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Soil Salinity in the Adjacent Territories to the Reservoirs of Euphrates River in Semi-Arid climate Zone of Syria

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Construction of series reservoirs for different purposes has some negative ecological consequence like decreasing flows of the river, decreasing solid runoff, increasing of water salinity in the river and soil salinity as in the adjacent territories and in the low reaches of the river. Al-Tabqa reservoir is considered as the biggest one in Syrian Arab Republic, the dam was constructed in 1975 on Euphrates River for purposes of irrigation and energy generation, with 60 m height and reservoir area of 610 km2 and hydropower station of 800 MW. In this research we tried to highlight the main processes taking place in the soils of adjacent territories to the Al-Tabqa reservoir in semi-Arid climate zone, especially soil salinity happened under the frequent water logging, water use for irrigation and followed ground water table rising. By making soil survey in Al-Kreen Reservation in 2010 and analysis of the results, it was shown that soils of the belt wide up to 150 – 200 m, located straight to the reservoir and under direct effect of it, have very high salt content and the soil salinity in surface horizons (0 – 15 cm) reaches more than 120 dS/m and decreased with going deeper in soil profile, soil structure is fully destroyed and the soil texture is loam, silt loam and sandy clay loam. It was clear that the indirect role of reservoirs on soil Salinity of adjacent territories appeared in the irrational use of reservoir water for surface flood irrigation with very low efficiency (reservoir water salinity up to 1.0 dS/m), taking in consideration a very hot and dry summer, so that leads to ground water table rising to less than 1 m depth in low lands caused excessive soil salinity of them with very high salt concentration in the surface horizons (0 – 10 cm) to more than 200 dS/m, creating saline spots that could play basic role in soil salinity expanding to other areas in the future.

Keywords: Reservoir, Euphrates River, Soil Salinity, Water Logging, and Water Salinity.