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## KRISTE MAMBO HIGH SCHOOL



### INTRODUCTION

Ground waters are generally considered as ‘safe sources’ of drinking water because they are produced with low microbial load with little need for treatment of the water before drinking. Ground water, however, can be contaminated from its recharge source or through interaction with the local geology. These natural contaminants become a health hazard when present in high doses. Microbial and faecal matters are other contaminants of ground water. These may arise as a result of improper siting of underground septic and crude tanks and discharge of industrial liquid waste into groundwater recharge zone

### RESEARCH PROBLEM

Observed transient skin conditions of students and the community in Kriste Mambo that is dry scaly skin that tightens and peels off, white dry skin patches and ring worms observed in the first week of school opening

### HYPOTHESIS:

**NULL HYPOTHESIS** : Water at Kriste mambo meets national quality standards with respect to chemical and microbial composition and might not be the cause reported skin conditions in the students.

**ALTERNATIVE HYPOTHESIS** : Water at Kriste Mambo contains chemical and microbial components that might cause the reported skin conditions in the students.

### OBJECTIVES

1. To map all water sources at Kriste Mambo and surrounding areas that will represent case and control sources for water quality
- 2.To collect samples for chemical and microbial analysis
- 3.To conduct chemical and microbial analysis and compare findings with accepted standard levels for good quality water
- 4.To have the students skin condition examined by a dermatologist during the periods of outbreaks and when such outbreaks have resolved
- 5.To see if there is an association between chemical and microbial water components, and the observed skin conditions.

### METHODS AND MATERIALS

The proposed study shall:

- Conduct a cross sectional survey to determine the burden of the hypothesized water associated skin conditions.
- Affected participants and controls shall be recruited, interviewed, a study questionnaire and informed consent administered.
- During the interview the researchers shall explaining to the identified participants what the project is about; the risk and benefits of participating; the costs, compensation and reimbursements to the participants which might arise due to participating in the study; confidentiality assurances and the conflicts of interest.
- Water samples shall be collected from 5 pre-identified sites
  - Kriste Mambo school dam
  - Kriste Mambo reservoir
  - Kriste Mambo borehole water
  - Kriste Mambo tapped water( from three different taps)
  - Rusape water as the control
- *Sterile water sampling techniques will be used for sample collection. Briefly, the taps are first sterilized by cleaning them with methylated spirit then the area is allowed to burn for first minutes. After that the flame is put off then water is allowed to run from the tap for a minute. After that the water is then collected into the three different bottles.*
- *Some of the materials going to be used in this study include Cotton wool, Latex gloves, sterilized 250ml bottles sealed with aluminum foil, Methylated spirit, Matches, sterilized 2l bottles, Candles, GPS locator, Refrigerator,*
- *The samples shall be tested at the AiBST laboratories in Harare.*

### APPLICATION

- The study is important in that if the hypothesis is proved to be correct and we come up with a long term solution with respect to the presence of bacteria, worms, fungi, chemicals and/or abnormal salt concentrations, it will result in the reduction of permanent skin damages, improvement in self-esteem by reducing stigmatization, improvement in our general performance at school by reducing the number of times we go home for temporary treatments.
- The significance of the study to the community and nation is that if we come up with a solution, reductions in skin infections due to water problems will result in a healthier community comprised of confident youths especially those who already have abnormal skin conditions such as albinos and eczema infected people.
- The solution might also result in the reduction in the expenditure on skin care medications that only clear the skin rather than eradicating the source of the problem, thus resulting in economic saving.



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