



THE HASHEMITE KINGDOM OF JORDAN

DISI WATER CONVEYANCE PROJECT

I. BACKGROUND

The chronic water shortage problem in Jordan can be traced back as early as the 1970s. In order to try to meet the country's growing water demand, groundwater aquifers are being exploited at more than double their sustainable yield on average. The situation has reached a level where the toxicity index (pollution load compared to renewable water resources) is high and the water costs compared to GDP do not allow the full cost recovery. The water supply in Jordan integrates the following resources of: surface water; groundwater; treated wastewater; as well as non-conventional water sources.

There have been several water resource management measures adopted in Jordan including the Water Utility Policy (1997), the Groundwater Management Policy (1998), the Irrigation Water Policy (1998) and the Wastewater Management Policy (1998).

For a number of years supply has been outstripped by demand in the Greater Amman Area and the Water Authority of Jordan has had no option but to implement a water rationing program during the summer months to deal with the water shortage. The situation has been on-going since 1988 and continues to deteriorate each year as demand increases which has led to a rationing program for the entire year with very low reliability during the summer period.

The scarcity of water in Jordan makes the management of this critical resource very complex from a political, technical, socio-economic and environmental perspective. The water budget of Jordan is around 1 billion cubic meters per annum, which is considered relatively low when compared to the social, economic, and environmental needs of the country. In any water strategy the following stakeholders: domestic, industrial, touristic, and agricultural sectors should be considered.

Future water demand, supply and deficit in Jordan (Million Cubic Meters/year)

	2010	2020	2030	2040
Total Water Demand	1518	1772	2025	2279
Domestic	489	729	969	1209
Industrial	129	143	156	170
Irrigation	900	900	900	900
Total Water Supply	880.6	1084.9	1273.0	1460.5
Surface water	372.9	467.7	467.7	467.7
Ground water	305.7	330.2	356.3	380.8
Water Deficit Total	-637.4	-687.1	-752.0	-818.5

II. DISI WATER CONVEYANCE PROJECT

The Disi-Mudawarra to Amman Water Conveyance System project has been conceived by the Water Authority of the Ministry of Water and Irrigation. The main objective is to convey additional water to the Greater Amman Area from the Disi Aquifer.

The Disi-Mudawarra to Amman Water Conveyance System will result in a reliable water supply to Amman especially during the summer. This project has been on the shelf for many years, postponed due to a lack of funding. However, due to pressing water needs, serious efforts have been made to implement the proposal.

Disi is a fossil water aquifer extending from the southern edge of the Dead Sea in Jordan to Tabuk in northwest Saudi Arabia. Significant exploitation of the Jordanian side of the aquifer started in 1980. At present Aqaba city is provided with 16.5 MCM for domestic purposes and 75 MCM for agricultural purposes. The binding agreement between the Government of Jordan and the four agricultural companies working in the area indicated that the water abstraction from the Disi aquifer should not exceed 91 MCM per annum.

At present, the drinking water for Amman is supplied mainly from the upland aquifers and new developed aquifers to the south such as Lajoun Aquifer. An important aspect of the Disi project is that its implementation will secure an additional source of drinking water to Amman and thus relieve the upland aquifers from over-use. The Disi project will have an indirect effect on the quality of wastewater which in turn will lead to better quality water to be used for irrigation as a replacement for valuable freshwater.

The Disi water will form a major portion of the extra water that is planned to partially replace the low quality groundwater consumed domestically in Amman. This is an issue of high importance when considering that all the produced wastewater in Amman is directed towards the biggest treatment plant in Jordan; the As-Samra plant. This in turn will also help in upgrading the quality of the treated wastewater, which is stored in the King Talal Reservoir.

The project is in the area between the Disi well fields and Greater Amman and comprises the governorates of Greater Amman, Madaba, Karak, Tafleeh, Ma'an and Aqaba. The water will mainly be abstracted from the Dubaydib well field in the Disi-Mudawarra area south of Jordan and conveyed to Amman. The average abstraction of this well field will be 100 MCM/year. A 325 kilometer pipeline will convey the water from Disi-Mudawarra to Amman City.

III. ESTIMATED COST

The total cost of the project is estimated at US\$ 500-600 million.