

Abstract

The quality of water in grazing lands is primarily a function of interrelationships between precipitation (interval, duration, and intensity), landscape characteristics, and livestock use. Water quality from grazing lands is impaired when suspended solids (soil particles, organic matter particles), nutrients (nitrogen, phosphorus), bacteria, and pesticides exceed standards for specific uses. Pollutants enter streams and rivers through surface overflow (runoff) as suspended or dissolved materials. In addition, livestock may impact water quality through direct deposition of waste (manure/urine) in water resources especially at watering points.

The study undertook an assessment of the livestock production practices and they affect the environment in general and in particular water resources usage. Water and sediment samples were collected and analysed for pathogenic micro-organisms within the available surface water sources that are used for livestock watering and human domestic use. Livestock keepers in Nyatike and karungu divisions, continuously graze their herds along riparian areas that they consider pasture rich and water them at communal areas without defined user rights and as such watering points are considered areas open to any user in the locality. The continuous grazing of livestock by free range and communal watering points is a major cause of decline in surface water quality. The microbial contamination of surface water at livestock watering points is attributed to livestock dropping dung in the water source and soil sediments being carried to the surface water. Pathogenic micro organisms such as fecal coliforms, *Escherichia coli*, *Giardia lamblia*, and *Cryptosporidium parvum* were found in the various water samples collected at different livestock watering points. Fecal coliforms were detected in every water sample from the livestock watering points and it was noted that water pans had the highest count of *Escherichia coli* a factor attributed to the lack of running water. The results of this study indicate that the water from the surface water sources in livestock producing areas in Migori contained concentrations of micro-organisms capable of causing human illness. This calls for the application of one health principles (especially in free range and communal grazing areas) to enhance livestock, human and ecosystem health.