

Chapter 19

Western Aquifer Basin



INVENTORY OF
SHARED WATER RESOURCES
IN WESTERN ASIA (ONLINE VERSION)



BGR Bundesanstalt für
Geowissenschaften
und Rohstoffe



United Nations Economic and Social Commission for Western Asia

How to cite

UN-ESCWA and BGR (United Nations Economic and Social Commission for Western Asia; Bundesanstalt für Geowissenschaften und Rohstoffe). 2013. Inventory of Shared Water Resources in Western Asia. Beirut.



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EXECUTIVE SUMMARY

The Western Aquifer Basin is the most productive water basin in Israel and Palestine, yielding the highest-quality water in the area. The aquifer formation extends from the western slopes of the West Bank, through large parts of Israel to the north of the Sinai Peninsula. The aquifer's water resources and groundwater flow are concentrated to the north of the mostly impermeable Afiq Channel and its extension running along a line from the city of Gaza via Be'er Sheva in Israel to the southern limits of the West Bank.

Average annual abstraction over recent decades exceeds the estimated long-term average annual recharge, which means the aquifer is gradually being depleted. Israel currently controls 100% of the aquifer and abstracts 94% of its water, while Palestinians abstract only 6%. Egyptian use of the aquifer is negligible.

Riparian cooperation on water resources management in the Western Aquifer Basin is largely related to the Israeli-Palestinian conflict. While there is no basin-wide agreement between the three riparians, Israel and PLO have signed two temporary bilateral agreements (Oslo I and II) that both include articles on water resources in the aquifer basin. In particular, the 1995 Oslo II agreement established a Joint Water Committee (JWC), which is responsible for regulating water resources use in the West Bank, including licensing of wells and changes in water allocations. However, in practice the committee has had limited impact and the complicated licensing procedures form a major obstacle to the development of Palestinian infrastructure in the basin. Since the Oslo II agreement, no high-level technical or political negotiations on water-related issues have taken place.

As a productive aquifer with high-quality water, the Western Aquifer Basin is considered a key resource by Israelis and Palestinians. It will therefore form an important point of discussion during final peace negotiations between the two parties.

BASIN FACTS

RIPARIAN COUNTRIES	Egypt, Israel, Palestine
ALTERNATIVE NAMES	Palestine: Western Mountain Aquifer, Ras al Ain-Timsah Aquifer Israel: Yarkon-Taninim Aquifer
RENEWABILITY	Low to medium (2-100 mm/yr)
HYDRAULIC LINKAGE WITH SURFACE WATER	Groundwater from the basin used to discharge through two major springs in Israel and Palestine
ROCK TYPE	Fractured, karstic carbonates
AQUIFER TYPE	East (recharge area): unconfined Centre and west: confined
EXTENT	Total: 9,000-14,167 km ² Hydrologically most active: 6,035-6,250 km ²
AGE	Middle to Late Cretaceous (Albian to Turonian)
LITHOLOGY	Limestone and dolomite, some marl and chalk
THICKNESS	600-1,000 m
AVERAGE ANNUAL ABSTRACTION	Total: ~390 MCM Israel: 368.7 MCM (1970-2008) Palestine: 23.7 MCM (1995-2011)
STORAGE	..
WATER QUALITY	Very good
WATER USE	Agricultural, domestic and industrial
AGREEMENTS	Israel-Palestine (PLO) 1993 - Oslo I 1995 - Oslo II
SUSTAINABILITY	Over-abstraction; infiltration of untreated sewage

OVERVIEW MAP

