

Fluoride Concentrations in Drinking Water

Issue: Health impacts of dental and skeletal fluorosis in many areas of sub-Saharan Africa due to consumption of groundwater that is naturally high in fluoride. Natural concentrations of fluoride are often many times the safe drinking limit of 1.5 mg/L established by the World Health Organization, yet in some countries, the national drinking water guideline is much higher than the WHO because of economic barriers needed to reduce the fluoride concentration to an acceptable level. For example, in Tanzania the guideline is set at 8 mg/L, because it is better to lower all potable water to this concentration rather than lower a limited amount of water to the lower, WHO guideline.

Solutions: Graduates from the MSc program learn how to delineate areas of high fluoride waters as well as low concentration aquifers. By learning the intricate behaviour of water in the subsurface, detailed studies can optimize utilization of some aquifers while others can be used for non-potable purposes. Coupled with sources of fresh, low fluoride waters, such as rainwater or treated water, satisfactory supplies may be produced as a

result of mixing waters of different sources. There are new techniques currently being developed for treating high fluoride concentrations on a large scale. Using the technical abilities of professionals in this field has the potential of dramatically improving the lives of many people on the African continent.

