CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
35442

Project Title
Arsenic and Water Quality in Bangladesh and America

Abstract

Objectives/Goals
The objective of this project was to test and compare a number of sources in both America and Bangladesh for arsenic and various parameters like pH, total dissolved solids, oxidation reduction potential, and turbidity.

Methods/Materials
Water quality testing was done with multiple probes and strips for the various parameters and arsenic was tested with an arsenic kit. All of the water samples were collected from various locations that were near populated locations. Graphs were made for each parameter where arsenic was measured in micrograms, pH was measured in units, total dissolved solids was measured in parts per million, oxidation reduction potential was measured in millivolts and turbidity was measured with units. All comparisons were with either data found, World Health Organization (WHO) acceptable rates, and previous research.

Results
The average arsenic concentration in Bangladesh water sources was 22.4 micrograms while the average arsenic concentration in American water sources was 0.23 micrograms. For pH, Bangladesh did have a slightly more basic average than America, fitting the hypothesis exactly by o.3 units more basic. The average total dissolved solids (TDS) results were 242.6 ppm greater and oxidation potential reduction (ORP) results were 61.6 mV greater in America than they were in Bangladesh. Turbidity was greater in Bangladesh by a range average of twelve.

Conclusions/Discussion
The arsenic levels in Bangladesh are much greater than the levels in America due to the massive arsenic groundwater outbreak but the water in America has greater ORP and TDS. This is possibly because of the constant treatment water in America is surrounded by and easier access to substances near sources. Turbidity is greater in Bangladesh mostly because the water sources are used constantly for irrigation, bathing and cleaning.

Summary Statement
This project's purpose was to compare arsenic and water quality from water sources within Bangladesh and America.

Help Received
The assistance received during this experiment included Mrs. Gillum, Dr. Fakir Yunus and Ershad Bin Ahmed. Mrs. Gillum and Dr. Yunus helped with formatting and Mr. Ahmed helped with researching, finding equipment, and on-field testing.