**Assessment of Drinking Water Quality at Myagdi District, Western Nepal**

Aryal J, Sapkota N, Gautan B

Date: 2010

**Background**

In Nepal drinking water quality is appeared as a great public health concern because is major risk factor for high incidence of diarrheal diseases in Nepal. Water pollution is important and serious issue due to haphazard urbanization and industrialization. The principal reasons of the chemical and bacteriological pollution of drinking water are due to inadequate sanitation, dumping of wastes, poor drainage system and irregular supply of drinking water in the pipeline. Besides that the contamination may be either due to the failure of the disinfections of the raw water at the treatment plant or because of the infiltration of contaminated water (sewage) through cross connection and leakage points. All natural water sources, such as wells, stone spouts and ponds are neither treated nor protected properly. The quality of water has deteriorated due to poor management and no monitoring of water quality. The primary goal of this research is to analyze the drinking water quality parameters physicochemical & microbiological in order to ensure that the water is safe for drinking.

**Methods**

In the present study, a total of 84 water samples were collected from 11 sources, 5 reservoirs and 68 taps water were collected from 9 different wards of Arthunge, VDC and tested physio-chemical and microbiological parameters.

**Results**

The physical and chemical analysis performed on water samples indicates clearly that water does not have any significant effect on physico-chemical characteristics of water except pH, because all parameters remains nearly constant over the experimental period. After testing the physicochemical parameters of water were satisfactory. Most of the parameters checked were found in safe limit except pH and Arsenic. The water samples 54 % have found Arsenic concentration exceeded the permissible level given by WHO (0.01 mg/L), but according to National Drinking Water Quality Standards-2062 all water samples were near constant with permissible level (0.05 mg/L). The statistical analysis through paired t-test revealed that physic-chemical parameters of drinking water for Tap water samples in winter (January, 2010) and summer (June, 2010) was not differ significantly at 5% level of significance. Microbial analysis performed on water sample was not safe for drinking purpose. There were a number of coliform present in most of samples but there was absence of E. coli. While most of the tested waters were found to be higher number of coliform organism especially in tap water which was not safe for drinking. The microbiological contamination was not great in source and reservoirs were unlikely to represent a public health concern. But in tap water it was found that about 71% of water samples found very high risk due to present of coliform organism. All of samples water tested complied fully with National Drinking Water Quality Standards-2062.

**Conclusions**

There should be regular monitoring of bacteriological quality of water in order to ensure safe drinking water. Diarrheal diseases may be outcome due to unsafe drinking water. Ministry of Health and Population should develop effective strategy to undertake public health concern ensuring better water quality.

**Keywords:** drinking water quality; microbial analysis; microbiological; parameters; physicochemical.