



# THE DYING OF ILBORU STREAM

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## Introduction

Our school has a stream originating from a spring found at Ilboru secondary school but currently we are experiencing reduction of water volume at our stream. The stream provides water for all uses at our school and residents around it.

The main idea of this project was to investigate the causes that led to the reduction of water volume at Ilboru stream and look for ways to solve the shortage of volume water at the Ilboru stream through knowing the problem and possibilities to overcome them.



Figure 11. A picture with our cook who has been in school for 37 years telling us about the stream.

## 1.2 Puzzling Question.

- What are the main factors contributing to the reduction in water volume at Ilboru Stream?
- How is climate change affecting the flow of Ilboru Stream?
- What human activities might be influencing the decline in water volume, and to what extent?
- Ilboru Stream originates from Tololwa spring and is essential for sustaining life at Ilboru Secondary School and nearby residents, providing water for various purposes like drinking, irrigation, and sanitation.

## Method

i. Water Volume Measurement: We used a meter ruler to quantify the water volume at different points along the stream. These measurements were conducted weekly over an extended period to monitor variations in water levels.

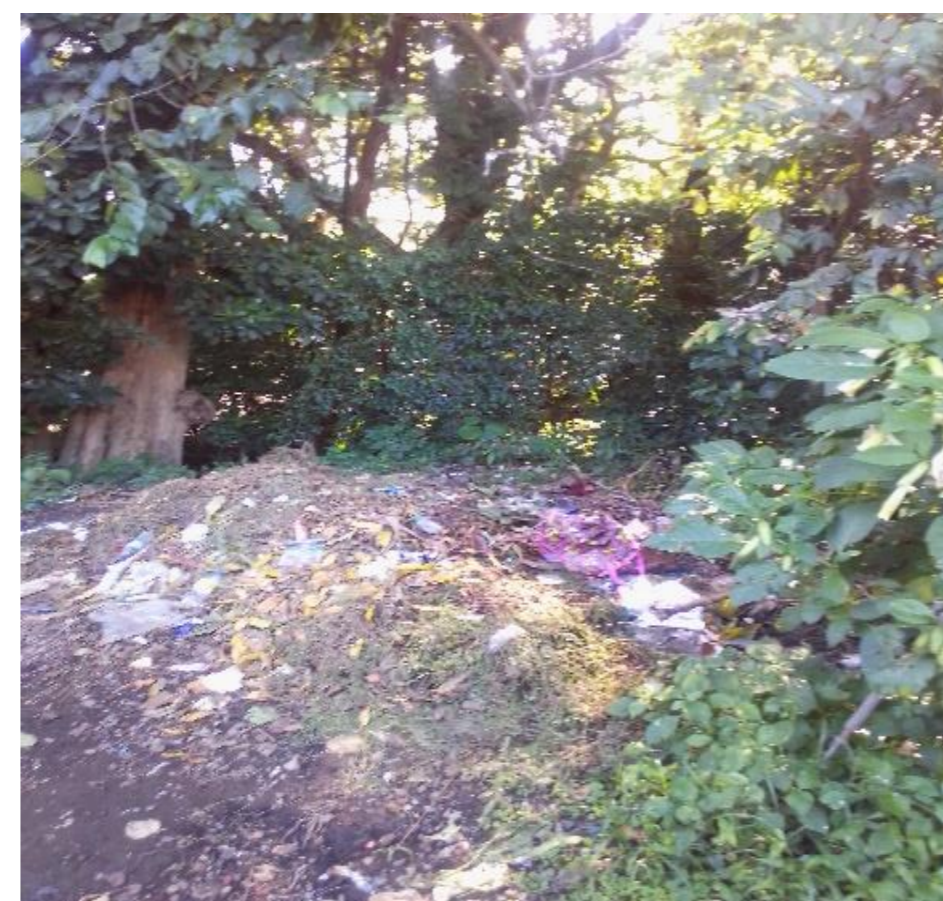
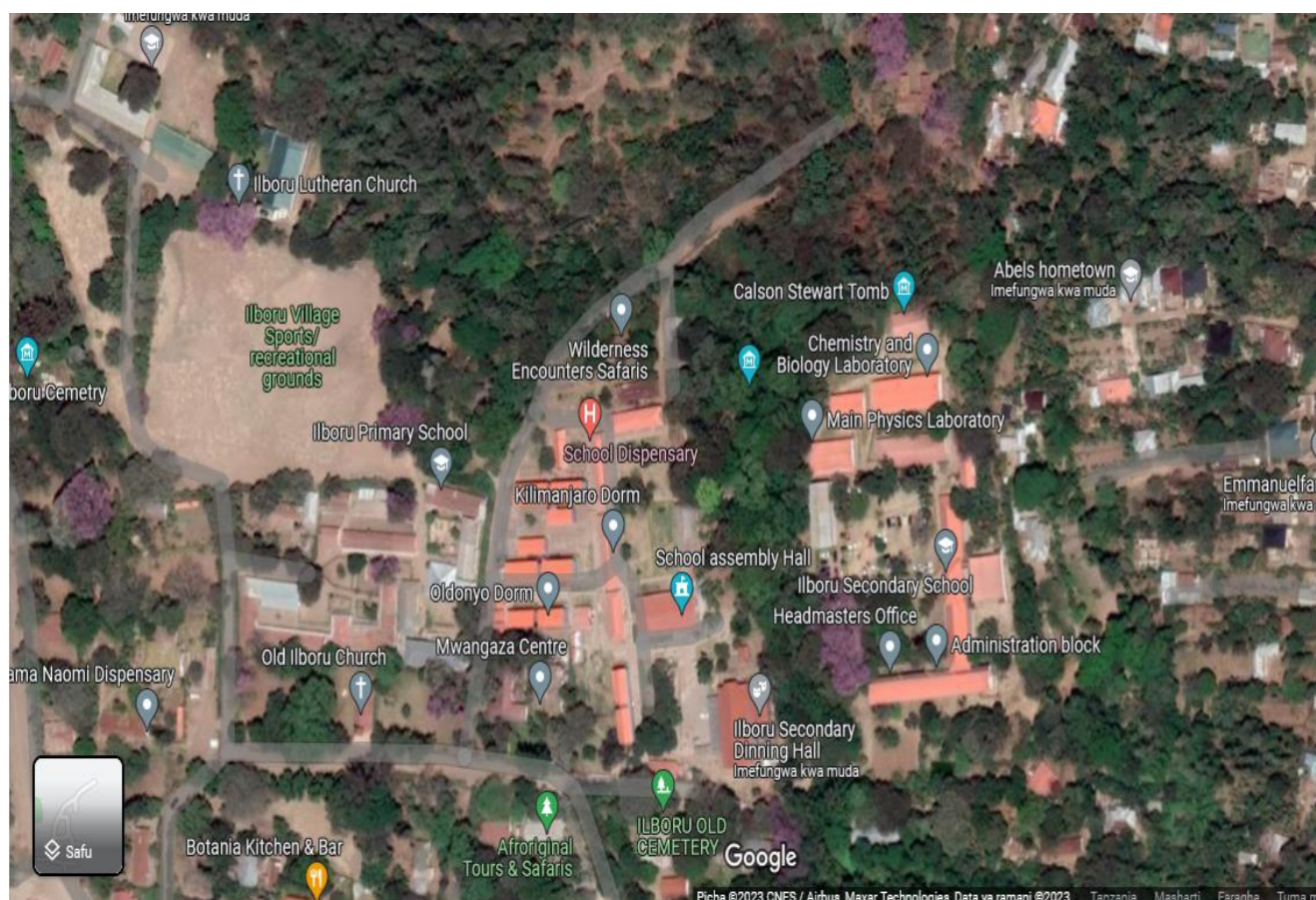
ii. Temperature Monitoring: Temperature data was collected from several points surrounding Ilboru Stream using digital thermometers. This enabled us to assess any correlation between temperature fluctuations and changes in water volume.

iii. Rainfall Data Analysis: Historical rainfall data was obtained through local measurement with local rain gauge and measuring cylinder, also from local meteorological stations to understand seasonal precipitation patterns and their potential influence on the stream's flow.

iv. Vegetation and Land Cover Survey: Field surveys and satellite imagery analysis were conducted to assess changes in vegetation cover and land use around the stream. This investigation aimed to identify possible impacts of deforestation and land degradation, but it was at a minimum point.

v. Community Surveys and Interviews: Questionnaires and interviews were conducted with students, teachers, and local residents to gain qualitative data on their perceptions of the stream's water volume changes and any observed human activities near the water source. We also visited TMA at Arusha airport for studying, research and more information about climatic issues, but unfortunately we were not able to take pictures because of their rules and regulations.

vi. Affected area survey: We walked at the Ilboru stream for some distances and we were able to collect some of data through observation



## Results

Our research findings indicate that climate change, primarily due to low rainfall and high temperatures, is a significant factor in the reduction of Ilboru Stream's water volume. Additionally, human activities such as deforestation, poor agricultural practices and poor waste disposal along riverbanks also contribute to the decline.

As a result of the declining water volume, we observed reduced wildlife populations, waterborne diseases uprising, water shortages, increased pollution, and an elevated risk of flooding in the stream area.

We actively engaged our fellow students in a thoughtful discussion about "The Dying of Ilboru Stream," sharing the research project's findings and data analysis to foster a meaningful exchange of ideas. As facilitators, we empowered our peers to contribute their perspectives and explore the effects of climate change and human activities on Ilboru Stream.

Together, we inspired a collaborative environment, where everyone felt comfortable expressing their thoughts and working towards practical solutions.

## Conclusion

Based on our research, our investigation into the dying of Ilboru Stream reveals that climate change, characterized by low rainfall and high temperatures, and human activities, such as deforestation, poor agricultural practices and poor waste disposal, are causing a decline in water volume, we propose the following recommendations:

1. Reduce greenhouse gas emissions to slow down climate change and decrease water evaporation from the stream.
2. Implement water conservation measures to ensure adequate water supply, especially during dry periods.
3. Encourage reforestation efforts to mitigate the effects of deforestation and promote a healthier ecosystem around the stream.
4. Promote sustainable agricultural practices to reduce soil erosion and pollution from agricultural activities.
5. Properly treat wastewater before disposal to prevent pollution and protect aquatic life.

## References

- <https://www.ipcc.ch/>
- <https://unfccc.int/>