



IMPACT OF MICROCREDIT ON ACCESS TO WATER AND SANITATION IN RURAL AREAS OF SUB-SAHARAN AFRICA: LESSONS FROM KENYA AND TANZANIA

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ABSTRACT: *The focus of this paper is on the impact of microcredit system (a part of microfinance) on access to water and sanitation among the rural communities in the Sub-Saharan Africa (SSA). The introduction of microcredit in the region was expected to deepen access to basic water and sanitation infrastructure that would have been otherwise beyond the reach of many rural households. It was enthusiastically suggested as a sustainable alternative to government intervention, and a tool of bridging the gap in the sector. However, the reality of water and sanitation inadequacies are still feasible in many rural communities after the initial euphoria. We examined the challenges facing its use, as well as highlight areas where it had recorded some successes. It concluded by proffering way towards improving access to water and sanitation in SSA, especially in the rural and peri-urban areas.*

KEYWORD: Access, Microcredit, Microfinance, Microloans, Sanitation, Water, WASH

INTRODUCTION

Sub-Saharan Africa is home to 1.1 billion people, out of which 59% live in the rural areas as at the end of 2019 (World Bank, 2020). However, access to water and good sanitation remain key challenges to quite a large percentage of the people in the region; particularly in the rural and peri-urban areas. There is growing shortage of water and sanitation facilities both at the urban and rural areas. The situation in the rural areas is rather more complex going by the lack of incentives by the private sector to invest in those facilities; most importantly on-site facilities. The reasons vary from poor viability in terms of numbers to under recovery of cost by investors. Government interventions have always been more “urban” in focus than “rural” despite the fact that quite a sizeable number of people live in that segment of the society. Worldwide, a large number of people are putting up with the poor, but avoidable, consequences of water and sanitation problems compared to the combined total number of people that are affected by the impacts of other global problems such as war, terrorism, and weapon of mass destruction (Bartram, 2005). As of March 2020, there are 2.2 billion (29% of the world population) and 4.2 billion people without access to safe drinking water and sanitation respectively, while 80% of global wastewater are discharged without any form of treatment (Boinet and Giroud, 2020).

Diarrhea alone killed an average of 1.6 million people globally in 2017 (with most fatality in SSA) and remains the third leading cause of death for children under the age of 5 (Dadonaite and Ritchie, 2018). According to Watkins (2006) as quoted by Armah et al. (2018) “people who are deprived of access to improved water and sanitation services face diminished opportunities to realize their potential”. One of the Sustainable Development Goals of the United Nations under “The 2030 Agenda for Sustainable Development - 2015”, is to “ensure



availability and sustainable management of water and sanitation for all” (United Nations, 2019). In a data published by the World Bank, only 22% of rural population, on average, have access to basic sanitation as against 45% for urban dwellers as at 2017 (World Bank, 2020). Despite the fact that population figure has almost double in the region in the last 25 years, access to sanitation and clean water has significantly lagged behind, thereby leaving millions of people without access to it (Rodriguez, 2019). The occurrence of COVID-19, and most of the recommendations prescribed for managing it, has underscored the critical importance of sanitation and adequate access to water, not just for our daily needs but also in saving lives at critical times (United Nations, 2020).

Sanitation facilities enable us to safely separate human waste from human contacts, but lack of such facilities means people will be forced to defecate in the open, with high tendency that exposed human waste is transferred back into food and water sources (Rodriguez, 2019).

Most credit facilities needed for on-site water and sanitation are usually “*unconventional*” relative to a typical bank’s concept of asset financing. This is also form disincentive for banks to design products that could meet the need of many poor, rural based households desirous of acquiring water and sanitation facilities.

Africa’s Microfinance institutions offer great mix and diversity in terms of what works and what does not, including a blend of various models such as traditional group-based system, specialized lending by banks, and funded international NGOs (Calgagovski et al., 2001).

Access to water and sanitation could be “*basic*” or “*safely managed*”. As described by WHO/UNICEF Joint Monitoring Programme (JMP) (2017), sanitation is considered “*safely managed*” whether off-site or onsite if the excreta from homes are “*treated and disposed in situ*”, “*stored temporarily and then emptied and transported to treatment off-site*” or “*transported through sewers with wastewater and treated off-site*”. Some of the sanitation methods that are not considered “*improved*” include use of public or shared latrine, open pit or bucket latrine etc. (Tremolet and Muruka, 2013). For water to be considered as “*safely managed*” it must be accessible when needed on premises and free from contamination. Otherwise, it is “*basic*” if collection from improved and safe water source takes less than 30minutes (WHO/UNICEF JMP, 2017).

Financing remains a major barrier to safe water, hence, the idea of small loan was proposed as solution to increase access to affordable financing and expert resources to household water and sanitation challenges (Water.org, 2020 & WaterCredit, 2020). Microcredit for water and sanitation refers to the use of micro loans to improve access to basic and safely managed water and sanitation in rural areas as opposed to publicly funded infrastructure. Experts have suggested the use of microcredit, especially in the rural areas, to increase, as well as improve, access to water and sanitation needs of the populace.

Research Objectives

This paper aims to examine the impact of the use of microcredit (out of other possible options) in addressing the acute deficit in access to water and sanitation among rural communities in Sub-Saharan Africa. There have been various forms of interventions geared towards improving access to water and sanitation facilities, specifically in the rural areas, over the last few decades. These range from government intervention in the form rural water works to interventions by Non-Governmental Organizations (NGOs). NGOs also have different models of intervention.



Some are purely private sector led, but profit driven, while some are backed by national and/or international development agencies such as the World Bank. The use of mixed models such as microcredits necessitated the need to appraise its impact on deepening access to critical, but basic, water and sanitation infrastructure among the rural communities.

The central questions that paper sought to establish are:

- i. What are the impacts of microcredit on the rural inhabitants in terms of access to water and sanitation?
- ii. How does the cost of credit affect its access in the area?
- iii. Does the emphasis on the use of microcredit stifle the Government's investments in that area?
- iv. Are there unique factors associated with SSA and how to address them (if any)?

LITERATURE REVIEW

The Problem

Deaths from unsafe water sources account for an average of 6% in countries classified as “*low income*” in 2017 (Ritchie, 2019). There are 783 million people who are without access to clean water around the world, out of which 40% live in sub-Saharan Africa, while one out of every four open defecation also occurred there (Rodriguez, 2019).

Sanitation access can be structured into layers, with people without any form of access (i.e. open defecation) on the lowest rung of the ladder while people with flush toilet facilities will be at the apex of the classification (Morella et al., 2008). Aside the huge inequality in access to water among the developed and least developed countries, there is also a wide gap between rural and urban communities in many low-income countries in spite of improvement in global access to improved water sources from 76% in the year 1990 to 91% by the end of 2015 (Ritchie, 2019). Despite the fact that sanitation is considered as “human right”, vulnerable people (mostly girls and women) bear the brunt of lack of access, and tend to face multiple form of discriminations based on factors such as race, religion and economic status (Boinet and Giraud, 2020). As of 2014, it was estimated that 7 million people out of population of 15million in Malawi have neither access to safe drinking water nor toilets, while many schools lack access to hygiene facilities (Mweninguwe, 2014). Rural water supply clients, particularly in SSA, are characterized by limited capacity to pay, and often located in sparsely populated rural areas as opposed to their urban counterparts (Mangueze et al., 2014).

It must, however, be noted that access to improved sources of water does not automatically make the water safe for drinking but improves the chances through the use of technologies that prevent drinking water from coming into contact with impurities such as human excreta (Ritchie, 2019). Ritchie (2019) also identified cost of setting up water infrastructure in those locations as one of the factors limiting access to water in the rural areas.

Despite the fact that there is abundance of evidence on the independent effects of rural-urban environment and wealth status on access to water and sanitation services in sub-Saharan Africa,



however, our knowledge of tracking the effects is still limited in that area (Armah et al., 2018). As pointed out by Mahajan (2005), there is less evidence to suggest that microcredit has improved the economic condition of the poor like every other types of government intervention.

One veritable way of addressing the problem of access to water and sanitation in SSA, yet underutilized, is micro financing (Mengeze et al., 2014). Sub-Sahara Africa is believed to have huge microfinance market for both water supply and sanitation. In a report conducted by Mehta for Bill and Melinda Gates Foundation, it was estimated that there are 3.1 million and 4.4million potential borrowers for rural water supply and sanitation respectively in the region (Mehta, 2008).

The ability to combine financial services to low-income households and small-scale providers in the water and sanitation sectors represents a market-driven and market-friendly approach to solving credit constraints mitigating the development of water and sanitation infrastructure in Africa (Biesinger and Richter, 2008)

Some of the financial needs of rural households and community-based service providers (small municipal companies, co-operatives, water committees etc.) include payment for water and sanitation connection, rainwater harvesting facilities, investment in latrines, access to communal latrine facilities, domestic water facilities, community water tanks and pipes, borehole facilities (with pump) etc. (Batz et al., 2010). Also, some of the cost concern for households moving to improved sanitation include the type of solution, materials used, availability of skilled labour and transportation cost (Tremolet and Muruka, 2013)

It must, however, be noted with caveat that microfinancing is not the magic wand to solving infrastructure shortage and poverty in Africa. According to a research conducted by Save the Child Foundation (UK) in Bangladesh and quoted by Ahmad (2003), while microcredit is designed for the very poor and women in that country, the program most often did not benefit the poorest members of that society and there is tendency for the women to be exploited or burden further. It concluded that while poverty alleviation usually underlies the activities of most microcredit organizations, in reality, most of them treat the same objective as purely economic phenomenon (Ahmad, 2003). Since most of these microcredits are designated for specific activities other than consumption, there is always that challenge with repayment since most beneficiaries set aside part of the loan for pure consumption activity (Ahmad, 2003). Frahm (2010) posited that improvement in living standards through the use of microcredits is usually questionable due to the fact that the scheme most times do not reach the poorest of the poor. Wykstra (2019) opined that while the success of microcredit in opening up financial services to the poor across many countries is not in doubt, evidence from several studies by researchers suggested that the original intention of poverty alleviation has not been met from empirical evidence.

Addressing infrastructure deficit is a rather complex issue that requires political and economic intervention beyond microfinancing. Heymans et al. (2016), as quoted by Cooper (2020) observed that those cities that were able to provide good water services to the poor in the sub-Saharan Africa region were often those utilities providers that were able improve financial performance, generate appropriate returns to support investment and adopt pro-poor strategies to address financial and non-financial barriers to serving the poor (K4D Helpdesk Report, 2020).



Microcredit Intervention

Microfinance (most commonly used to refer to loans provided by micro finance institutions) is a form of financial services designed for low-income people by financial institutions – not-for-profits, conventional banks, savings associations etc. (Tremolet and Muruka, 2013).

According to Srinivas, the definition of what constitute “*microcredit*” differs from country to country. Some of the criteria used in classifying it include **size**, **target users**, **utilization**, and terms **and conditions** (Srinivas, no date). Despite the fact that the impact and the imperatives of addressing poverty has been widely addressed in the region, however, the use and adoption of models of microcredit has not been fully analyzed in Sub-Saharan Africa (Mondal, 2009). Microcredit is a socially innovative way of lending, and by extension of financial inclusion, that is usually applauded by many and also demonized by quite a significant number at the same time (Ashta et al., 2013). Ashta et al (2013). opined that the main assumption underlying the application of all microfinance-based program is the fact that there is tendency to shape human behaviour in such a way that improve the likelihood of obtaining the intended outcomes. Microfinance presents an equitable and sustainable way by which rural population could organize and mobilize resources for access to water and sanitation facilities (Mengeze et al., 2014). The rationale behind the use and the importance attached to microcredit is as a result of the typical importance attached to the informal economy in the Third World countries and the key role of financial capital (Waller and Woodworth, 2001). A truly pro-poor rural financial services should enable the poor and low income rural people to have access to water and sanitation facilities by way of targeted loans, payment services, insurance etc. at a lower cost, notwithstanding the fact that there is likelihood of higher operating cost to both the borrowers and the lender as a result of wide geographical dispersion among rural dwellers (Batz et al., 2010). In order to ensure this, most Microfinance institutions rely on grants by government, donor agencies, NGOs etc. to provide loans to the consumers (Mengeze et al., 2014).

Watercredit Initiative is one of the microcredit initiatives designed to facilitate access to water and sanitation financing among the rural and poor communities, with average loan size of \$364 and it is being touted as a “*smart*” and “*innovative*” model to addressing water and sanitation crisis among the rural poor (WaterCredit, 2020).

Microfinance option (mandatory savings, savings and loan, or microloan) could be used to deepen access to sanitation facilities like toilet by ensuring that the costs of putting it in place are spread over a reasonable time period (Tremolet and Muruka, 2013).

Eventually, repayment of loan for water and sanitation investment will come from cashflow being generated by the customer irrespective of the size or source such loan facility (Varley, 1995).

Temporary/Emergency Intervention

In order to address the problem of access to water and sanitation infrastructure, a couple of Africa countries provided some forms of water palliatives to their citizen, especially during the recent pandemic. Cooper provided examples from fourteen African countries like Gabonese Government that paid the water bills for the most vulnerable members through a solidarity fund, and Mauritania that agreed to pay water and electricity for poor families for two months and also to cover the costs of providing water for village inhabitants till the end of the year (K4D Helpdesk Report, 2020).



As pointed out by Niasse & Varis (2020), quoted by Cooper, since access to water utility is very low in Africa, informal settlements are usually not covered (K4D Helpdesk Report, 2020). Therefore, Government's interventions in water provision during the COVID-19 pandemic through the payment of water bills might not reach the real poorest people in reality (K4D Helpdesk Report, 2020).

EXPERIENCE FROM SOME SELECTED JURISDICTIONS

Kenya

Some of the earliest experiment with the microfinancing model started in Kenya when the World Bank, through the K-Rep Microfinance Bank, established loan financing facility to help rural and peri-urban communities to improve and expand small water pipes in the year 2007 (World Bank, 2018). The foundation for that was laid as part of the public utility reform commenced by the Kenyan Government in 2002, which culminated in the establishment of Water Sector Trust Fund (WSTF) in 2005 (WaterFund, 2020). The Water Act laid the reform foundation in the sector by separating assets ownership and operations, creation of autonomous utilities, and establishing frameworks for other county-owned Water Service Providers (WSPs) to engage in cost-reflective tariffs among other far reaching reforms (World Bank, 2018)

The WSTF is saddled with the mandate to finance water and sanitation projects in many underserved rural communities in Kenya under the programme tagged "*Rural Investment Programme*" (WaterFund, 2020).

Part of the success story from Kenya include completion of 50 water and sanitation transactions, with \$25million sourced in private equity (part of which include \$6million loan to Nairobi City Water and Sanitation Company), Embu sanitation projects, and the involvement of The US Agency for International Development's Credit by way of providing credit guarantees - with partial risk cover for local lenders - (World Bank, 2018)

It is observed that in Kenya around 30% of the rural water supply is being handled by community-based organizations despite their limited financial capability, and poor technical and managerial knowledge (Batz et al., 2010). According to Koehler (2016), all the counties in Kenya spend an average of 75% of their water expenditure on developing water service infrastructure, while budget for water usually rank 4th after health, transport and education in terms of government expenditure priority. See the table below for ranking of investment priority in water sector.

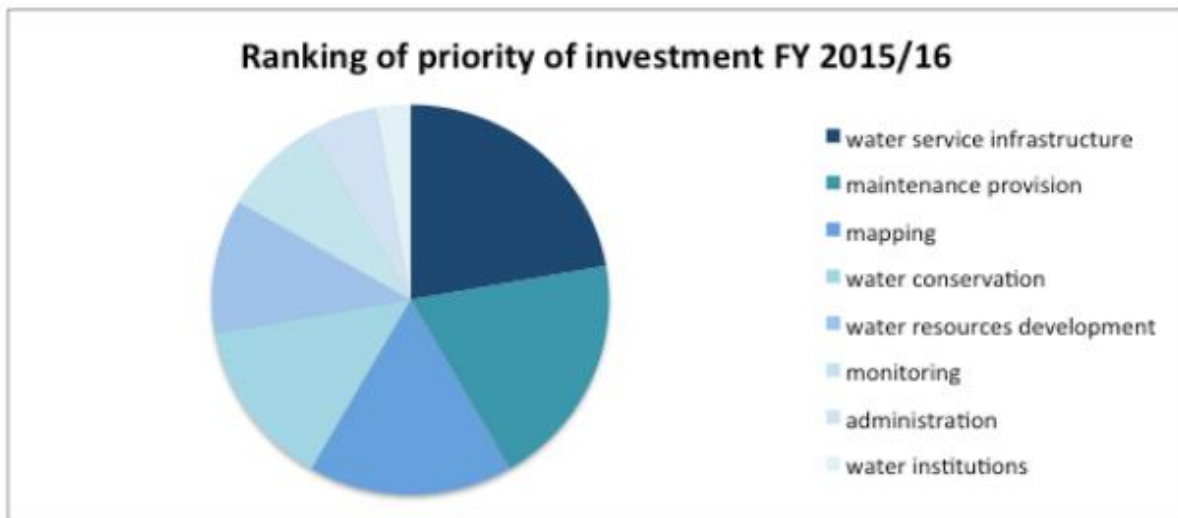


Figure 1: Ranking of Investment Priorities by the Government

Source: Koehler Johanna (2016)

Open Defecation among Kenyan households by wealth status

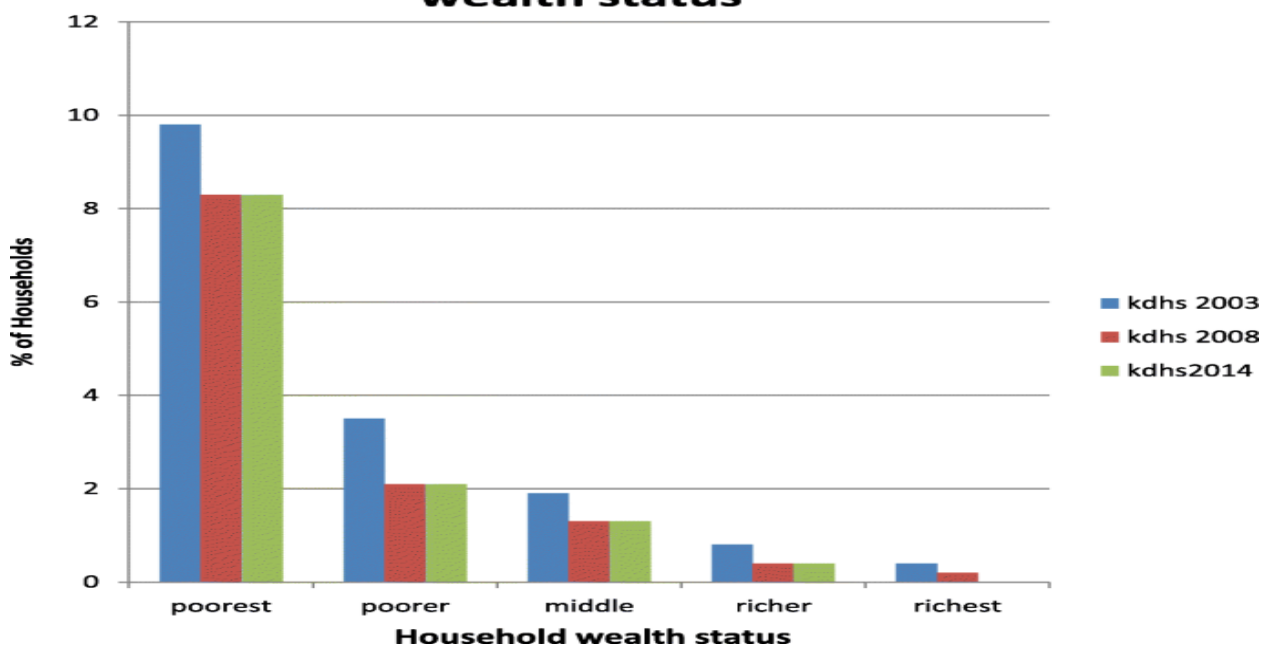


Figure 2: Open defecation among Kenyan households by wealth status

Source: Ngujuma John (2014)



Another of such intervention is Kenyan Women Finance Trust (KWFT), which grew from urban lender, donor-supported to a major rural lender, providing small loans to finance activities such as solar panels, water tanks, cooking gas equipment etc. (IFAD, no date). Other challenges in providing water to rural communities include re-organizing the counties, Community Based Organizations (CBO), and rural water utilities to move away from grant/subsidy-based system to a more market-oriented financing model in order to attract the much-needed investment into the sector, delay in project execution, accountability etc. (WaterFund, 2020)

Tanzania

Evidence from Tanzania showed that access to financial services increased tremendously between 2009 and 2013, with the bulk of the growth coming from non-bank financial institutions and credit providers (Tremolet et al., 2015). By policy design, individual households are expected to solely fund investment in sanitation infrastructure in the country (Tremolet and Muruku, 2013).

Effective 2008, the Government of Tanzania signed the eThekwini Declaration which committed the government to spending a minimum of 5% of GDP on sanitation and hygiene, in addition to other institutional reforms (Tremolet et al., 2015)

Another emerging trend in the microlending field is the emergence of “Village Community Banks”. However, the use of microfinance for sanitation is still very low in real term due to factors such as poor products design, inadequate access to loanable funds and poor technical knowledge about the sector (Tremolet et al, 2015).

FINDINGS

There are quite a lot of interesting, and some contrasting, findings about the status of water and sanitation in the region despite multiple of interventions (including the use of microcredit). Proponents of microcredits opined that due to the peculiar nature of rural areas (coupled with other limiting factors in SSA), its use will eliminate some of the barriers to conventional financing models and improve the standard of living of the people. However, criticisms are already building up on its use from around the developing regions. There are counter arguments that its use has further worsen the divide in inequality rather than address the very problem it was meant to solve. It has been pointed out that it has widen the gender inequality gap across many societies, while also leading to “debt trap” in others. According to Ahmad (2003), one of the issues with microcredit is the disconnect in policy formulation whereby policies are undertaken by the senior managers to the exclusion of the field workers who actually interact with the intended audience.

Notwithstanding the great expectation that heralded the introduction of microcredit into the African continent, the model has performed miserably to address the social and economic problems it was designed for (Bateman, 2019). Another factor is the classification of water as “*merit*” good by most government in the SSA, thereby necessitating the application of need-based strategy, which more often than not has led to mounting government debt without equivalent value in quantity and quality supplied (Varley, 1995).



However, there has been some measures of success in the application of microcredit (in terms of recovery rate, number of clients served and loan size) across some countries, especially from specialized microfinance institutions with more innovative products to clients who are either considered not creditworthy by the conventional banks or would have been otherwise excluded by the operation of factors such as capacity, collateral, loan size etc (Varley, 1995 & Watercredit, 2020). The initial evaluation of projects such as Kenya Women Finance Trust undertaken by IFAD and BSF during 2001- 2002 showed tremendous improvement in the economic and social conditions of households being served by the KWFT (IFAD, no date).

Although, there has been quite significant progress in improving access to water in the region, however, it largely lags behind the need of the people, and it is quite unlikely for the region to meet the Sustainable Development Goals (SDGs) by 2030 (Boinet and Giroud, 2020). It has also been observed that improvement in water and sanitation (and by extension hygiene) have positive impacts on health, improved household income, contribution to national budget, increase school attendance (especially for girls) and drastic reduction in losses of time (Bartram et al., 2005).

In another study, Mahajan (2005) mentioned that some of the deadly assumptions made by proponents of microcredit in addressing the challenges of the poor people was to assume that credit is the main financial service needed by the poor or that access to credit automatically translate into successful micro-enterprises. There are other needs by the poor people, such as insurance, in order to shield the vulnerability of their means of livelihood (Mahajan, 2005).

More people in the rural areas of Kenya (70%) are dissatisfied with water provision when compared with the urban counterparts (53%) (Koehler, 2016). Despite the fact that fair tariff in the rural areas is set at a higher figure compared to the urban counterparts, more people in the rural communities still prefer government provision of water services compared to either pure private sector or PPP-led option (Koehler, 2016). Government intervention in microcredit are usually less effective due to overlapping responsibilities, but poor coordination among ministries/agencies, vis-à-vis informal financial institutions, Rotating Saving Agencies and credit unions performance on same (Varley, 1995). For example, in Tanzania, there is low demand for sanitation services (both in urban and rural areas) either because the activities are usually undertaken by households themselves and mostly done onsite, or as a result of inadequate access to sanitation facility like sewerage (Tremolet and Muruka, 2013). The focus of microcredit should be driven by access to the facility by the poor segment and cost recovery (with reasonable margin) by the lender, rather than factors like affordability (Varley, 1995).

The prospect for local financing of water and sanitation, especially for the extremely poor households, will surely hit brick-wall if targeted people have no financial ability to repay the loan (Biesinger and Richter, 2008). Part of the challenges limiting access to finance by rural population include political interference, loan products mis-matched, limitations in low-potential rural areas, information gap, poor financial management skill among others (Batz et al.). The use of microfinance for sanitation, though faced with many challenges, could still be an effective tool in addressing the problem of access in the developing countries (Tremolet and Mansour, 2015).

It will continue to remain a viable public policy option, especially in East African countries like Tanzania, where governments policy places the delivery of sanitation resources at the doorsteps of households (Mansour and Tremolet, 2014)



Microcredit has not performed as the driver for the much-needed development and poverty reduction, rather, it turned out to be an “*anti-developmental*” intervention in many African countries (Bateman, 2019). Concessionary loan fund and/or subsidized interest rates have the tendency to create distortions in the system like over-demand, corruption, misuse and disincentives for investment from investors who are likely faced with more profitable (but less risky) alternative investment for their scarce resources (Varley, 1995). There is need for the country to unlock the potentials of private financing since it is clear that Government alone cannot meet the estimated sum of \$14billion that would be needed over the next 15 years to keep up with the water need in the face of growing population, industrialization and climate change (World Bank, 2018).

It must, however, be noted that demand for water and sanitation should not be construed in the same manner as demand for other utilities like housing or even transportation. For example, a lender could imply economic returns/income to a borrower in an assessment to decide whether to offer a credit facility to a client to build a house or acquire a truck. It becomes more difficult, and blurry too, if the same customer is asking for the similar facility, say, to build a pit latrine or a septic tank for use. The assessment would be done on other factors that may not necessarily fit to the conventional credit assessment and risk framework.

CONCLUSION AND RECOMMENDATIONS

Although, the use of microfinance funding models to improve the delivery and access to water and sanitation in SSA looks to be a promising model, however, it will not deliver the much-needed results until certain things are put in place.

First, government must provide the enabling environment for private sector to thrive. This can be done by way of constitutional amendments, especially in countries where public utilities are classified as “*government*” assets irrespective of who funded it. This will give legal backings to who-be investors and expand the investing space for more profit-minded investors to come in.

Secondly, government and banking regulators should simplify the regulatory framework that will disentangle the microfinance from the conventional banks. The framework should take into account the nature of operating environment being faced by the operators without putting unnecessary administrative bottleneck on their path. With this, it will be easier to formalize the registration of many informal operators, thereby improving public confidence in their operations. It will also serve as a platform for the government to offer technical training and assistance to the operators, especially in the areas of product development and risk management. Many of the microlending firms lack basic technical and managerial skills to navigate the peculiar business environment.

Thirdly, more should be done by way of public enlightenment to stimulate demand for water and sanitation facilities. There would be more activities in the business space if more people within each rural cluster are demanding for the services. This will encourage investors, and even conventional banks, to set up more rural microlending platforms in return (*ceteris paribus*). The issue of scaling has been one of the challenges inhibiting the establishment of formal microfinance organization in many of the rural and peri-urban areas.



Lastly, research in this area is still very few. Government and other international development agencies should encourage and also fund research in this area with a view to understanding the challenges and effective ways of addressing them. Although, it is an ongoing process, however, much is still needed to be done, especially as it affects SSA countries. There are quite many significant studies on other countries such as India, Bangladesh and Vietnam. This has enriched our discussion on them and also enabled timely intervention from relevant agencies.

In essence, government intervention alone, although very crucial, will not be able address the problem of access to water and sanitation facilities. Many SSA countries are facing very tight fiscal space, with little prospect for external intervention. In the face of many conflicting but pressing needs, water and sanitation intervention are usually the first to be sacrificed to free up the fiscal space for other activities considered to be more pressing by the government. A lot more could be achieved with the use of this model, considering the huge gaps to meet in the light of SDG target by 2030. There is need for more innovation by both the lender and the borrowers, actively supported by the government and other agencies, in order to unlock the huge market and economic potential of the application of microcredit to fund water and sanitation.

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