

Mathare - Gitathuru Drainage Basin (MGDB), part of Nairobi River Basin (NRB), is a wetland and home for many people. Like any other wetland, MGDB has a great socio-economic potential. Unsustainable exploitation of this potential has led to adverse ecological impact on ecosystem and livelihood of those living within MGDB. Mathare - Gitathuru river system is a source of water for domestic and recreational uses by many people living within the basin. The flow of effluents from chemical industries, domestic wastes from urban settlements and run offs from agricultural activities along the river basin, may have contributed to heavy pollution of MGDB. This study was undertaken to establish the levels of nutrients [(as nitrite-N, nitrate-N, and phosphate-P), organic matter (DO, BOD, and COD), chlorides, temperature and pH of MGDB water. The levels of these parameters were determined both during the wet and dry seasons. The water samples were collected from twenty stations, identified on the basis of anthropogenic activities at each point. The nitrate-N levels were determined by the phenol disulphonic acid method, and those of nitrite-N by sulphanilic acid method. The phosphate-P levels were determined by potassium antimonyl tartrate and ascorbic acid complexation method. The DO and BOD levels were determined using the modified Winkler's titration method and the COD levels by titration of the remaining potassium dichromate with ferrous ammonium sulphate after oxidation of the organic matter. The temperature and the pH of the water were determined on site using a thermometer and a portable pH-meter respectively. The averages of the mean levels of the parameters from the twenty sampling stations on the section of the river and within the period of study were as follows; (the values in brackets were the mean values for the control samples). The mean DO levels were 4.92, (10.51) mg/l during the wet season and 3.37, (0.23) mg/l during the dry season while BOD was 84.64, (0.62) mg/l for the wet season and 78.04, (0.61) mg/l for the dry season. The mean COD levels were 82.43, (1.08) mg/l during the wet season and 63.95, (0.13) mg/l during the dry season. The mean BOD and COD levels were above the World Health Organization, (WHO) recommended levels for both seasons. The mean levels for N03-N were 16.94, (7.09) mg/l during wet season and 8.95, (0.83) mg/l during dry season. These levels were higher than the WHO recommended levels during the wet season but within the allowed levels during the dry season. The N02-N levels were found to be 5.39, (1.07) mg/l during the wet season and 5.91, (0.81) mg/l during the dry season. The levels were higher than the WHO recommendation in both seasons. The P04-P levels were found to be 2.89, (0.69) mg/l and 2.53, (0.13) mg/l during the wet and the dry seasons respectively, which were both above the maximum allowed concentration, (MAC), recommended by WHO. The chloride concentration was 40.61, (21.56) mg/l during wet season and 39.38, (20.28) mg/l during dry season. These levels were within the WHO recommendation for chlorides in drinking water. The temperatures were found to be 26.4, (26.1) °C and 28.4, (28.0) °C during wet and dry seasons respectively. This suggested that the river was not thermally polluted during both seasons. The pH was found to be 6.94, (6.99) during the wet season and 6.82, (6.91) during the dry season. From these findings, it can be concluded that, anthropogenic activities, such as agriculture, industries and human settlements, along the MGDB had significant contribution to the water pollution in MGDB. As a result of this pollution, the MGDB water may not be safe for direct

domestic and recreational uses and the data obtained in this study may be useful in rehabilitation and restoration of MGDB.