

Irrigation with Treated Effluent in the Coastal Plain in Israel

I. Shainberg, P. Fine and N. Haruvi¹

Treated effluent will become the main source of water for irrigation in Israel. In the year 2020 the amounts of freshwater, treated effluent and marginal water (runoff and saline water) used for irrigation will be 400, 600 and 250 million cubic meters per year, respectively. Treated effluents may differ from fresh water in the following parameters: high biodegradable organic matter, high inorganic soluble salts (mainly NaCl), high levels of macronutrients (N, P, K), high concentrations of trace elements and the presence of pathogenic microorganisms. Most of the biodegradable organic matter, total N, micropollutants and microorganisms are eliminated during the biological treatment processes (secondary treatment) and disinfection of the reclaimed effluent.. Use of treated effluents secondary treatment in the coastal plain in Israel is safe and forms the most economical means of sewage disposal. Contamination of the coastal aquifer will be slowed down by diverting low-salinity water to domestic water to domestic use in the coastal plan cities, by preventing disposal of industrial waste water (with high salinity and high concentration of pollutants) into the domestic sewage system, and by replacing Na salts with K salts in water-softening industries.

Key words: Salinity, sodicity, organic pollutants, heavy metals, secondary treatment, treatment and disposal costs.

¹ Inst. of Soil, Water and Environmental Sciences, Agricultural Research Organization, The Volcani center, Bet Dagan 50250, Israel.