



**Most of the surface waters in South Africa is of good quality and requires only clarification and disinfection. There are however, a few notable exceptions:**

### FAECAL POLLUTION

High faecal and total coliform counts (used as indicator organism to indicate recent faecal pollution) occur in most surface water near dense human settlements.

### COLOUR AND STABILITY

The rivers that drain the mountain catchments along the southern coastline have waters that are highly coloured due to organic acids. These waters have characteristically low TDS (total dissolved solids - an indicator for electrical conductivity (EC)) concentrations and a low pH. Colour removal requires precise chemical dosing and together with the stabilization of the water treatment is neither cheap nor easy.

### SALT CONCENTRATIONS (TDS OR EC, SODIUM, CHLORIDE AND SULPHATE)

The rivers that drain the dry interior regions carry water that may have high TDS concentration mostly resulting from high sulphate and chloride concentrations. This means that the water is corrosive and has a distinctly salty taste. Salt removal by means of reverse osmosis or ion exchange is expensive and most communities accept the water after clarification and disinfection. Care should be taken in areas where the TDS, sulphate or chloride concentrations are in Red or Purple classes.

The rivers that drain the northern and eastern parts of South Africa generally carry good quality water, unless it has been contaminated due to human activity. A prime example of this is the Vaal River downstream of the Vaal Dam, which has a high TDS (total dissolved solids) due to effluent from the Witwatersrand area and from gold mines. Treatment is expensive and consumers normally accept the high salinity.

### EUTROPHICATION (HIGH ALGAL CONCENTRATIONS)

Some reservoirs in South Africa have high algal concentrations. Water from these water bodies may have taste and odour problems. In many cases, authorities have implemented treatment option such as powdered activated carbon, or processes such as dissolved air flotation instead of the more conventional sedimentation in the clarification process. In some cases algae may produce toxins, which are of concern to human health. Generally, however, the above processes also remove these toxins.



Reference: DWAF (1998). Quality of domestic water supplies. Vol. 1: Treatment Guide. WRC No. TT 101/98