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Filling the “old” aquifer with water from new sources: A perspective on Managed Aquifer Recharge in Israel

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In the Israeli water supply system there is a continuous development of new water sources to meet the demand. Managed aquifer recharge is operated over the years to recharge the older in use, exploited aquifer by the newly developed sources. The Mediterranean coastal aquifer in Israel and drilling technology that matured in the beginning of the 20 century enabled the fast development of cities, towns and villages along this coastline. Naturally, this lead to over exploitation of this aquifer that peaked in the 1950s. New water resources were developed since, and surpluses beyond direct supply, from these sources were/are used to recharge the coastal aquifer. These new water sources (years used also for managed recharge) include: Ephemeral streams flood-water (1959-present); the neighbour, mountain aquifer (1950s-1990s); Sea of Galilee lake water (1960s-1990s); wastewater effluents (1987–present); and desalinated seawater (2014-present). Manged recharge from these sources through wells and infiltration ponds on the sandy soils overlying this aquifer will be discussed from the following viewpoints: hydrogeology and land-use, injection-well design, variability of availability and water quality and usage.