



A Comparative Study On The Water Quality at Benbella During High Tide



Zainab Omar Hussein and Swabra Zahor Vuai
Benbella Secondary School

Introduction

During rainy season there is a tendency for water to over flood at Benbella assembly ground when its high tide. This causes intermixing of other sources of water at school and may lead to negative impact towards consumers such as typhoid, diarrhoea, cholera and so on. This project mainly focused on working on difference of water quality by the measuring the water parameters of three samples from our school these are tap water, water on assembly ground during high tide and 'Drop of Zanzibar'. The main purpose of this project was to acknowledge quality water measured with standard parameters that search causes and to what extent and impacts with ways to minimize the problem of water pollution around the school so as to promote and enrich the body hygiene as well as environmentally friendly through SDG 6.



Method

The main instruments of the data collection were experiment and observation around the study area focused on the objectives of the study where a sample was chosen randomly. Primary data obtained from the field was analysed both quantitatively and hence gave insight to the problem.

The findings of the study suggested that drop of Zanzibar is within the specification as indicated by WHO while tap water is clean but not safe to drink during high tide. Also from this study, the water taken from the assembly ground of Benbella contains some strong materials which leads to chemical as well as environmental pollution.

Data was collected at three points at the shop, tap and the Benbella assembly ground during high tide where the sewage and sea water were collected at the school campus

Results

- According to the standard value of drinking water, the pH value is varying from 7.0 to 8.3, thus from this study, it can be seen that drop of Zanzibar is within the specification as indicated by WHO while tap water is clean but not safe to drink during high tide. Also from this study, the water taken from the assembly ground of Benbella contains some strong materials which leads to chemical as well as environmental pollution.
- From the standard value of conductivity for the drinking water, its value is ranging from 200 to 800 $\mu\text{S}/\text{cm}$ thus according to this study, the 'drop of Zanzibar' is safe to drink, tap water is not safe to drink while the water from the assembly ground is not safe for the environment to be friendly.
- Through the physical appearance of the samples taken in this study, the 'drop of Zanzibar' is clean, clear and safe to the students at Benbella to drink and use to other applications. Water from the tap is clean and clear but not safe to drink while that one taken from the assembly ground is not clear and safe such that there are some suspended matters which produce some unpleasant smell to the school surrounding.
- It was seen that most of the students in Benbella they prefer to use water 'drop of Zanzibar' as the best choice, the number one drinking water compared to tap water to avoid U.T.I.

Conclusion

We hoped that water from drop of Zanzibar is clean and safe to drink for teachers and students at Benbella secondary school campus and tap water is clean and clear but not safe to drink during high tide.

It is reasonable to assume that some chemicals started contaminating the water in Benbella assembly ground that reducing the normal seawater pH from the sea during the high tide due to mixing with sewage water and raising the total dissolved solids. Thus increase of TDS with decrease of pH suggests chemical and environmental pollution.

References

- Ministry of Education and Vocational Training (2008). Chemistry for Zanzibar Secondary Schools Forms 3&4 Oxford University Press Tanzania Ltd,
- Van Bruggen, J. J (1990). Preliminary Study on the Environmental Pollution on Zanzibar Zanzibar, Tanzania.
- Websites:
i)www.advancedchemsys.com
ii) www.researchgate.net

Acknowledgments

Our strong appreciation should go to our supervisor, Abdu Soud Mohamed, who spent time in compilation of this study. Also our thanks should go to the Administration of our school and Miss Thamra Rashid Zam for their unexhausted support and assistance. Moreover, we appreciate the cooperation of students at Benbella Secondary School.

Table 1: Results as taken on Friday 20/03/2020 from the respondents (Sample was 60) for type of drinking water

Type of drinking water	Tap water	Drop of Zanzibar
FORM 1	04	06
FORM 2	05	05
FORM 3	03	07
FORM 4	06	04
FORM 5	03	07
FORM 6	02	08

Table 2: Results as taken during the high tide as recorded on Monday 06/04/2020

Samples collected	pH value obtained	Temperature recorded (°C)	Conductivity value Obtained ($\mu\text{S}/\text{cm}$)
Tap water	6.9	28	180
Water from the school assembly ground	6.7	28	310
Water from Drop of Zanzibar	7.15	29	240

Table 3: Results as taken during the high tide as recorded on Monday 06/04/2020

Physical observation	Tap water	Water from the school ground	Water from Drop of Zanzibar
Appearance	Clear	Turbid	Clear
Colour	Transparent	Brownish	Transparent
Odour	None	Smell	None



Figure 1 (a): Observing appearance and colour Figure 1 (b): Observing the odour of samples

2.2 Experimental procedure

(i) The pH value was measured and recorded for all three water samples taken.



Figure 2: Measuring and recording the pH of the samples collected

The information in Table 1 is presented graphically in Figure 6.

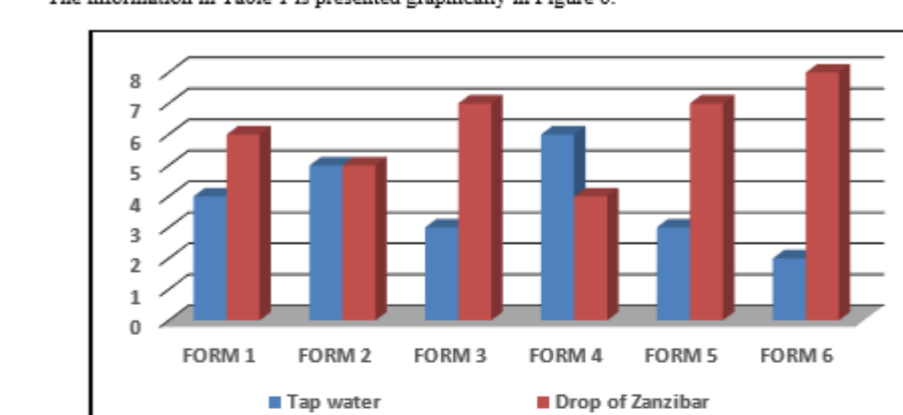


Figure 6: The response from the respondents of the questionnaire on type of water used for drinking

The information in Table 2 is presented graphically in Figure 7.

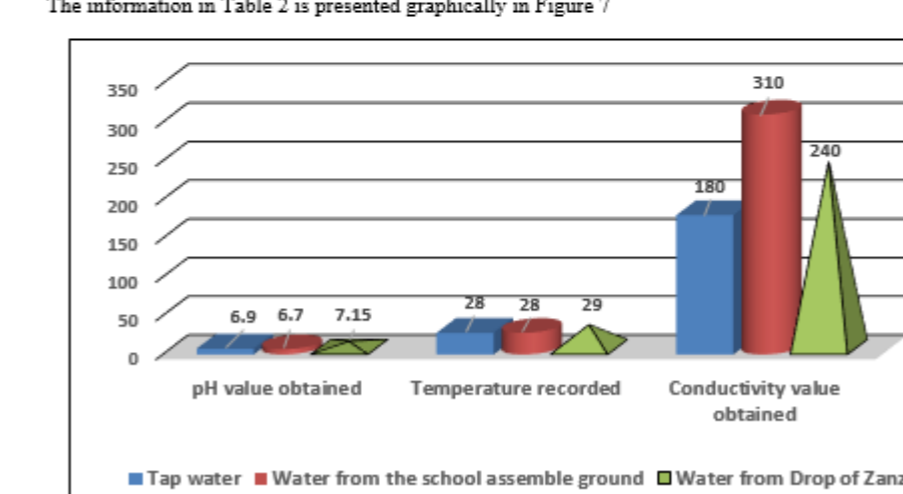


Figure 7: Response taken during the high tide as recorded on Monday 06/04/2020



Figure 5: Researchers were collecting water at Benbella assembly ground as seen on Table 1, 2 and 3 below