

## BACKGROUND AND MOTIVATION

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- According to information from the Directorate of Soil Conservation and Drilling Services (Department of Agriculture), a total of 4 085 boreholes were sunk in a region between Venda to Gordonia. Of 1 267 holes sunk by the state, 402 were successful, but 26 were of unacceptably poor quality judged by the present standards. Some waters were certified acceptable for ruminant, but not for human or monogastric consumption. Of 2 818 private boreholes sunk, 844 were successful in yielding water, but 25 were classified unfit for human and animal consumption.
- There are principally two sets of water quality guidelines for livestock in use in South Africa, namely, the Summarised Water Quality Variables for Livestock as published by the Department of Environmental Affairs (Kempster, Hattingh and van Vliet, 1985), and those proposed by Adelaar, (1974). The former guidelines are based on international guidelines, whilst the latter are presently used by Namibia, the Directorate for Soil Conservation and Drilling Services (Department of Agriculture), not only for classifying water fit or unfit for use for livestock, but also for declaring a borehole successful or not-successful.
- Both sets of guidelines do not offer solutions for areas which have inherently saline waters (found in Venda and Gordonia), nor do they take into account the synergistic and antagonistic factors that affect the tolerance levels and subsequent production of livestock. As this scenario presents itself frequently in the arid zones of southern Africa the need to assess accurately the impact of a water source for a given environment on a given livestock production system consequently arises.
- The current water quality guidelines are based largely on assumptions as yet untested in the South African context owing to a lack of locally established guidelines. Verified standards of water quality for animal production which enable accurate assessment of water quality are self-explanatory in terms of animal health and performance and the viability of treating sub-standard water sources.