ABSTRACT

The present work deals with environmental impact on groundwater quality of western Nile Delta area including north of Giza Governorate, Tabark area (at km 56 Cairo — Alexandria Desert Road) and Green Belt project around Six of October City. This area is bounded by 30° 10', 30° If latitudes N and 30° 1C, 30° 46' longitudes E.

The hydrochemical compositions of groundwater samples, which collected from the Quaternary (Pleistocene) aquifer, are characterized by high ionic concentrations of different ions and dominance of chloride and sulphate ions in shallow wells than deep wells. However, undesirable levels of major parameters are above the recommended levels. Nitrate, ammonium and phosphate are significantly higher in urban area. This is attributed to the microbial degradation of organic nitrogenous material including human and animal wastes as well as fertilizers used in cultivated lands.

The excessive withdrawals of groundwater from the Lower Miocene aquifer at Tabark area create a large drawdown in the production wells, consequently, decreasing of the specific capacities and efficiencies of such wells. Besides, decline of well yields and the pumping costs will increase. The hydrochemical studies reveal the presence of Na_t 50_4 *and* $NaHCO_3$ *water types at the majority of the studied area and represents the best places for water supply. The presence of* $MgCl_2$ *water type in some wells indicates mixing of meteoric water with marine water, due to local effects. Possible sources of saltwater enrichment in the Lower Miocene aquifer are either from the leaching processes offresh water to the lagoonal salty deposits of El Raml Member (Base of El Moghra Formation) or due to upward-leakage of old marine water along fault planes. Generally the groundwater in the studied area is suitable for drinking and irrigation purposes, except some wells, which suffering from high salinity water. Therefore, reduction of groundwater withdrawal from such well is recommended.*

Green Belt around Six of October City represents a part of Oligo-Miocene aquifer. This Belt is constructed to protect the city from dusty winds. The hydrochemical composition of groundwater reveals that, high salinity and ionic concentrations of different ions characterize the collected water samples. The grcundwater of this aquifer is unfit for using whether for drinking or irrigation purposes, so, it must be desalinated before use.