed quantitatively with the use of SPSS version 17 and qualitative using content analysis.

Basically the study intends to find out whether there is a relationship between the challenges in accessing water and human and socio-economic development in urban Buea. Also, to determine whether the current water management strategies are adequate or need improvement at specific levels.

This study is guided by Sustainable Development Goal 6 Target 6.1: achieve universal and equitable access to safe and affordable drinking water for all, and Target 6.4: … Supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity by 2030.

4Results and Discussions

4.1The Profile of Respondents

Table 2: Distribution of respondents by demographic characteristics

Sex	n	%	Age Group	n	%	Marital Status	n	%	Level of Education	n	%
Female	61	75.3	15-25yrs	20	24.7	Married	49	60.5	No Education	12	14.8
Male	20	24.7	26-35yrs	31	38.3	Widow	8	9.9	Primary	23	28.4
			36-45yrs	18	22.2	Single	15	18.5	Secondary	20	24.7
			46 ≤ yrs	12	14.8	Divorced	2	2.5	University	26	32.1
						Co-habiting	7	8.6			
Total	81	100.0	Total	81	100.0	Total	81	100.0	Total	81	100.0

Source: Field work (2023)

The demographic characteristics of the respondents for this study focused on the sex, age ranges of the respondents, occupation, marital status and level of education. In terms of sex over three-quarter (75.3%) of respondents were females and 24.7% of males. This gives a clear picture of the fact that women are those mostly involved in fetching water. Many of the male respondents confessed that they are involved in carrying water because their wives or partners cannot drive and the distance to carry water sometimes goes to above 5km. The majority (60.5%) of respondents fall within the age group of 26-45 years (38.3% between 26 – 35 years and 22.2% between 36 and 45 years). It should be recalled that this is the most productive age group in any community that need to engage in productive work ensure economic and social growth. Unfortunately, most of their energy is spent trying to get a basic commodity like water. Over three-fifth (60.5%) of respondents while 18.5% were single. The rest were either widowed, divorced or cohabiting. Almost tw0-third (32.1%) of respondents had obtained a University degree while 28.4% and 24.7% had primary and secondary education or its equivalent respectively. Only 14.8% had no formal education. Pertaining to occupations of participants they came from diverse walks of life: administrative assistants, hotel and restaurant owners, hairdressers, fruit sellers, laundry house owners, Secondary school teachers and university lecturers, farmers, midwives, students and builders.

The household size of participants varied with 6-10 range making 51.6 %, closely followed by 11-15 with 37% whereas the smallest household size (1-5) was last with 9.8%. Most participants (83.9%) had between 1-5 children. Some of these characteristics suit the profile of an urban area where the majority of people are educated and involved in non-agricultural jobs (National Geographic Society (2019). However, Buea Municipality does capture the exact definition of an urban area (ibid, 2019).

4.2Description of water and accessing portable water

Respondents had different ways of describing water as seen in Figure 1r. The majority of respondents (45.6%) described water as “a necessity” meaning they cannot do without. Some 24.7% of participants perceived water as “irreplaceable” meaning it has no substitute. Whereas 16% and 13.6% of participants defined water as “luxury” (due to its exorbitant cost) and

"precious liquid" respectively. This shows that though water may simply be understood as a crucial resource, ((European Union, 2010a), it carries underneath other meanings contingent on the users and the context irrespective of statuses.

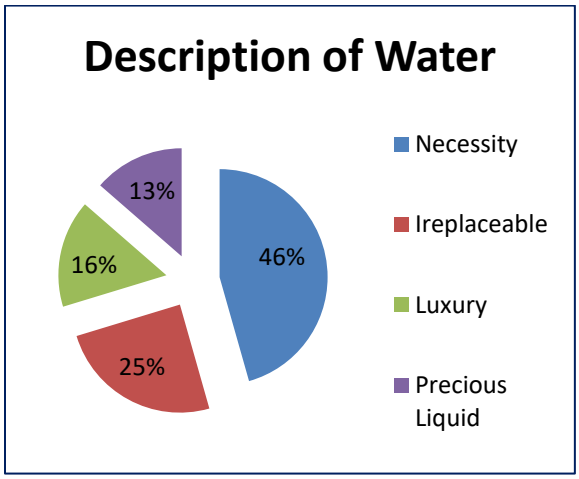

Figure 1; Description of Water

4.3Challenges in accessing portable water for both domestic and productive uses

Pertaining to challenges in accessing portable water for both domestic and productive uses, this research revealed that, the unavailability of portable water is not a new phenomenon in the Buea municipality. The situational analysis of portable water availability before the 2000s and after the 2000s was clearly presented. Respondents revealed that before the 2000s, the availability of portable water was the singsong of the government and the population patiently waited for this agenda to be realized. Meanwhile they depended on all sources available such as wells, streams, rainwater, springs limited taps and mineral water. In the early 2000s, the state of portable water unavailability had not only become complicated but also crucial especially with the increase in student population and effects of climate change. The raining seasons which usually runs between the mid-March and October every year witnessed a change. It starts from late April or even May and ends in September and the rain during this period is not as heavy. Even streams and springs dropped in terms of pressure and for wells the water level also dropped. This scenario motivated many people in the Buea especially around the Mile 17 park area (which is a business site) to start water sales or add it on to their already existing business. With the difficulties in accessing portable water, the sale of water has become a lucrative business though the sources of this water is doubtful. There is also an increase in the incidence of water borne

diseases such as cholera, malaria and typhoid in tandem with the publication of information on the need to avoid water parceled in plastics or sold on road sides by virtue of their doubtful sources. This water related businesses slowly died down.

Currently with tension still characterizing the armed conflict environment, respondents' situation on portable water accessibility is precarious. They do not always have the possibility to go fetch water as are consistently restricted from movements. This situation corroborates statistics from WHO (2018) and pronouncements made by Gérard Payen from UN agencies (2012) that least 11 per cent of the world's population, still lack access to safe drinking water.

Respondents further revealed other challenges relating to accessing portable water for both domestic and productive uses. These include time, distance, cost quantity, quality of water, insecurity, violence, exposure of children to juvenile delinquencies, exposure of children to early relationships as seen in Figure 2.

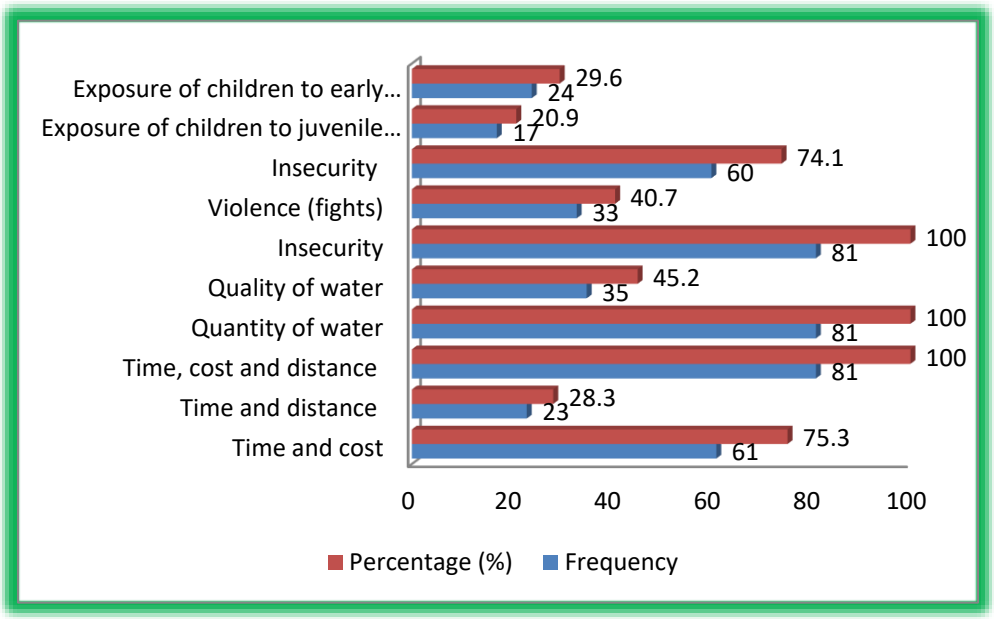

Figure 2: Challenges in Assessing Portable Water

Findings show the dominant challenges were time, cost and distance, quantity of water and insecurity. All participants experienced these challenges but at various levels. In terms of time, there two major forms. While the greater part of the sample population (67.4%) who depended

on tap water found the late rationing hour of water (1-3 am) by the water company a major problem, those who depended on collecting water from bore holes drilled by wealthy individuals for their personal uses but offered to the public, (12.3%) were rather worried about the unfixed time for water fetching which affected their daily agendas. Some 19.8% of participants mostly of the working class experienced time constraints in fetching water because of their tight schedules. Consequently, time constitute a vital aspect as far as portable water availability is concerned. In some extreme cases, respondents spent over 2 two hours waiting for their turns to fetch water. This corroborates the observation of UNICEF (2016) that in sub-Saharan Africa, more than a quarter of the population spends more than half an hour per round trip to collect water.

At the level of cost findings revealed two dimensions: cost of water in terms of expenditures (related to monthly water bills, water containers, transportation of facilitating equipment) and health cost incurred as a result of water related illnesses. Close to three-quarter of respondents (60.5%) spent between 5000 and 30000CFA on water bills including cost of mineral water. Some 23.5% spent between 10000- 40000 CFA for water containers, facilitating equipment like trucks and wheel barrows while 16% spent between 5000 and 50000CFA for health cost on water related illnesses like, head, neck and back aches and skin diseases. These varying amounts are relatively high for inhabitants of a low income country like Cameroon.

Distance was measured in terms of where participants lived and location of water points. Most respondents hired taxis or used their personal cars while some others trekked to cover distances that sometimes measure up to 5km. This falls in line with the findings of UNICEF and WHO, 2012), which observed that about three quarter of households in Sub Saharan Africa fetch water from sources located away from home. However, all participants were unsatisfied because no matter the amount of water one fetches, it only lasts a few days and one has to repeat the cycle all over again.

Insecurity was also reported as a challenge to accessing water in the Buea municipality. This is a result of the armed conflict experienced by the inhabitants of Urban Buea and the Anglophone regions in general between separatist fighters and government troops. There are constant gun shots especially during the early hours of the morning when people usually go out to fetch water so as to catch up with daily commitments. This does not only send population away without water but simply aggravated the problem of portable water unavailability.

4.4 Effects of water unavailability on the human development and economic growth

Water is important for all forms of life and also all economic activities and the unavailability of water actually poses a threat to both human survival and economic development. The effects of the lack of portable water as realized by this study are many. At the level of human development, poor sanitation (100%) was the dominant effect which affected the health of mainly children who suffered from water borne diseases like typhoid fever. This notwithstanding, the sanitation situation is has not degenerated to the level of India where according to Makarigakis and Jimenez-Cisneros (2019), sanitation facilities are usually non-existent, and people rely on open defecation. About 16% of the respondents talked about headache, neck aches back aches and skin diseases (rashes, eczema, scabies, ring worms) as other effects of the non-availability of portable water as they have to not only carry heavy containers on the head over long distances but also use water from streams and rain. This corroborates Geere and Cortobius (2017) who asserted that the detrimental health impacts of regular water carrying are being increasingly recognized and have been investigated in small-scale studies. Dehydration (3.7%) was the least health effect as a result of inadequate water consumption.

On the economic and sustainable development platform, respondents involved in water dependent businesses were highly affected. These included restaurants and hotel owners, fruit sellers, builders, laundry houses. Restaurant and hotel owners cooked less food and served just mineral water, soft drinks and beer obligatorily, to the detriment of poor customers. This caused a drop of 10%-20% in total sales and number of customers. Fruit sellers also experienced a drop in sales of about 15%. They1indicated that if fruits like mangoes and oranges are not washed they do not attract customers or arouse appetite. Laundry houses also lost customers and equipment and one even closed down. Builders postponed activities and sometimes used waste water in the mixture of cement for blocks. This affected the initial plan of building and the nature of blocks for building. As for hairdressers, they attempted convincing customers to select hair dos that will not necessitate the use of water which did not work in most cases and thus affected their income. Midwives mentioned that severally, the lack of water in the hospital forced them to ask women who came for delivery to come along with water for hygiene and sanitation. This goes contrary to the dictates of the United Nations that insists that women and girls must have access to clean water and sanitation services to manage menstruation and maternity in dignity

and safety (www.un.org/en/sectio/issues-depth/water/). This has only attracted open criticisms on the services provided by the hospital by the public. On the part of lecturers, teachers and students indicated that the lack of portable water causes them to be late for work and classes which affected the general output for the day.

4.5 Management strategies for portable water availability in the Buea municipality

In the Buea municipality, the management of water services has not been visible enough according to respondents. Apart from frequent water rationing and complete cuts and the distribution of bills, respondents were unaware of any management strategies of the lone water company, Cameroon Water Utilities Corporation (CAMWATER). Several appointments for interview with the chief of service were not fruitful. However, the technicians noted that the work and management in the company was not smooth due to lack of infrastructures. The company still heavily depends on inadequate reservoirs and water pipes used when Buea was still a rural council. “Some years back, roads were cut, trenches dug and pipes buried in an effort to improve on the water situation of the municipality, but until now the situation remains the same” explained one respondent from Bokwaongo. It should be noted that neighbourhoods like Likoko Memea, Bokwoaongo and Buea town can go for weeks and sometimes months without portable water. According to CAMWATER staff, the treatment of water is done as expected by the local office but infrastructural investments can only be authorized by their head office in which is out of the South West region. One of the complains of CAMWATER workers further concerns the limited building which is hosting the Buea office and which hampers the effective internal functioning of the service.

From all indications it is clear that there are no specific effective management strategies provided by the water company especially in relation to rapid urbanisation. This critical situation has been one of the major reasons behind the increased water stress of the population of Buea municipality. Water management in terms of technologies, systems information, technical information, and billing system practices etc. are very important assets in building the management system from local to national levels (UN Chronicle, 2012).

6 Conclusion

The current unavailability of portable water in the Buea municipality is a major cause for concern. In effect, there is a strong a relationship between the challenges in accessing water and human and socio-economic development in the Buea municipality which largely results in poverty. The lone water company CAMWATER seems to be overburdened and cannot meet up with the rapid urbanization of the Buea municipality. Realizing that water is life and achieving SDG 6 is essential to ending poverty and advancing sustainable development, it is important that CAMWTER and the government of Cameroon adapt strategies to make pipe borne water available not only to the people of Buea municipality but to the nation at large.

6.1 Recommendations

- The challenges of access to portable water experienced by the population of the Buea municipality should be considered critical for sustainable development and poverty reduction.
- The Cameroon Water Utilities Corporation (CAMWATER) should consider sharing management services with the Buea city council since the council deals directly with the people of its locality.
- Development of conceptual frameworks and plans that identify the synergies between urban water management and portable water can be very practical and enriching.
- The availability of portable water should be equated to an instrument of lifting and saving life and should form an integral part of social policy.
- In the absence of better water management system, the community of the Buea municipality should practice e-communications to help each other with new and reliable sources of portable water.

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