

## Chief Editor

Dr. A. Singaraj, M.A., M.Phil., Ph.D.

## Editor

Mrs.M.Josephin Immaculate Ruba

## EDITORIAL ADVISORS

1. Prof. Dr.Said I.Shalaby, MD,Ph.D.  
Professor & Vice President  
Tropical Medicine,  
Hepatology & Gastroenterology, NRC,  
Academy of Scientific Research and Technology,  
Cairo, Egypt.
2. Dr. Mussie T. Tessema,  
Associate Professor,  
Department of Business Administration,  
Winona State University, MN,  
United States of America,
3. Dr. Mengsteab Tesfayohannes,  
Associate Professor,  
Department of Management,  
Sigmund Weis School of Business,  
Susquehanna University,  
Selinsgrove, PENN,  
United States of America,
4. Dr. Ahmed Sebihi  
Associate Professor  
Islamic Culture and Social Sciences (ICSS),  
Department of General Education (DGE),  
Gulf Medical University (GMU),  
UAE.
5. Dr. Anne Maduka,  
Assistant Professor,  
Department of Economics,  
Anambra State University,  
Igbariam Campus,  
Nigeria.
6. Dr. D.K. Awasthi, M.Sc., Ph.D.  
Associate Professor  
Department of Chemistry,  
Sri J.N.P.G. College,  
Charbagh, Lucknow,  
Uttar Pradesh. India
7. Dr. Tirtharaj Bhoi, M.A, Ph.D,  
Assistant Professor,  
School of Social Science,  
University of Jammu,  
Jammu, Jammu & Kashmir, India.
8. Dr. Pradeep Kumar Choudhury,  
Assistant Professor,  
Institute for Studies in Industrial Development,  
An ICSSR Research Institute,  
New Delhi- 110070, India.
9. Dr. Gyanendra Awasthi, M.Sc., Ph.D., NET  
Associate Professor & HOD  
Department of Biochemistry,  
Dolphin (PG) Institute of Biomedical & Natural  
Sciences,  
Dehradun, Uttarakhand, India.
10. Dr. C. Satapathy,  
Director,  
Amity Humanity Foundation,  
Amity Business School, Bhubaneswar,  
Orissa, India.



ISSN (Online): 2455-7838

SJIF Impact Factor (2015): 3.476

EPRA International Journal of

# Research & Development (IJRD)

Volume:1, Issue:4, June 2016



Published By :  
EPRA Journals

CC License





SJIF Impact Factor: 3.476

ISSN: 2455-7838(Online)

EPRA International Journal of Research and Development (IJRD)

Volume: 1 | Issue: 4 | June | 2016

# SOCIO ECONOMIC EFFECTS OF WATER SUPPLY IN GITHURAI WARD, KIAMBU COUNTY, KENYA

Wanjohi Perpetua Ngima<sup>1</sup>

<sup>1</sup>Department of Environmental Science, Kenyatta University, Nairobi, Kenya.

Geoffrey Macharia<sup>2</sup>

<sup>2</sup>Department of Environmental Science, Kenyatta University, Nairobi, Kenya.

## ABSTRACT

*Water is a basic human right as it is fundamental to life. It is a main factor for socio-economic growth and development at all levels, ranging from the national level to the individual. However, it has become very scarce and this has resulted to certain socio- economic effects in Githurai ward. This paper examines the socio- economic effects of water supply in Githurai ward, Kiambu County, Kenya. Simple random sampling was used to select the households and water vendors while purposive sampling was used to select the water officers and the chiefs who were sources of information. Questionnaires were used as instruments for collecting data from the households and water vendors, while interview schedules were administered to the water officers and chiefs to get more information on socio- economic effects of water supply in Githurai ward. There were several socio- economic effects of water supply in Githurai ward. There was the water borne diseases, water related conflicts, time spent to collect water and poor sanitation.*

**KEYWORDS;** *Socio- economic, water, supply, cost, distance, health and conflicts*

## 1.0 INTRODUCTION

Water is a basic human right as it is fundamental to life. It is a key asset for socio-economic growth and development at all levels, ranging from the national level to the individual. Access to water and sanitation is a main factor in improving health, economic productivity and social well being as both social and economic activities rely heavily on the quantity and quality of water. Access to water is essential for poverty alleviation.

The main challenges of the water sector in Africa remains the low development and use of the water resources potential due to the deficiency of water infrastructure, the deficient agricultural water

management, the missing water services and institutional platforms, the inadequate access to markets, the lack of financing and capacity of institutions, and the weak government commitment. These issues are harmful to a sector that is otherwise in a great position to reduce exposure to food crisis and to deliver poor growth among urban and rural households. The economic case for the development of water resources as an instrument for economic growth can easily be made. Agriculture, industry, and hydropower depend on water and can drive a country's economy upward in a significant way.

Rapid urbanization and unplanned growth have caused great pressure on the capacity of towns

to provide adequate basic services for their growing populations. Local authorities, overwhelmed by the rapid and unplanned development of towns, lack the capacity or resources to address the widening demand-supply gap [14]. Most urban towns have inadequate water supply, sanitation, solid and liquid waste. Access to such facilities has a direct impact on people's well-being (health, nutritional condition, education) and an indirect impact on their income generation.

For instance, a person with good education and in good health is likely to perform better than a person lacking these qualities. Also, the production capacity of a small business can improve considerably when water is available throughout the year. Among the challenges facing sub-Saharan Africa, Kenya included, provision of safe water supply and adequate sanitation are of the highest priority [13]. Even where there is water, the quality is often poor, leading to exposure to waterborne diseases. There are several socio economic effects associated with water supply globally.

Costs of buying water; Poor communities without access to water supplies (piped water, boreholes and shallow wells), particularly in urban areas, often have no option but to spend money they can hardly afford buying water from expensive water vendors who at times get their water from unaccountable sources.

Conflicts; linked to the quantity of water is also a problem globally. Conflicts due to water is grouped into; conflict that may arise between sectors or users, like municipality verses industries, connected verses unconnected people, urban verses peri-urban, present and future generations);

Conflicts linked to the quality (unsafe water reduces the availability of potable water and causes water borne diseases. Poor people are the most affected as they do not have any means to treat water. It is too expensive and domestic users result to complains to the municipality and Conflicts linked to water access (legal -water rights-, economical -price- or physical barriers prevent access to water and their unfair settlements generate conflicts [3].

The access to water impacts the psyche of a community in several ways. In communities where access is limited and people (water collectors) must walk long distances to fetch water, there is increased tension from the safe arrival of the female family member that fetches the water. This is because some water points are in disserted areas that are unsecure. There is also reduced self-respect since most of the attire they put on as they fetch water gets dirty [12].

Despite the many negative impacts, there is also the positive aspect in it, such as; employment opportunities for personnel employed at the water distribution points. They earn a living out of that; also the water vendors who deliver water to consumers on payment hence a source of livelihood; water kiosk

owners, they distribute water to consumers on payment thus make a living out of that [10].

Water supply in Githurai ward is intermittent and inadequate. This has negatively affected the socio- economic development in the area.

## **2. 0 DATA COLLECTION MATERIALS AND METHODS**

### **2.1 Area of study:-**

Githurai ward is located 12 km from Nairobi town and 5km from Ruiru town. It's the southern ward of Ruiru municipality, Kiambu County, bordering Nairobi city and located west of Thika road. It borders Nairobi city to the South and Kahawa Sukari ward to the North. It is located at the co-ordinates 1<sup>0</sup>, 12' 31" S 36<sup>0</sup>, 55'14"E. It is connected by both rail and road. The average annual rainfall in Githurai and its environs ranges between 900 mm and 1,250 mm per annum. The mean annual rainfall in Nairobi and Kiambu counties ranges between 800 mm and 1,300 mm per annum. It is made up of two sections; Kiuu and Mwioko. It has a population of 58,185 people [6].

### **2.2 Sampling and sampling procedure:-**

The sample size given that the target population was 58,185 at a confidence interval of 95% and the error margin of 5% the target population was 384 respondents [1]. There were 252 households, 120 water vendors, 2 chiefs and 10 water officers summing up to 384 respondents.

### **2.3 Data collection instruments:-**

The data collection instruments that were used include:

Questionnaires; were used to collect quantitative data and were randomly administered to randomly selected households that served as a representative of the Githurai community so as to ensure correct responses and maximum return rates.

Observation; The researcher observed the main sources of water in the area, their location (accessibility), reliability and their efficiency.

Interview schedules; interviews were conducted on individual owners of water kiosks and vendors, representatives from relevant departments in respect to water (water officers). The aim of the selection was to create a wide view of the subject [8].

## **3.0 RESULTS AND DISCUSSION**

The main objective of the study was to evaluate socio-economic effects of intermittent water supply at Githurai ward. There were several socio-economic effects of intermittent water supply in Githurai ward.

### **3.1 Water borne diseases:-**

Due to the intermittent water supply in Githurai ward, the amount of water available is little and has resulted to water borne diseases. 29% of the respondents had experienced dysentery, 3% cholera and 22% diarrhoea. Due to reduced amounts of

drinking water, some households were forced to take chances, buy and consume water which they were not sure of the sources and at times is not fit for consumption leading to the mentioned water borne diseases (diarrhoea, dysentery and cholera). This has impacted negatively to the health of some members of the population resulting to low output in terms of labour. They may not perform their duties as expected hence reduced output in production which negatively affects the economy and development of Githurai Ward. The water borne diseases require treatment which requires finances; those finances would have been used in other activities that would generate income.

### 3.2 Water related conflicts in Githurai ward:-

The intermittent water supply has resulted to water related conflicts. The conflicts are triggered by several factors that are based on the reduced water supply. 62.1% of the households attributed the conflicts to water shortage at source points, 27.2% said the conflicts were due to overcrowding at the water collection points and stealing of water containers. The stealing of the containers causes hatred among the households. 9.9% said it was due to prolonged queuing leading to some members being impatient resulting to people skipping the queue. This results to nasty exchange of words/ conflicts. 0.8% attributed it to few water collection points thus pushing to access the resource. This automatically results to friction among the households. The study sought to find out if there was any association between water related conflicts and the gender.

**Figure 1: Relationship between water conflicts and the gender**

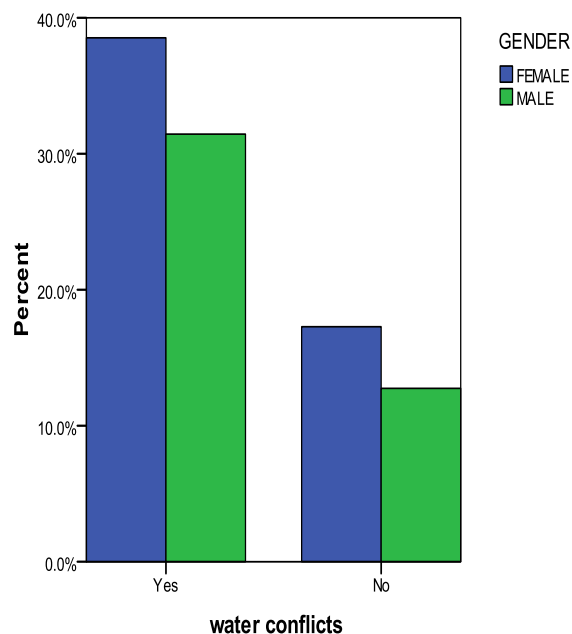


Figure 1 above indicates the association of gender and water conflicts in the area. It shows there was no significant association between water conflicts and the gender, since the chi-square  $X^2 = 0.186$ ,  $P=0.726$  at 1 degrees of freedom. There was no relationship between the water conflicts and the gender. This is because the male and female response on the conflicts related to water differed greatly due to their individual chores in water drawal and management.

### 3.3 Time spent when queuing for water in the area:-

The reduced water sources in the area have resulted to limited water collection points. This means

that the households have to travel, some for long distances to access the water. They spend much time to get to the water collection points or where they buy the water. More time is spent in the long queues of water especially the few hours of the day(s) when there is running water at the pipes. This has negatively affected the economy of the area since much of that time would have been spent in other development activities. The study sought to find out if there was any association between queuing at the water points and the gender.

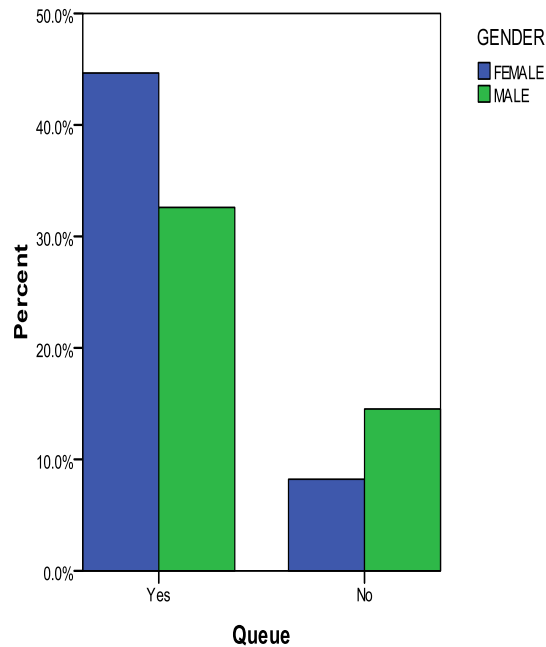
**Figure 2: Relationship between queuing at the water points and the gender**

Figure 2 indicates there was highly significant association between the queuing at the water source and the gender, with 53.8 % of female having to queue as compared to the males (46.2%). The chi-square was used to show the association was  $X^2 = 18.235$ ,  $P = <0.001$  at 2 degrees of freedom. The females who have to queue are higher compared to the males since the females are the most affected gender in water collection in most households.

### 3.4 Poor sanitation:-

The intermittent supply of water has resulted to poor sanitation in most homesteads in Githurai ward since water is essential for cleaning and washing away any garbage and drainage systems. 96% of the respondents said there was poor sanitation and low standards of cleanliness. Water shortage has a major effect on the sanitation of an area especially in the urban according to [7]. Most of the waste water drainage systems are blocked by solid waste that requires lots of water to push down the waste. The communal toilets require a lot of water to flush down the waste but due to erratic water supply the water is not adequate enough to maintain the right standards of hygiene. Communal washing sinks require a lot of water to be clean since the water in Githurai ward is very erratic, it is not always available for cleaning and the respondents depend mostly on re-used water. Water shortage has a major effect on the sanitation of an area especially in the urban according to [7].

## 4.0 CONCLUSION

The primary objective of the study was to investigate the socio-economic effects of water supply.

The study established there were cases of water borne diseases due to reduced availability of water. This has affected the health of the individuals and a lot of finances used on the treatment would have been used for development. From the study, there were also conflicts related to water. This has socially affected the members of the community. The study established that a lot of time was spent to collect water from the sources in terms of distance travelled and queuing to fetch the water. This has negatively affected the development in the area since time meant for other activities is spent to acquire water. In the study, females are the most affected members of the community in water collection activities since they are involved in home chores. This negatively affects them since they have few chances for decision making and involvement in other development activities. The cost of the water for the members of the community who depend much on water vendors and kiosks was high. They spend lots of money to get adequate water depending on the number of people per household.

## 5.0 RECOMMENDATIONS

- i. The members of the community should come up with other ideas to supplement the current water sources and make communal contribution to support that e.g. drilling more boreholes, wells and any water conservation techniques that

may be beneficial. This will greatly curb most of the effects resulting from reduced water supply.

- ii. The households should embrace maximum use of roof water harvesting in most buildings so as to collect a lot of water during the rainy seasons. This will save them a lot of money since the rate of buying water will be minimal since the water harvested is available.

### Acknowledgments:-

The author has great and special gratitude to God for giving the opportunity, ability, patience and strength to undertake the research study. Special thanks to my immediate family members; parents for funding the work and moral support at the University. Gratitude to Kenyatta University for the valuable Institutional support. I am particularly grateful to my supervisor Dr. G. Macharia and Daniel Mvengei for remarkable good will and tirelessly responding to the work.

### REFERENCES

1. Fisher, R. A., Corbet, A. S., and Williams, C. B. 2008. *The relation between the number of species and the number of individuals in a random sample of an animal population.* *Journal of Animal Ecology*, 12: 42\58. 763, 764
2. Intergovernmental Panel on Climate Change, 2001: *"Impacts, Adaptation and Vulnerability."*
3. Janakarajan, S., 2002. *"Conflicts over the Invisible Resource: Is there a Way Out?"* in Moench, M., Elizabeth Caspari and Ajay Dixit (eds.) *Rethinking the Mosaic: Investigations into Local Water Management*, published by NWCF and ISET: USA.
4. Joshi, D. and Fawcett, B., 2001. *"Water Projects and Women's Empowerment"*, Paper for 27th WEDC Conference: *People and Systems for Water, Sanitation and Health*, Lusaka, Zambia.
5. Joyce, J., Granit, J., Hall, D., Haarmeyer, D., Lindstorm, A., 2010. *"The impact of global Financial Crisis on financial flows to the water sector in sub-Saharan Africa."* New York: Oxford University Press.
6. *Kenya Population and Housing Census, 2009. Ruiru District, Kiambu County.*
7. Kimani, Murage. Elizabeth, W. and Augustine M. Ngindu., 2007. *"Quality of Water the Slum Dwellers Use: The Case of a Kenyan Slum"*, *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 84, No. 6 (November), pp. 829-838.
8. Kothari, C.R., 2004 *Research Methodology, "Methods and techniques," New Age International (P) Ltd.*
9. Kothari, C.R., 2004 *Research Methodology, "Methods and techniques," New Age International (P) Ltd.*
10. Malesu, M.M., Oduor, R.A., Odhiambo, J.O., 2007. *Green Water Management Handbook, "Rainwater harvesting for agricultural Production and Ecological sustainability."* World Agro-forestry centre.
11. Murray, C., J.L. and Lopez A.D., eds. 1996. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors In 1990 and Projected to 2020.* Cambridge, Massachusetts: Harvard School of Public Health
12. *Water Aid*, 2001. *"Looking Back: the Long-term Impacts of Water and Sanitation Projects."*
13. *Water Aid*. 2006a. *"Country Information," Madagascar*
14. *Water Aid*. 2006b. *"Wider Impacts of Water, Sanitation and Hygiene Education Projects." Issue Sheet.*