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Strategic Planning of the Palestinian Water Sector: Development of a management tool for the Western Aquifer Basin

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Abstract The Western Aquifer Basin is the largest water source for the Palestinians and without utilizing it for their basic domestic and agricultural needs, the water shortages in Palestine will increase forcing the socio-economic development in Palestine to suffer badly. The importance of this aquifer basin is even more critical as it is first a shared aquifer between Palestine and Israel and second while its recharge is located mainly in Palestinian lands, 95% of its utilization takes place in Israeli lands. The Israelis have been managing this aquifer on inefficient basis. As an example in 1999 they pumped 572 Mcm/yr while their literature says that its renewable recharge is 362 Mcm/yr (58% mining of its yield). In hydrogeological terms, this management of the Aquifer Basin can lead to severe consequences on the sustainability of the source in addition to major water quality concerns.

This study aims at estimating the sustainable yield of the Western Aquifer Basin (WAB) (utilizing groundwater flow modeling) and testing the behavior of the aquifer under different hydro-political and climate change scenarios. This will help establish better scenarios to manage the WAB sustainably. In addition the results of these sustainability tests will enrich the knowledge and experience to help negotiate the Palestinian water rights in the final status negotiations.

The existing Palestinian information concerning the aquifer is composed of scattered data bases as well as results from flow, recharge and pollution models. These databases and model results as can form input data for an integrated

management tool to provide the decision makers fast, accurate and clear picture about the management of WAB under different hydro-political and climate change scenarios. This is the main subject of this paper.

The methodology of this tool allows the decision maker to define specific spatial and temporal climate and abstraction scenarios. The tool will then do all calculations using groundwater and recharge models and other databases to provide the decision makers with GIS maps, charts, tables and reports that clarify the impact of the tested scenarios on the water sustainability of WAB and help them to take the suitable decisions.



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