



COMMUNITY-MANAGED WATER SCHEMES: AN OPTION FOR SUSTAINABLE WATER-FOR-ALL IN NORTH WEST REGION OF CAMEROON AMIDST CLIMATE CHANGE AND POPULATION GROWTH

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ABSTRACT

The importance of water to the ecosystem and human health cannot be over emphasized. Survival of living organisms partly depends on their ability to adapt to the threats pose by water once in excess and/or in scarcity as well as its quality. Despite the importance attributed to water, global inaccessibility to safe drinking water continues to increase. The water-associated threats to humans have been exacerbated by the changing climate and exponential growth in the world's population. Most development discourse on water supplies has been limited to technical and comparative analysis of the successes and failures of various management approaches and the institutions responsible for providing the water. This paper has examined the trend in policy framework and operational atmosphere in the water sector in the North West Region of Cameroon which has evolved since the 1950s. Significant advances have been made in the development of state infrastructures and institutions responsible for provision of water in Cameroon. Nevertheless, with the steady growing population coupled to climate change, accessibility of good drinking water to the populations has continuously declined especially in populous cities of Cameroon. Thus, to meet the water needs of the populations, self-help community water management schemes which employ participatory and sustainable management approaches cannot be overemphasized.

Key words: Cameroon, Community Water Schemes, Participation, Policies, Operations, Sustainability

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1. INTRODUCTION

The combine effects of climate change and human development will most likely affect the future state (quality, quantity, location, reliability of supplies) of world water resources posits Gautier [1]; Federick and Mayor [2]; Vorosmarthy et al. [3] and Meyer et al. [4]. Additionally, some aspects of the hydrologic cycle are influenced by climate change resulting to changes in precipitation patterns, magnitude, schedules of runoff, air temperature, and moisture content in relation to levels of evaporation as contained in the IPCC [5] Report. These situations will



directly threaten the supply of water to humans and ecosystems whose survival depends on the timely availability and accessibility to water. These impacts will be exacerbated by socio-economic pressures linked to population growth (urbanization, increases in household and industrial uses) and climate change. This will even be more severe considering that water scarcity has been projected to get worse in the coming decades and beyond.

Many leading world bodies and summits have echoed the need for targets to meet world demand. For example, emphasis on drinking water was a top priority in the global Development Agenda - the Millennium Development Goals (MDGs), specifically MDG7. The MDG7 seeks to 'Ensure Environmental Sustainability' and targets "Reduction by half the proportion of people without sustainable access to safe drinking water and basic sanitation". The UNDP programme, Water Supply, Sanitation and Hygiene (WASH) was developed within this context with the aim of fast tracking the realization of this specific goal. Furthermore, the 2002 World Summit on Sustainable Development in Johannesburg South Africa and the *UN International Decade for Action - Water for Life 2005-2015* reiterates the need to respect the set targets in order to meet world demand, WHO [6]. According to Carter et al. [7], a significant number of water and sanitation and other projects in developing nations fail to deliver benefits to society over the long term, and this may largely be due to poor understanding of the issues of impact and sustainability.

Progress made so far towards the attainment of the MDG7: Broadly speaking, given the wide mobilisation towards meeting global targets in the water sector, some positive results have been achieved. For example, the WHO and the UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, indicated that between 1990 and 2010, more than 2 billion people gained access to improved drinking water sources, such as piped supplies and protected wells (WHO/UNICEF JMP, 2013). Based on the JMP household survey, by the close of 2010, 89% of the population representing 6.1 billion people used improved drinking water sources. This represented a 1% more than the 88% target contained in the MDG7 set in 2000. The 2010 UN Reports indicates that the international target to halve the number of people, who do not have access to safe drinking water, was attained five years before the 2015 deadline - MDGs Report [8]. Despite the echoing of these very positive results, the JMP [9], which is the official United Nations mechanism tasked with monitoring of the progress towards the attainment of the MDG7 in their 2013 report asserts that measuring access and testing the quality of the water at national levels including local levels in all countries was extremely expensive and logistically difficult. In addition, recent comments by the UN's Secretary General Ban Ki-moon[10] during the 2013 United Nation's International Day of Biological Diversity emphasize that the world is on course to run out of fresh Water unless greater efforts are made to improve water security: "*Although seemingly abundant, only a tiny amount of the water on our planet is easily available as freshwater. We live in an increasingly water insecure world where demand often outstrips supply and where water quality often fails to meet minimum standards. Under current trends, future demands for water will not be met.*" Ban Ki-moon calls for a "mutually reinforcing" relation between other sectors especially as the MDGs shall be replaced by a post 2015 agenda including a new set of goals for sustainable development.

Threats from water amidst climate change and population growth: In view of the ecosystems and humans dependence on water, it is salient to briefly review the threats on water availability for future generations posed by the combined effects of global climate change and population growth. The sustainability approach argues that the availability of water for future generations should not only focus on water needed for the future socio-economic wellbeing of humans but also one that gives due consideration to future generation of environmental systems as they must survive in their own right as asserted by Drexhage and Murphy [11]. Focusing on Cameroon, the review gives a snapshot of the legal framework and operational environment of the water sector and the



dynamics in the “self-help” or community water schemes where communities mobilise resources for, build and operate the systems as opposed to those that are merely built and communities serve as recipients. Some success factors, challenges and prospects of how networking and collaboration efforts between Communities, the Government, NGOs and private sector stakeholders have contributed to enhance provision of the basic resource in Cameroon will be discussed. Based on these, the review paper concludes with some recommendations which if fully met, we argue, will enhance community’s role in the provision of this resource for poor communities in Cameroon and could be replicated in other communities thus generating a ‘Community of Practice on effective community water management’ with the ultimate goal of a sustainable water future.

2. Methodology

This article hinges on the findings and insights of individuals and institutions that have carried out systematic and cumulative studies in the water sector in Cameroon and internationally. This article therefore attempts to present some of the concepts and emerging trends related to community managed water schemes and sustainability considerations after a review of the accumulated body of knowledge in the sector.

In addition, this paper provides an overview of the institutional context of water crises. It looks at the broader concepts of community-managed water schemes and its sustainability considerations and how these tie with the Cameroon scenario. The contents in the literature are accessed mainly from text books, internet sources, scientific journals, interviews and discussions with users of community-managed water schemes.

Furthermore, the paper focuses on the practice in the North West region of Cameroon, its challenges and prospects for improvement.

Finally, on the basis of the contents of this paper, some conclusions are arrived at, and relevant recommendations made. The recommendations provided seek to improve practice in the sector thus ensuring sustainability of community-managed water schemes.

2.1. Results and discussions

A. The water sector in the Cameroon amidst challenges of population growth and Climate change Republic of Cameroon is a Central African state, situated in the Gulf of Guinea between Latitude 2o and 13o N and Longitude 8o and 16o E. It contains a large surface area (475,000 KM²) and diverse landscape of northern plains, central and western highlands, southern and coastal tropical forests – USDS [12].

Cameroon has an annual growth rate of 2.2 and a population of 20,030,362 according to the World Bank [13] and the Cameroon National Institute of Statistics [14]. The mean annual temperatures in Cameroon have increased by 0.7oC as oppose to a 2.2 per cent per decade mean annual precipitation drop since 1990s, with very low rainfall in the years 2003 and 2005. However, there is a speculation of moderate increase in temperature this century estimated at levels between 1.0 to 2.9oC by the 2060s and 1.5 to 4.7oC by 2090s as observed by McSweeney et al. [15]. In view of such increases, warming is expected to be faster in the interior as oppose to the coastal areas. . Additionally, it is speculated that the coastal regions of the country is likely to experience considerable sea level rise to adversely affect mangrove forests via flooding, erosions, sedimentations, and increased salinity. This may probably affect the mangrove ecosystem, especially the flora and fauna contained within this zones and by extension affect the local fisheries. Sea level rise may also cause saltwater to intrude to the inland water bodies including Dibamba and Wouri rivers, and into coastal aquifers. Such a situation will have a huge negative impact on the agriculture sector especially in the interior Sudano-Sahelian zone. As such, the Cameroon coastal infrastructure including water supply infrastructure are at risk, with a projected estimate of 2.74 billion Francs CFA damages due to climate change by 2100. Also at risk is the health sector of the country, with

chances of increase in the incidence of malaria as a result of climate change and the threat of cholera due to greater flood risk indicated by CMEF[16].



Fig 1: Location of Cameroon in Africa and map of Cameroon with its neighbouring countries (Source: Page 2003)

With respect to accessibility to water at country level, the Cameroon, like many other nations in sub-Saharan Africa, still lags behind targets set for the achievement of MDGs on access to water and related issues, exemplifying the regional disparities that exist in the assessments of the attainment of the MDGs related to water. For example in Cameroon, the period from June 2012 to date, it was observed that contrary to the traditional belief that urban populations globally have access to improved water supply sources compared to rural and semi-urban areas, the issue of inaccessibility to the basic resources was glaring, resulting in serious unrest especially in the main political and economic cities of Douala and Yaounde where the urban rich live. AMCOW Country Status Overview [17]; World Bank [18]; FAO [19] reports all indicate that this falls in line with reports from many global institutions, local and national institutions that are at the forefront and working in synergy to ensure access to the resource indicating that the proportion of urban residents with access to water have been recurrently low and in many cities, the trends continuing to fall at an alarming rate. Notwithstanding, the 2010 UN reports indicates success in the attainment of the MDGs prior to the set deadlines

Broadly speaking, many have and/or might be asking the question: who is better placed to ensure sustainable provision of water – government, private sector, local communities or international development partners? Some schools of thought led by Uitto and Biswas [20], Silva et al. [21] & Martinard [22]. have identified two arguments that dominate proposals to improve the supply of water and that are largely considered mutually exclusive – one advocating for increased private sector participation and the other advocating for increased community participation. However, Page [23] asserts that these two positions are not mutually exclusive but can seek to reinforce each other. In Cameroon, the case is different in that the Cameroon Water Corporation (Société



Nationale des Eaux du Cameroun) created in 1968 maintained a monopoly of supply and management until 1999 when it was privatised followed by a growth in private water companies. These private corporations in addition to the privatised state corporation focus on the supply of urban centres given that there is a guarantee on their investments as opposed to serving the rural areas. However, Njoh [24] and Therkildsen [25] in their studies conclude that comparatively, community water schemes that find communities at the centre, present a better picture in that they endeavour amidst significant challenges to meet their targets needs and are managed in a participatory manner resulting in the sustainability of these systems. However Nforba et al. [26] claims that community-managed water supply schemes that are hinged on effective community participation faces a major challenges in that the proponents of the ideology are less powerful though considered worthy and less influential compared to the more influential government and private sector proponents that have been at the centre of policy formulation and implementation related to the sector in Cameroon.

3. The National Policy framework on water for Cameroon

The government of Cameroon, like many contemporary African governments, has paid central attention to the question of water in their development and political agendas, Mabogunje [27]. In Cameroon the Ministry of Energy and Water Resources is at the centre of carrying out the Government’s policy. Through this Ministry and other related ministries, laws, policies and decrees have been enacted to regulate, orientate, protect and promote actions and initiatives that have a bearing on drinking water and there has been a considerable development on this front in Cameroon (Table 1).

Table 1: Organizations supporting rural water supply systems in Cameroon

Name of Organisations promoting rural water	Number of Projects
Cameroon Industrial and Civic Contractors (CIACC)	30
Cooperation for American Relief Everywhere (CARE)	143
SCANWATER	335
RURAL ENGINEERING	3900
Community Development Department/ Swiss Association for Technical Assistance (CDD/SATA-HELVETAS)	347

Source: modified from *Nforba et al.*, [26]

At the National level at present, the supply of water is handled by a consortium of two corporations - CAMWATER (Cameroon Water Utilities Corporation) and Camerouniase des Eaux (CDE) with its coverage mostly in the metropolitan areas. CDE, owned and controlled at a distance from Morocco, controls the actual water provision, whilst CAMWATER remains a parastatal organisation whose remit covers infrastructure building. As indicated by Nforba et al. [26] The government has also encouraged foreign organizations to provide potable water in the rural areas. Table 1 shows the number initiatives put in place by foreign organisations for the provision of potable water around the 1990s.



Year	Event
1952	Creation of the Ministry of Agriculture's Agricultural Engineering Department (<i>Service du Génie Rural</i>), supplying the rural population of the North of the country)
1962	Creation of the Office of Water within the Ministry of Transport, Mines and Telecommunications (<i>Ministère des Transports, des Mines et des Télécommunications</i>), responsible for ground water exploration and conducting inventories of water points
1968	Creation of the National Water Supply Company of Cameroon (SNEC: <i>Société Nationale des Eaux du Cameroun</i>) to whom the state granted the operation of public water supply networks in the towns for a period of 40 years
1977	Creation of the Ministry of Mines and Energy (<i>Ministère des Mines et de l'Énergie</i>), responsible for WSS in urban centres, whilst rural areas remained under the responsibility of the Ministry of Agriculture
1984	Law No. 084/013 pertaining to water regulations (but with no implementing provisions)
1988	Reorganization of the ministry in charge of water that becomes the Ministry of Mines, Energy and Water (<i>Ministère des Mines, de l'Énergie et de l'Eau</i>), responsible for WSS for the whole of the country through the Directorate of Rural Water Supply (DHR: <i>Direction de l'Hydraulique Rurale</i>) and the Directorate of Urban Water and Sanitation (DEAU: <i>Direction de l'Eau et de l'Assainissement Urbain</i>)
1992	Law No. 92-002 pertaining to the creation of councils (local authorities) (this had no immediate impact on the sector)
1996	Merger of DHR and DEAU into the Directorate of Water (DE: <i>Direction de l'Eau</i>) in charge of WSS in rural and urban towns
1998	Prior to this, legal texts were only concerned with the protection of resources. A new law (No. 98/005) pertaining to water regulations is supplemented by implementing provisions, as of 2001, that also pertain to the management of the service
1999	Start of the SNEC privatization process (limited invitation to Tender for 51 percent of shares)
2000	Provisional acquisition of SNEC by the French utility company, 'Suez Lyonnais des Eaux' (ONDEO Services)
2002	Nomination of a temporary administrator to oversee the privatization process and ensure continuity of the public water service
2003	Admission that acquisition of SNEC by ONDEO Services has failed, announcement of a new means of privatization that is still being defined
2004	Law No. 2004/18 setting out the rules applicable to councils
2005	Decree No. 2005/493 setting out the means of delegation of WSS public services in urban and peri-urban areas. Decree No. 2005/494 pertaining to the creation of the Cameroon Water Utilities Corporation (CAMWATER)
2008	Conclusion of the SNEC privatization process with the establishment of a leasing contract for the management and operation of urban facilities between the state, Camwater, and Camerounaise des Eaux (subsidiary of ONEP, national water supply company of Morocco)
2010	Decree No. 2010/0239/PM transferring the competencies for the construction and management of wells and boreholes to communes (the drinking water networks remain with the state)
2013	Water Law with provisions to implement the transfer of competencies to councils

Figure 2: Evolution of policy development in the water sector in Cameroon

Source: *Adapted from AMCOW Country Status Overview mentioned earlier [17]*

Although much has been done with respect to improving the legal framework with respect to water, it is likely that salient suggestions if judge suitable and then accepted, may further improve the Cameroon Government's policy on the participation of stakeholders in management and provision of water. In the past decade, the government has enacted additional laws which have seen the decentralisation of the provision of drinking water at the municipal level with a strong involvement of the private sector, allowing communities to take responsibility for the provision of their water (2004 Orientation Law on Decentralization). This law on decentralization gives councils the responsibility to provide water to the population. It appears as if the local councils could better play their roles in the provision of the basic resources should they have the full power and financial means

4. Comparison of management and access of the basic resources in rural versus urban milieus and its impacts in Cameroon

According to the report of the Cameroon National Institute of Statistics - NIS[27]), 46% of Cameroonians lack access to adequate drinking water with close to 63% lacking access to decent sanitation which is hinge on



adequate water availability. The Cameroon's Growth and Employment Strategy Paper GESP [28] which is the Cameroon Government's reference framework for development within the period leading up to 2035, projects a linear increase in access from the 2007 figures to 75% by 2020. This recent GESP projections in the water sector reinforces the Government's 2008-2015 action plan on drinking water supply and sanitation whose ultimate goal is to raise rural drinking water and sanitation access rates to 80% and 60% respectively. Numerous donor funded projects though have targeted only certain urban zones of the country have been geared towards enhancing access to this basic resource. For example, the Yaoundé Sanitation Project and the Drinking Water Supply and Sanitation (DWSS) project in semi-urban areas and the Rural Water Supply and Sanitation Initiative (RWSSI) that have been running over the last few years. Another significant donor project has been the Rural Drinking Water Supply and Sanitation Project funded by the African Development Bank (ADB) and the African Development Fund (ADF) to run from 2010 to 2015 - ADB/ADF [29]. This project seeks to raise the drinking water access rate from 33% currently to 60% in 2015 and the sanitation access rate from 17% on average to 22% in 2015 within the project area covering 4 regions of the 10 regions in Cameroon (West, North West, South-West and South Regions). It is anticipated that the project will meet the drinking water needs of 668,000 inhabitants, further reducing the prevalence of diseases associated with the lack of safe water and sanitation from 19% to 13.5%.

To an extent, considering the governments' efforts and the optimistic projections with much donor funding, it can be speculated that Cameroon will meet the MDG target for 2015. Nevertheless, there are several constraints faced by the sector especially in rural and semi-urban areas which may impede the smooth attainment of the MDG target by 2015 indicated in the AMCOW Country Status Overview [17]. Generally in Cameroon, the access rate to drinking water in most rural is 45% as oppose to 77% in urban areas - ADB/ADF [29]. A sector where poor access to the basic resources has dire consequences is in the primary education sector. The most impacted sub-groups in rural communities include women and youth, since fetching water is 70% of their responsibility as indicated by Carter et al. [7]. There is currently inadequate statistics to clearly compare the access rate of water between urban and rural communities in Cameroon. However recent happenings in Cameroon within the period 2010 to date have indicated that contrary to the traditional belief that urban populations globally have access to improved water supply sources compared to rural and semi-urban areas, the issue of inaccessibility to the basic resources was glaring, resulting in serious unrest especially in many urban areas including the political and economic cities of Douala and Yaounde of Cameroon where the urban rich live. This falls in line with reports from many global, national and local institutions that are at the forefront and working in synergy to ensure access to the resource indicating that the proportion of urban residents with access to water have been recurrently low and in many cities with the trend continuing to fall at an alarming rate including; AMCOW Country Status Overview [17], CIANET [30]; World Bank [18] and FAO [19]. There has however been an increasing trend towards community self-help initiatives that enable communities to mobilise resources, and develop community water schemes that significantly contribute to enhance access to the basic resource.

5. Characteristics of community water supply schemes in Cameroon and their advantages

According to the ADB/ADF[29] , Cameroon has five rural drinking water supply (DWS) systems adopted in accordance with the natural environment. These include: (i) equipped wells; (ii) gravity-based Drinking Water Supply - DWS (or simplified water distribution networks); (iii) Developed springs; (iv) power-operated DWS; and (v) Boreholes equipped with hand-operated pumps (HOPs). Despite the existence of a number of these systems in different regions in the country, the simplified water distribution networks or gravity-based DWS which tap water from various sources using gravitational flow are the most dominant. This is likely because most of the rural areas

that have benefited from rural drinking water schemes have a rolling topography with abundant sources of good quality water which can be tapped through gravity. Also, considering that the lifespan of these schemes are directly dependent on the health of the ecosystem around the sources, it is clear that management of community water schemes requires not only the needs of communities but also takes into consideration the health of the ecosystem around the water sources. Broadly speaking, in view of guidelines for DWS projects, many donor bodies involved in the development and commissioning of water schemes have assert that the gravity-based system brings water distribution closer to consumers through standpipes and private connections, builds a sense of ownership as communities' capacity to manage simplified DWS network systems is developed.

6. The North West Cameroon case of Community managed water schemes

The North West region (Fig 3) of Cameroon, constituted of 7 administrative divisions with a total of 34 local councils, habouring an estimated population of 1.8 million (Government of Cameroon, 2010), is the fifth most populated region in Cameroon.



Figure 3. Map of the North West region of Cameroon with the seven divisions (Source: World Atlas [31])

The World Bank [32] indicates that economy of the region is hinged on agriculture and it is estimated that more than 80% of the rural population depends solely on rain-fed agriculture, including a vibrant livestock sub-sector. The thriving of these economic activities is highly dependent on the availability of water. Although the access rate of drinking water in the North West region stands at 52 % being higher than many neighbouring regions such as the West (28.7%), South (35.4%), and the South West (43.2%), but generally below the national average with significant disparities with respect to access to water for needs other than drinking in the different divisions of the region as indicated by (ADB/ADF [29]).

In a survey conducted by Vubo [33] this Region, over 500 water schemes of various magnitudes have been set up and run by communities to ensure water supply to the population. With the support of local councils, the government and external agencies, many communities have succeeded in building water schemes that they feel proud to own (Table 3).

Table 2: Some prominent and fully functional community water schemes, their locations and their dates of creation.

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Water Scheme	Division of location	Date of creation
Kumbo Water Authority	Bui Division	1972
Ndu Water Authority	Donga Mantung	1960
<i>Jakiri Council Area Water Supply(with 17 village water supply projects)</i>	Bui Division	1974
Nkwen Community Water Supply	Mezam	1990
Babungo Pipe-borne Water Project	Ngoketungia	1980
Mbemi. Water Supply	Momo	1983
The Bamali Water Project	Ngoketungia	2002

Source: Author 2012

Using the Jakiri Area Water Supply as case study, table 3 below shows the coverage of the scheme situated 91km from Bamenda, the regional headquarters of the Northwest region which is covered by the National water supply network.

Table 3: Coverage by Jakiri Area Water Supply Scheme in in North West Cameroon

Village	Name of water project	Population	Targeted population	Number of households connected	Number of stand taps	Number of taps to be repaired	Number of taps abandoned
Rotong	Rotong Water supply	1800	1200	10	6	2	1
Nkar	Nkar water project	15000	10000	892	197	8	5
Nkartsen	Nkartsen water project	1500	1000	50	16	4	
Vekovi	Vekovi Water project	16000	16000	43	36	3	0
Wasi-Ber-Mbokijah	Ongoing	2100	2000		0	0	0
Noi	Noi water supply	2500	850	17	32	5	0
Gwartang	Gwartang community Water	500	200	6	9	3	0
Wainamah	Wainamah community water	3200	1800	7	17	0	0
Shiy	Shiy water project	2100	200	1	21	18	1
Jakiri/Mantum	SNEC			417	17	0	3
Ngomrin	Ngomrin Water supply	3000	1600	20	6	8	1
Mantum-Tan-Kifom	MATAKI Water project		2000	4	20	0	0
Wvem	Wvem water supply	9000	4500	36	21	0	0
Yer	Yer water project	3500	1525	9	37	27	4
Nkarkui	Nkarkui water project	1500	1000		4	0	0
SOB	Sop Area water supply	9000	7500	152	42	13	1
Mengu	Mengu water project	6000	6000		20	0	0
Faahkui	Faahkui water supply	800	300	1	8	0	0
	TOTAL	77.500	57.675	1.665	509	96	16

Source: Eric Ngang 2010



Most of the villages in the area are very active in setting up community water schemes with active participation of community members; some with the assistance of structures such as HELVETAS.

Generally, the process of construction of community water schemes often generate a lot of excitement that spans from the period of sensitization, through resource mobilization, construction, the handing over ceremony, and the early periods after handing over. However, this enthusiasm starts dying when persons who had contributed or are expecting water cannot have access to it as a result of limited coverage of the network, or a breakdown in the system. At the centre of these two aspects are finances to ensure expansion of the network and ensuring operation and systemic maintenance. Dissatisfaction in the functioning of community water supply system have often led to mistrust, conflicts, divisions and lack of enthusiasm in the management of community water supply systems. This is very detrimental as it put at stake all efforts invested in the realization of the project including the initial enthusiasm around local ownership and the spirit of self-reliant development. Consequently, the desires and benefits of the community to access safe drinking water are compromised pushing them to seek drinking water from unsafe sources. A general problem observed in the shortfall of this community water management system is the top down approach used in developing some of these systems. For example, Nforba et al. [26] observed that by 1997 the 4265 systems created and developed by CIACC, SCANWATER and Rural Engineering Department of the Ministry of Mines, Water and Power and handed to the government were no longer functioning and the location of some not known. This has been blamed on the non-participatory and government-managed approach imposed for the management of these systems. This is confirmed by a recent review of African domestic water and sanitation sector quoted by Carter et al. [7]:

(It is generally agreed that) community engagement and empowerment is the solution to the sustainability of water supply and sanitation services. The hallmarks of empowerment and capacity building are factors such as transparency, partnership, flexibility, respect, and empathy. The institutional models generally associated with government departments, however, are autocratic, bureaucratic, authoritarian, and “top down”. It is unlikely that an organisation with such characteristics will be able to develop and nurture a whole system of local level institutions which have very different characteristics. This is similar to expecting a sausage machine to produce biscuits.

Therefore in communities that experience government water schemes, though intended for communities have not put them at the centre of these projects and they are often disenfranchised in the process of decision making concerning the system especially at inception. Evidently, there exist a big gap in most community water supply systems with respect to the construction and the effective and efficient management of these schemes. So failure on the part of external stakeholders, who often make significant financial contribution to make communities to understand that they own these schemes, jeopardises the prospect for sustainability of these schemes. It is estimated that 40% of the community water supply systems in the North West Region face serious Operations and Maintenance problems with about 20% completely broken down. For the remaining 60% over 50% half are not efficiently functioning. This gap has a lot of impact on the ability of the poor to have access to safe drinking water in rural and semi-urban areas as indicated by a study conducted by COMINSUD [34,35].

2. Water “push factors” and Local dynamics to meet demands in the North West region

The needs that water users have are varied and differ in complexity from council to council and varied community water schemes have been put in place to meet these needs. Some of the push factors identified includes, but not limited to:



- High prevalence or upsurge of life threatening water related diseases including dysentery, Diarrhoea, Cholera and Typhoid in studies conducted by Kometa and Ebot, [36]. The curbing of these diseases depend on the provision of improved and reliable water supply.
- Scarcity of the basic resource (water), which is acute during the dry season with communities having to travel long distances to collect water. This results in the use of time that would otherwise be spent on education, farming and other livelihood activities in addition to the health risk as a result of the strain in the activity and often dangerous terrain to travel.
- Needs and challenges become complex after completion of the initial water project. Many community water schemes in the North West region barely reached 1/3 of their estimated lifespan because the systems could not be rehabilitated after construction. In some cases, the survivals of the systems have been threatened by obsolete infrastructure (old and leaking pipes). Poor coordination and inadequate funds has resulted in the non-extension of some these systems to meet the ever growing demand by the surging population.

Communities despite their limited resources are providing thousands of users with water. For example the Jakari Council Area Water Supply Scheme from 2007 was targeting to serve 57.675 of the 77.500 people in 18 villages in field studies conducted by Owen [37]. These local actors through hard work, local resources (financial and material) have been able to expand programmes and increase supply even with limited external support. There are Water Forums, Water Management Committees, Mayors, Councilors and local technicians working together effectively. People are having regular meetings, discussing issues, supporting each other and building consensus around issues. In these communities, there a great understanding that good quality water leads to increased standards of living, health, and economic productivity with time freed up, lessening the burden on women and children.

These needs are not simple, but complex, and are proving very challenging to actors in the field and some reasons why these needs have not been met partly includes:

1. *Some local users do not view water as a top priority:* In the North West of Cameroon, water is plentiful, yet supply is often inadequate. Communities become reluctant to contribute their resources (material and financial) to enhance the provision of water. This is opposed to areas that experience scarcity. Water tops the agenda, and supply systems are more developed.
2. *Inadequate financial capacity:* Communities are faced with the challenge of mobilising adequate financial resources to boost the local water sector. This translates into poor quality research data available to aid decision making. It is probable and for most cases, if not all, clear that, decisions by those in charge of daily management are made on “guesswork” or assumption which is the case in many communities’ only compounds the effective management of the water schemes. In addition, although there is a gradual devolution of powers to local council, this is not accompanied by adequate financial transfers to the council. Thus, these Councils likely do not have the capacity to provide local actors with the support they need. There seems to be no harmonised approach in the management of issues related to the water sector. Some Councils allocated funding for Water Management Committees, employ caretakers directly while others make project decisions, others delegate to engineers, consultants or agencies.
3. *Poor communication amongst stakeholders:* It is observed that in the North West region, there is inadequate communication between stakeholder in the water sector at community level with consequent disunity and no collective action. The Government of Cameroon though has enacted laws on decentralisation devolving powers to the local councils, it has failed to provide clear direction and



facilitate communication between Councils. The impacts of this poor communication are clearly in the failures recorded by Water Management Committees, with technicians and caretakers undertaking illegal tapings to supplement unpaid wages. In addition, because local users, lack sensitization, they fail to report maintenance issues and good water is wasted.

4. *Inadequate capacity in operation and maintenance of systems:* Community water schemes in the North West region are plagued with crisis including faults in water systems with community forced to stay without the basic resources for long. The commissioning a water scheme is an exciting period for a community. However they begin facing significant challenges when the infrastructure is old and need replacement or rehabilitation as the only possibility essential to ensuring survival schemes. The extension and rehabilitation of water systems requires coordination, fundraising and coherent action. Training within the Councils is poorly coordinated and inconsistent, leaving large knowledge gaps that can result in bad decision making. However, lessons could be drawn from the experience of the NPO/NGO: Integrated Health for All Foundation [38] Cameroon, in the Ekaw Menka community where the IHAF team exploited indigenous techniques of human investment on major drinking water sources to curtail disease prevalence in dry seasons by simply ensuring protection of water sources. Such capacity buildings strategies applied by the IHAF which basically focuses on hygiene and sanitation of water sources and domestic handling of water from sources to homes and until drinking is really valuable and should be encouraged as it prevents significant water-borne diseases in the community setting. As such, there is huge need to mobilize and encourage such NGOs to do even more.

It is possible that should the aforementioned challenges be overcome, then the communities and their local duty bearers (councils and NGOs) will certainly play their roles well. This is likely considering that they are the key actors in ensuring sustainable water future at community level which takes into consideration the need for humans and at the same time protecting the ecosystems around the sources.

8. Conclusions

The combine impact of climate change and population growth will threaten the future availability of water for future generations. A key observation is that future planning on water resources especially on the exactitude in changes, timings, quality and reliability of supply, are quite uncertain due to the uncertainty in the drivers including climate change and population growth. Contrary to developed countries that have enormous capacity to minimise costs of adverse climate impacts and to benefit from the opportunities it offers as a result of their technical and managerial capacity, developing countries like Cameroon are disadvantaged by a lack of these which is further compounded by its exploding population. An attempt to examine the legal framework and operational in the water sector in Cameroon speculates a probable disparity exist in access between urban and rural areas although without adequate data to allow for a reasonable comparison. This paper emphasizes the important place occupied community water schemes in ensuring access to the basic resource (water) to rural communities and posits that if identified challenges are overcome, it will be a significant contribution to ensuring availability of water for future generations in rural Cameroon.

RECOMMENDATIONS

Thus the following recommendation if implemented would be a step towards meeting sustainable water supply for all in communities with similar problems/situations as the North West region of Cameroon.



- I. Sustainability of community-based approaches: To ensure permanence of community water schemes, the pragmatic approach to adopt is to ensure full involvement of communities in all stages of programme initiation, planning and execution (through the entire project life cycle). Given that communities face constant dynamics with their water needs changing, there is a need for an evolution in the support - training, education, technical and financial assistance, operation and maintenance of systems. It is incumbent on the Government to create a favourable atmosphere for decentralisation and together with the NGOs and international development agencies continuing with their support programmes. Carter et al., (1999) proposes that new models of community participation with special emphasis on the building of synergies that take into consideration the legal and contractual ties between Governments, NGOs and the private sector involved in the water sector need to be strongly considered.
- II. There is a need for coherent policy guidelines and consistency in their applications: The appropriate government ministries in charge of the water sector in Cameroon are hugely responsible to provide coherent policy guidelines and ensure consistency in its application, but which is not available in all cases. Nevertheless, it is vital to ensure good, harmonised decision making and continuity of approach. There is need for actors at all levels to contribute to the creation of a policy document that drew on everyone's experience, and shared elements of good practice. This will ensure that future decision making processes adhere to strict guidelines and ensure local confidence that the decisions made are the right ones. A policy concerning all aspects of community water planning, development and management will contribute to enhancing the desired impacts and sustainability of the sector in Cameroon.
- III. A need to enhance capacity for operation and management of systems: Improving local capacity to construct, effectively and efficiently manage community water schemes is key to improving access to safe drinking water in rural and semi- urban areas in Cameroon while at the same time ensuring the sustainability of the natural systems. Unfortunately, capacity development is expensive and often sidelined when other pressing needs come into the equation. However, given that local expertise and knowledge is growing, following many years of interaction between communities and NGOs, processes and avenues to enhance mutual sharing of these capacity that already exist needs while complementing this with contextual experiences. This will help to reduce the overdependence on external resources that is increasingly difficult to mobilise. Thus local communities of practice on sustainable community water management will be an ideal approach to take in order to give value to skills that lie dormant locally. Once local exchanges and capacity building events occur, joint solicitations can be made to external capacity building institutions for technical and financial assistance to address challenges that cannot be addressed locally. Additionally, the approach of the NPO/NGO: Integrated Health for All Foundation (IHAF), Cameroon, in the Ekaw Menka community where the IHAF team exploited indigenous techniques of human investment on major drinking water sources to curtail disease prevalence in dry seasons by simply ensuring protection of water sources. Such capacity buildings strategies applied by the IHAF which basically focuses on hygiene and sanitation of water sources and domestic handling of water from sources to homes and until drinking is really valuable and should be encouraged as it prevents significant water-borne diseases in the community setting.

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Eric has had ten years of experience in the non-profit sector in Cameroon. Focus of his work during this period has been building effective cooperation and interaction between civil society organisations and state institutions at local and national levels. In he also worked on the promotion of local concerted actions for development and democratic practices, resulting in improved performance and service delivery amongst CSOs and also greater negotiation power with state actors.

He has strong knowledge and experience in issues related to the extractive industries including corporate social responsibility and environmental management, environment and social impact assessment, community engagement, project development and management. He is capable of demonstrating analytical and strategic ability to utilising a consultative approach at all levels to effectively analyse and show programme requirements and capable of using his excellent communication skills to build and maintain relationships between diverse organisations and stakeholders. He founded the Action Group on Governance and Environmental Management in 2009. This organisation is gaining recognition as the representative voice in articulating the needs and interest of various beneficiary communities in local and national discourse on natural resources management issues. He has made significant contribution to the body of knowledge on sustainable development through presentation and peer reviewed publications on themes including capacity development for organizations in the global south, sustainability, sustainable energy, and governance.

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