

**THE CONTRIBUTION OF DRINKING WATER TOWARDS  
DENTAL FLUOROSIS: A CASE STUDY OF NJORO  
DIVISION, NAKURU DISTRICT**

By

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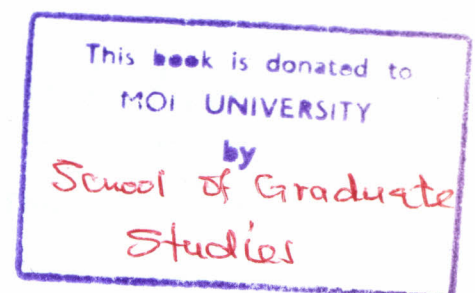
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### ABSTRACT

Fluorine is regarded as an essential element for formation of healthy bones and teeth. In Kenya, the recommended level is 1.4 ppm, considering an annual average temperature of 25°C. When the amount consumed is too high, dental and/or skeletal fluorosis result(s); When the amount consumed is inadequate, dental caries and/or bone malformation occur(s).

The study was carried out in Njoro Division, Nakuru District. Ten primary schools were randomly sampled, and children in these schools (born and brought up in the area), observed for moderate to severe dental fluorosis. Of those observed, ten were selected randomly from each school and questionnaire given to their parents (mothers), in order to find out the various water sources used, the water storage containers and utilization patterns, water treatment methods as well as their perceptions on dental fluorosis. In addition, water from known major communal watering points in the division was sampled, both in the dry and wet season and analyzed in the laboratory for F, Si, B, Na, Mg, Ca, alkalinity and hardness. The depth to the water table, conductivity and pH were measured on site

The study established that, 48.2 % of the children observed had moderate to severe dental fluorosis; Most people are bothered by mottled teeth yet they do not know its cause; Potable water used by households had fluoride contents well above the recommended levels, with the

exception of rain water; The treatment and storage methods, as well as utilization patterns encourage consumption of water with high fluoride levels; there exists other parameters in these waters that could affect the state, absorption and assimilation of fluoride in the body.

Possible solutions to the fluorosis problem in this area and other similarly affected areas would be to improve rain water harvesting, improve on the existing and potential sources of surface water (since they have lower F levels), educate the community on the likely causes of the phenomenon (and thus prevention) and discourage use of fluoride containing toothpaste in the region (since they have more than enough fluoride in water to counteract dental caries).