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Persistent Water Shortage in Kigali City: Who are the Most Affected?

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Abstract

Kigali, the capital city of Rwanda has been demographically growing and is expected to double from 1.13 million of population in 2012 to two million by 2020. Both population growth and city surface expansion have created a burden that the existing basic infrastructures can't sustain. The question is how such a huge burden is shared between those who are better-off economically and the poorer ones. In this paper, the issue was examined in the sense to investigate whether the shortage makes water expensive to the extent that poorer families get hard to afford it? Findings have shown that the poorer families are the most affected since they have limited financial means to afford a high cost to cover such a basic daily need. Most of them live in old suburbs whereby water pipes' network does not ease water flow-in because they are old or damaged. They are also far from putting in place support equipments such as tanks to store water when it comes in the taps. Beyond all those cases, water becomes a very expensive product which they can't afford given the minimum wages of a Rwandan laborer in Kigali.

Keywords: Environmental injustice; Water shortage; Poorer families; Kigali; Rwanda

Introduction

Kigali, the capital city of Rwanda has been demographically growing and is expected to double from 1.13 million of population in 2012 to two million by 2020[1]. Both population growth and city surface expansion have created a burden that the existing basic infrastructures can't sustain. Among the infrastructures that are in limitations, sanitation and water supply is on the forefront of challenging constraints that this newly growing city is undergoing. Water needs in Kigali city are only met at 50% or less especially in dry season in a city with urbanization growth rate of more than 9% annually [1].

Three causes have been presumed to be at the origin of this problem. First, the new expansion of the city does not have in parallel a clear viability plan of water supply, and the topography itself makes those who live in valleys at least get the little water compared to those living on the top of hills. Secondly, the existing water network is decades old, if not damaged. Thirdly, water flow in Nyabarongo and Nyabugogo rivers or other small rivers has diminished due to degradation of environmental conditions including deforestation and soil erosion.

However, the question is how such a huge burden is shared between those who are a bit better-off economically and the poorer ones. The issue can be examined in two sides: The way water bills are calculated has raised an issue of policy formulation of not considering the difference between the rich and the poorer (progressive billing). Secondly, the shortage itself makes water expensive to the extent that poorer families can hardly afford it.

In this paper, the research question is the following: Are those presumed causes of water shortage in Kigali city valid? Who are the most affected with the persistent shortage of water in Kigali?

Methodology

This paper used three sources of data. It is by document/report/researches and policies' review that I examined the assumption behind the topography issue and the environmental aspect claimed to be at the origin of this shortage. Through interview with local population especially those in poorer suburbs; I collected information regarding the water shortage and its implications on household spending trend. With the review of supplying company system known as WASAC (Water and Sanitation Supply), I also reviewed and analyzed the billing techniques and local reports on water shortage issue in newspapers. My personal observation was a way to triangulate the above two methods in order to make my own argument.

Note that this investigation was conducted right in summer when dry season in on pick. Therefore, observation was based on facts that there were lines and lines of people who were at various natural water sources in Kigali town.

Literature Review

In Rwanda like in other neighbor countries, environmental degradation in more specific language deforestation and soil erosion has caused water scarcity that the country is dramatically facing. The country is made by a population whose daily economic activity is at 90% traditional agriculture. Though lots of efforts were put in action by making terraces in order to reduce the magnitude of soil erosion, there is still a remarkable and serious issue of rivers drying. Other strategies to protect forests among others the alternative household energy replacing cooking firewood have been tried and promoted. Erosion

[1] National Institute of Statistics of Rwanda, Population size, structure and distribution, Thematic Report 2012

causes changes in soil carbon dynamics and non-point source water pollution are important environmental impacts [2].

A water-stress profile is presented on the number of individuals jointly depending on each flow unit of water available to the country from the water cycle. In a medium-term-perspective, water will not be readily available to support improved life quality for growing African populations. There is an urgent need for increased awareness among African leaders so that adequate strategies can be made for development under conditions of severe water scarcity [3].

There are elements that make the reality to be contradictory. On one hand, the region is known as great lakes region. In other words, water is plenty. There should be no water shortage given the number of rivers and lakes that are in the region. According to Arnell [4], results have suggested that average annual runoff will increase in high latitudes, in African equatorial areas which Rwanda is located few degrees in the south. On the other hand, it requires big investment in knowledge and equipments to turn up the water from the lakes into clean water with consideration of the distance that it would take to reach cities like Kigali.

One of the environmental injustice facets consists of when all people's activities were involved in damaging environment whereby in most cases those who are better-off are the one causing lots of damage in the pursuit of their personal interests. However, when it comes to sharing the burden that it has brought, the weaker is the one proportionally carrying a heavy portion of it [5]. It should be taken into consideration in the process of planning, implementation and monitoring of water supply and management initiatives to insure the intended objective were attained.

In the long run, this issue requires broad and strategic thinking for a sustainable solution in terms of source of clean water system; an important driver of public health and life in general. In short run, there is a critical question of how this issue affects vulnerable communities (poorer family). There is a biased assumption like what the current water shortage persistent in Kigali city is a general concern for all the population living in the city without distinguishing the extent by which it affects different social and economic classes of the mentioned population.

Results

Government of Rwanda together with its water and sanitation stakeholders has set priorities to achieve in terms of urban water supply in line with Economic Development and Poverty Reduction Strategy (EDPRS) [6] by the government by 2012 and the Vision 2020[2] as an umbrella under which all the programs and policies are supposed to contribute to. Moreover, aligning programs with Millennium Development Goals (MDGs) was a prime goal which governments including Rwanda government have been striving to achieve.

Here were some of the agreed actions to implement in order to tackle the very issue of water shortage in urban area, especially in Kigali. Firstly, undertaking reform and revise tariff to improve operational performance and ensure financial viability of urban water services under the then established Energy, Water, and Sanitation Authority (EWSA) lately transformed into Water and Sanitation Corporation (WASAC). Secondly, update water supply master plan for Kigali city by taking into account urban growth and projected settlement patterns. Thirdly, promote investment in urban water supply to expand production capacity, and expand and rationalize distribution network given the seriousness of the issue of water shortage. Finally, develop pro-poor programs to serve low-income households including improved management of public kiosks and social connections.

Government has been giving promises to overcome such persistent challenge of spreading water in Kigali. By implementing this strategy, Rwanda government was expecting to achieve 85% water supply coverage by 2015. "We have a number of projects to address this shortage. One of the projects is Nzove II to add 25, 000 cubic metres. Work is expected to be completed by the end of November and it will be full productive by the end of December 2015," said WASAC Director General.

In this regard, much effort was provided in dealing with water shortage issue, in particular the sanitation part which comes in as a hindrance to public health once it is not catered for. However, there are still lots of challenges in terms of reaching the water supply targeted to cover up Kigali water needs and the pro-poor programs that were supposed to facilitate vulnerable families to improve their sanitation.

Generally, water system in Rwanda is facing a challenge of scarcity, however all classes don't face the same challenge at the same extent. If you compare people living low-income neighborhoods to the middle or high-income ones, there is a likelihood to affirm that the issue is very serious in the former than it is in the latter. "Our taps have been dry. We have been buying water for the past three months. Water comes once in one month and only at night. But we ask ourselves where those who sell it to us get it from" says a resident of Kimironko, a low income neighborhood.

Contrary to what poorer neighborhoods have been undergoing, the extent is quite lower in middle and high-income ones. One of the evidences is the tweet from a high-income neighborhood resident: *@wasac_rwanda why it is in the past 5 days there has been no water in our taps in the Gikondo (Rujugiro Estate) area? What's going on pliz?* Note that the two above messages were announced in the same period and they clearly show how the issue is extremely serious in low-income neighborhoods than it is in high-income neighborhoods.

When it comes to looking at the level of income in comparison with the newly built neighborhood, one would easily confirm that the newly built neighborhoods tend to at least have water quite permanently, while most of the old neighborhoods face persistently the issue of water scarcity. Some blame WASAC for cutting off less affluent suburbs in favor of high-income neighborhoods such as Nyarutarama, Kagugu and Gaculiro known as newly built neighborhood where high personalities and rich people live. Moreover, in parts of Kigali such as Gikondo, Nyamirambo, Remera, Kanombe and Kimironko known as old suburbs where low-income households live, water has become a scarce resource to the point they have become familiar with the situation.

The other question that I asked myself was to know how the two factors correlate one to another. In order to get ample explanation, I went to WASAC office to have an answer from the source. A WASAC officer, who couldn't explain to me confidently, told me that the reason why newly built neighborhoods have water most of the time is because they have new water infrastructure and water taps' network can easily allow water to flow in.

[2] Rwanda government (2012), Vision 2020, revised vision.

I also couldn't feel satisfactorily answered. I decide to conduct an informal conversation to another WASAC technician by asking a provocative and quite leading question of how do they deal with the issue of water shortage in different Kigali suburbs naming each one of them depending on how affluent or not are some of the personalities living in. The informally got answer was: "before releasing water to different suburbs you use your common sense in a way you give a priority to some neighborhoods because some people who live there can easily call to WASAC office and ask questions regarding why they are not receiving water"[3].

During the course of collecting information, I also jumped to the question of the topography of some suburbs of Kigali with the intention to know whether it has been a cause of not having water. By ignoring the factor of income level of the neighborhood and the time it was built (either new or old), I came to confirm that topography is a very important factor that definitely facilitate water flow in some neighborhoods than in others.

In some neighborhoods, they frequently get water due to the fact that it does require high water pressure in order to reach their taps regardless of other factors. In Gatsata, a low-income suburb, they quite permanently have water in their taps, even though the neighborhood is less influential and the number of households that have taps in their compound is relatively low compared to other neighborhoods.

Coming to the cost of water when there is water and/or when there isn't, water in Kigali is as scarce as any other expensive product. Those households who can afford to buy tanks for conservation are facilitated when occasionally water comes in for they can easily contain and store it and use it for more days. Sometimes it may come night time when people sleep. In this case, tanks contain it for later usage.

In addition, the tariff is made by cubic meter (m3) and claimed to have been increased since 2015. The problem here is not only the cost of one cubic meter, but also how the cost is distributed between the poorer and the rich. Note that the level of consumption is not the same between low-income families and high-income families due to high level of sanitation for the latter category which requires big quantity of water.

However, the best way to at least share both sides of the balance sheet of water (assets and liabilities), progressive methods of billing should be applied. In this case, the one who use more water should proportionally pay more and cover at least a part of the cost of those who consume a small amount of water. "We were informed by WASAC that the water tariffs have gone up since September 1 2015, but we don't have water for more than three weeks now. Why increase the price of something which you are not even supplying?" asked a resident of Gikondo.

Moreover, the worst situation comes when there is no water. It does imply water to be a product of commercialization whereby those who managed to store it sell it to others at higher cost. A resident from Kanombe, a poorer neighborhood told me that they now buy a 20-litre jerrycan of water at Rwf 500 equivalent to 0.65$ USD Known as the highest price in Kigali so far, while in other parts of the city a jerrycan goes for Rwf300 equivalent to 0.4$ USD. He continues telling me that compared to what he earns when he gets job, use of water for different sanitation purposes has to be minimized and consequences will lead to a degradation of health.

There are also places where water is collected from natural source; out of WASAC water taps' network. It seems to be a monopoly source of water with so many people demanding it. Not only the cost has to be high, but also the time that you have to wait to collect water and the long distance you have to walk. An eight year old boy of Rugarama Cell, Nyamirambo sector walks one kilometer for water collection from a drainage system in Rwarutabura Village. It had become routine after water taps in his neighborhood dried up since seven months ago [7].

The use of water as a basic need in everyone's life makes the extent of this issue very serious. This product is needed by whoever has life. However the relativity of its usage between the poorer and the rich is so questionable. WASAC has been promising to sort out the issue but in vain due to other constraints. In the strategic plan, a pro-poor water program for low-income households was taken into consideration. But in practice little was achieved, although WASAC says that it is doing everything in its capacity to address the shortfall while implementing long-term projects to increase water supply in Kigali at least over 2017.

As it has been said by experts from Water for People a Kigali-based NGO, there is a growing need to identify alternative sources of water. They warn that Rwanda risks extreme water shortages if the major urban areas, mainly Kigali city, go ahead with plans to tap water from inland lakes bordering them [8]". This emphasizes the alternative of looking for other options such as digging underground water sources in different places that would serve as pro-poor water investment affordable by low-income families.

The issue is within two dimensions. The first dimension is to manage the available water resources in a way it benefits also to poor people. As the causes of environmental degradation come from all people's activities, so the consequences should also be equitably shared. I would suggest to WASAC to begin systematically providing water to different neighborhoods in a scheduled manner so that the real issue can be known by everyone. It shouldn't be such an extreme situation for someone from high-income neighborhood when water goes off for two days while for the one from low-income suburb seems to be a favor when water comes after a week.

WASAC should advocate for and promote tank system that is affordable for poorer families so that it can disseminate water release program. It is so meaningless to post water release program on WASAC twitter account while you know that only 5% of Rwandan population are users of the social media. Using radio programs and other local platforms such as local leaders is more effective.

Secondly, looking for sustainable solution that caters vulnerable people should be the ideal point in planning and in actions. Planning sometimes seems to consider everyone under the principle of equality and equity. But when it comes to actions, there should be mechanisms that play a role of safeguards to overlook everyone's interest.

Conclusion

Considering that Kigali city is tremendously growing (in surface and in number of population) in a trend that is beyond the expected one and the needs are now beyond the actual capacity of Water and Sanitation Authority, poorer families are the most affected since they have limited financial means to afford such a high cost to cover such a basic need. Most of them live in old suburbs whereby water pipes'

[3] Unstructured interview with WASAC technician.

network does not ease water flow-in because they are old or damaged. They are also far from putting in place support equipment such as tanks to store water when it comes in the taps.

Beyond all those cases, water becomes a very expensive product which they can't afford given the informally estimated minimum wages of a Rwandan casual worker in Kigali. Whatever he earns per day, would cost water to wash his body and clean his clothes and the remaining basic needs are uncovered. In this case some prefer to not take care of their sanitation; which may lead to health problem in the long-run.

As the problem of water shortage seems to be rooted in all the population's activities due the fact that the whole environmental degradation is caused by economic activities that are beneficial to everyone, so it should be the same when it comes to the proportionality of how much each and every one should carry the burden caused by such damage. Water billing system should be set in a way the richest pay progressively more than the poorest. Therefore the application of human rights based approach will be considered in managing basic resources such as water.

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