

Assessment of Groundwater Quality and Protection in Palestine

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Abstract

Groundwater is the main source of water in the West Bank and Gaza Strip. For many years, raw sewage effluents from the Palestinian cities and localities and from Israeli Settlements in the West Bank have been discharged in the Wadis. Moreover, Leachate from dumping sites, agricultural returns rich with agro-chemicals and hazardous wastes from the Palestinian and Israeli sources have caused groundwater quality of Palestinian aquifers to deteriorate. Since the carbonate aquifers of the West Bank have pronounced mature karst features above and below the water table, these aquifers show high potential for extensive pollution. Moreover, the over-abstraction in the Jordan valley aquifers causes salinisation problems.

The coastal aquifer of Gaza has a shallow water table with high permeability making it susceptible to all sources of pollution. Extensive pumping from Gaza Aquifer and heavy agricultural activities have raised the levels of nitrates and chlorides. The salinity problem is a major concern in Gaza aquifer. The over-pumping of the aquifer is the major reason of saltwater intrusion and inland saline water upconing.

This chapter aims at (1) providing a general description of the aquifer systems in Palestine; (2) undertaking an assessment of the water quality deterioration in the Palestinian aquifers; and (3) providing guidelines for groundwater protection from pollution.

The chapter concludes that while the water quality in the West Bank aquifers is generally good, the sources of pollution (knowing the karst nature of these aquifers) will eventually cause extensive pollution to these aquifers. The chapter confirms that the water quality in Gaza aquifers has deteriorated to a crisis levels since the aquifer is in a state of imbalance between recharge and pumping. Groundwater protection and remediation is essential and immediate measures must be taken.



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