

**Influence of agricultural chemicals on water quality: a case
study of Kilombero sugarcane plantations**

Lazaro Costantino Linjano

Master of Science (Environmental Science)

University of Dar es Salaam, College of Natural and Applied Sciences, 2008

Water and sediment from Msowero River and groundwater wells within Kitete and Kidogobasi villages were assessed for their physico-chemical parameters and nutrients levels. Sediment and water samples were collected from groundwater wells and from the upper, middle and lower Msowero river course. Cadmium Reduction method, Phenol method and Ascorbic Acid method were the standard laboratory analytical methods used to determine nitrate, ammonia and phosphate amounts in water samples respectively. The variation of nutrients and physico-chemical parameters within Kitete and Kidogobasi villages were as follows: Temperature (26.9-28.2), pH (6.3-6.70), EC (137-180.1 μ S/cm), TDS (68.5-90 mg/l), DO (8.2-8.4 mg/l), nitrate (0.13-7.6 mg/l), ammonia (0.12-1.16), and phosphate (0.2-90.2 mg/l). The variation of nutrients and physico-chemical parameters along Msowero river course were as follows: Temperature (21.9-25°C), pH (7.2-7.6), EC (39.8-119.4 (μ S/cm), TDS (19.9-60.2 mg/l), DO (8.9-9.6 mg/l), nitrate (0.19-7 mg/l), ammonia (0.04-0.57 mg/l) and phosphate (19.5-75.8 mg/l). Sediment nutrients for TKN (mg/Kg), nitrate (mg/Kg) and phosphate (mg/Kg) along the Msowero River course varied between 454.3 and 1097.3, 2.0 and 3.1, and between 162.5 and 181.5 mg/Kg, respectively. In all the three study sites, both physico-chemical parameters and nutrients were lower than the recommended levels by WHO/TBS except for EC, phosphate, nitrate and TDS (only along Msowero River course) which were higher than the accepted national/international standards. Inputs from sugarcane fields could be the main reason for the observed higher values along different parts of the Msowero river course.