

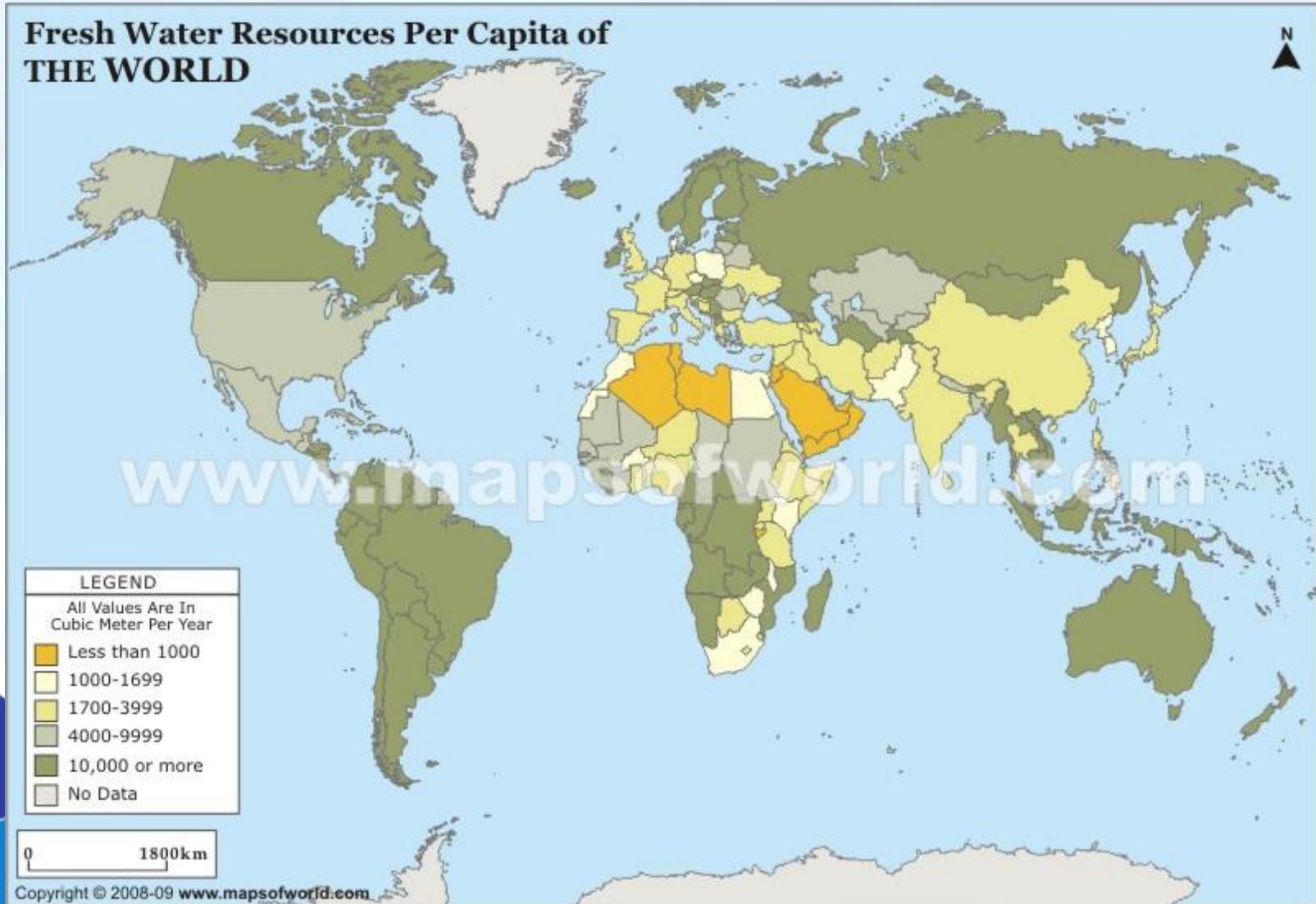


Cooperation in The Transboundary Water Management in Jordan Basin

Ministry of Water and Irrigation
Eng Moh'd Al Atrash



Jordan : Fourth Driest Country In The World

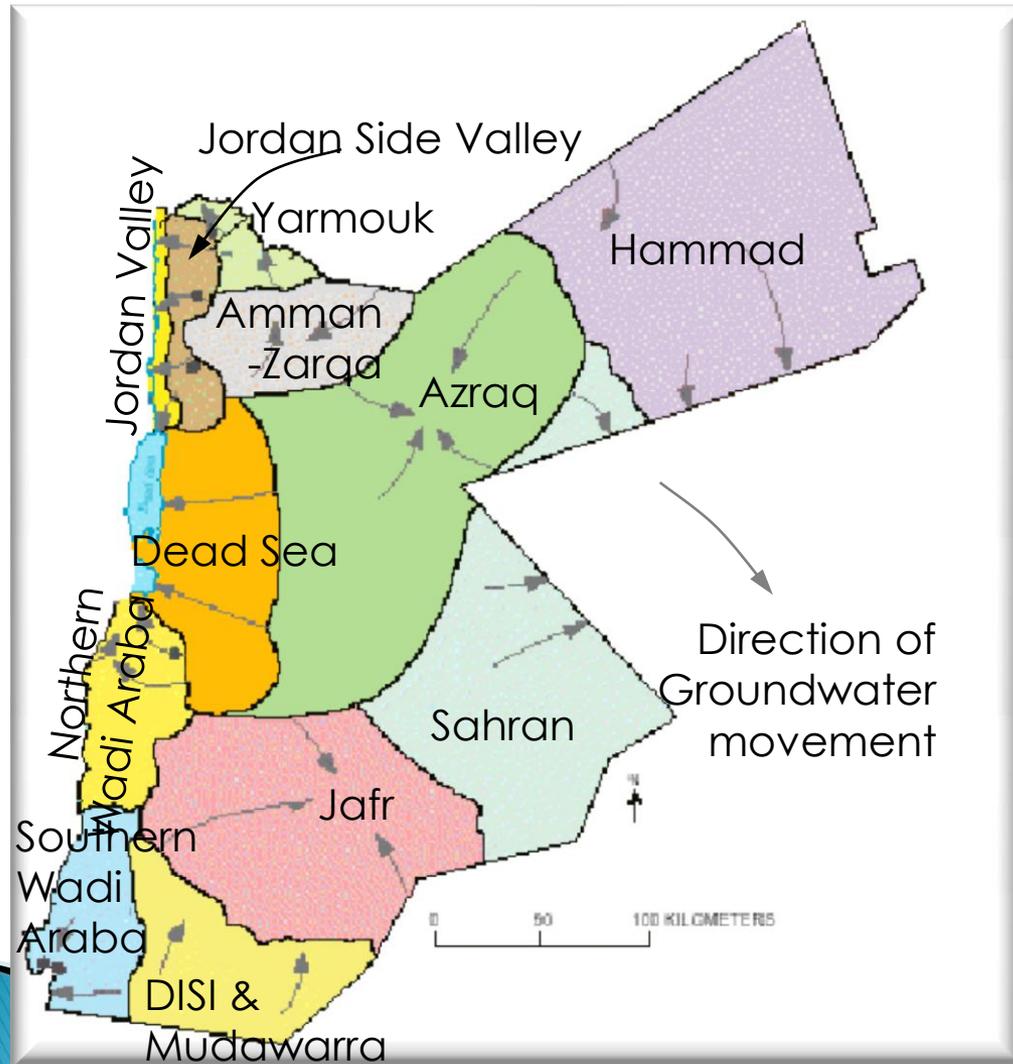


Water Resources In Jordan



- ▶ The water resources of Jordan are groundwater (brackish desalinated groundwater), surface water, treated wastewater
- ▶ Jordan is heavily dependent on groundwater resources (over 55% of supply).
- ▶ 10 out of the 12 groundwater basins are over-exploited.
- ▶ Agriculture is the largest water consumer with 56% of the water use in Jordan in 2011.

Ground Water basins

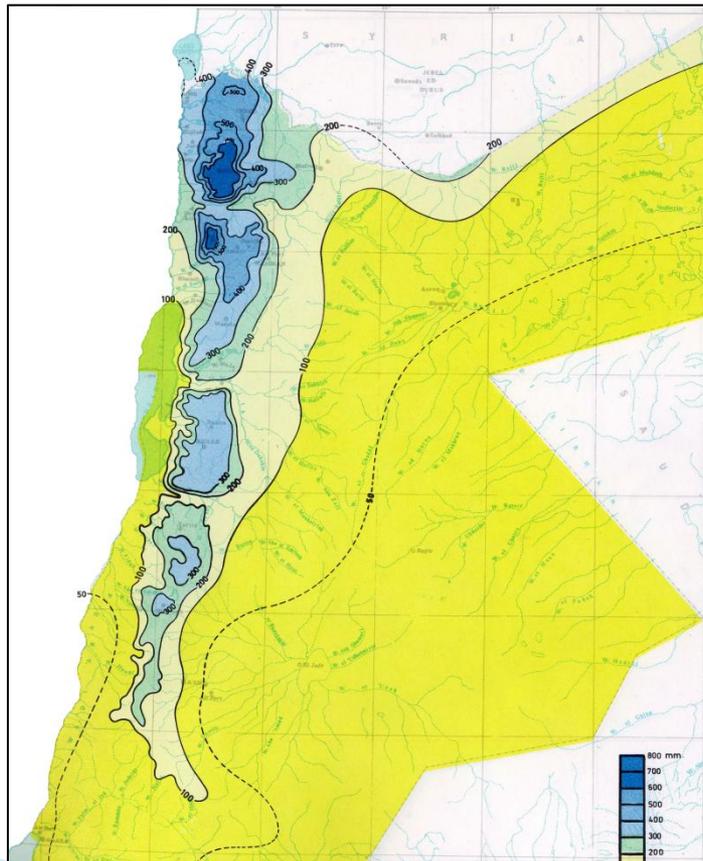


demand
outstrips
supply by
200%

annual per
capita water
availability of
120 - 145
m³



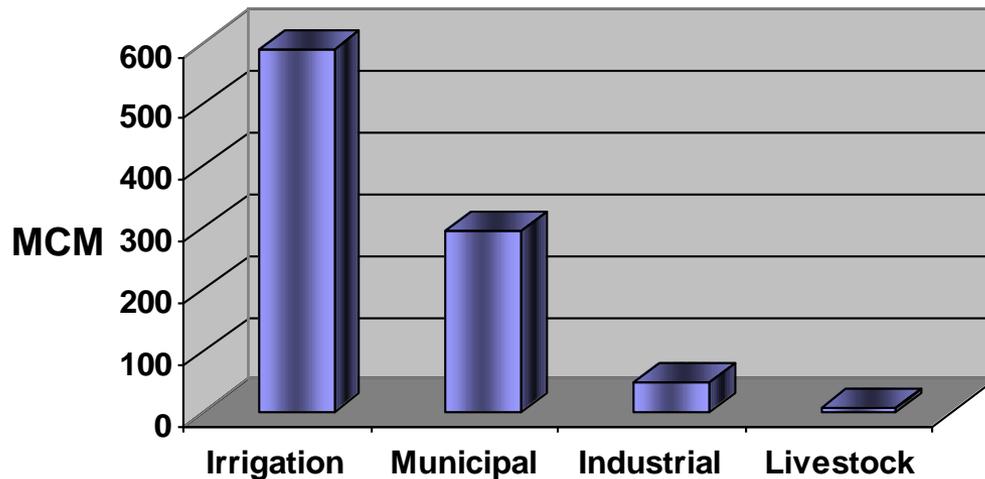
Spatial Distribution of Rainfall in Jordan



- ▶ Annual rainfall ranges from less than 100 mm in the desert regions to about 400-600 mm regions to about in the western mountains.
- ▶ 93% of rainfall is lost to evaporation



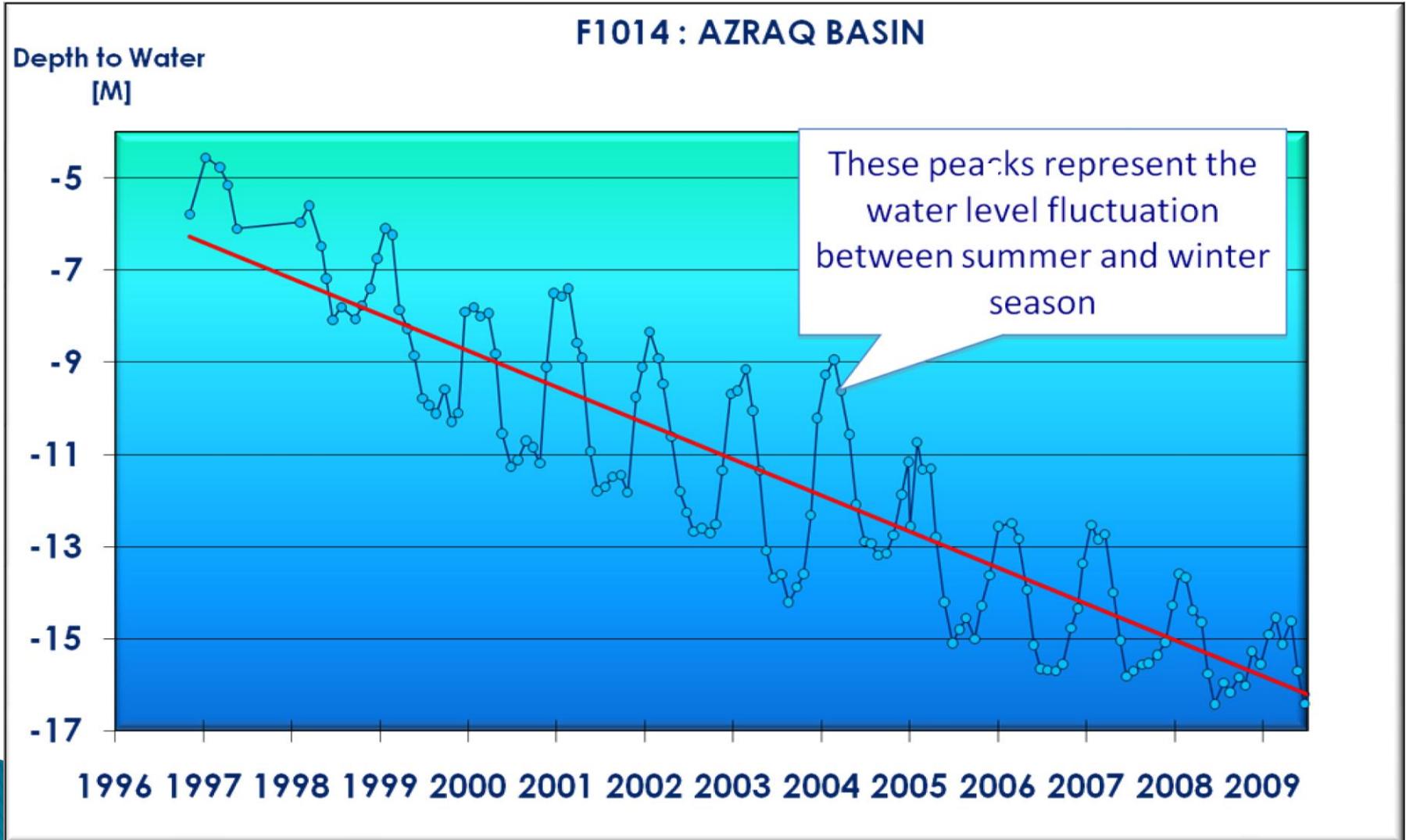
% Water uses per sector



Percentage of water used:

- ▶ 63% for agriculture.
- ▶ 31% for municipal.
- ▶ 5% for industrial.
- ▶ 1% for other uses.

Decreasing Groundwater





Challenges

- Rising water needs for expanding economic sectors, such as industry and tourism.
- Population growth (2.5%/year) and large refugee influxes.
- High rate of non-revenue-water at around 40%.
- Limited funding and private sector participation.

- Weak coordination with neighboring countries of shared water resources.
 - Limited energy sources and high dependency on foreign sources (96%) of energy comes from imported oil and gas
 - Climate change predictions: 20–25% decrease and strong variability of rainfall; temperature rise of 2°C
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Case study

Peace Treaty



- ▶ On the 1994, Jordan and Israel signed a historic peace treaty between the two countries.
- ▶ Annex II of the treaty included an agreement on the 'rightful allocation' of the Jordan River Basin water resources.
- ▶ The agreement was bilateral and the three other riparian countries of the Jordan River – were not included.



Upper Tributaries

- ▶ The Hasbani: Emerging in Lebanon, flowing mostly in Lebanon.
- ▶ The Banyas: Emerging and flowing in Syria.
- ▶ The Dan: Emerging and flowing inside Israel.
- ▶ The three tributaries meet at a location inside Israel and form the beginning of the Jordan River.



Lower Tributaries

The Yarmouk: Four tributaries in Syria, one in Jordan, flowing in a gorge where the common borders are located. Downstream it forms the borders between Jordan and Israel.





Joint Water Committee

- ▶ The agreement created a Joint Water Committee (JWC) as a permanent institution charged with implementing the agreement and addressing additional water matters that may might arise.
- ▶ A number of professional advisors attend the Committee meetings, and the group operates by consensus. The JWC was meant to be a means of resolving the ambiguities in the agreement through compromise building.



specifies allocations

- ▶ The treaty specifies allocations of the Yarmouk River that Israel may extract during the summer and winter periods for its needs. In exchange, Jordan is allowed to store of water in Lake Tiberias during the winter; Israel is to release this water back to Jordan each year during the dry season.
- ▶ The treaty specifies that on the Jordan River, Israel may maintain extraction levels equivalent to its level of use in 1994, and Jordan may withdraw an equal amount when there is sufficient supply.



- ▶ The treaty allocates specific amounts of groundwater to Israel south of the Dead Sea and it allocates certain spring water to Jordan near Lake Tiberias.
- ▶ It also stipulates that Israel and Jordan will cooperate to "find" an additional 50MCM of water for Jordan. Jordan and Israel currently cooperate through a Joint Water Committee.



Applying the water development

- ▶ The agreement includes a number of trades that created value. For instance, the parties were able to use water storage technology of water availability in the basin. Also, the treaty package offered Jordan two additional value-creating opportunities.
- ▶ The first involved the building of new storage dams.
- ▶ The second was a commitment that both Israel and Jordan made to jointly seek new sources of water for Jordan through the use of new technologies such as desalination.



The "Red – Dead Sea" Canal

- ▶ In 2005, Israel, Jordan, and the Palestinian Authority endorsed a plan to build a water conduit to carry water from the Red Sea to the Dead Sea, which is rapidly shrinking due to extraction from the Jordan River. This plan is intended to replenish the Dead Sea, provide water for desalination, and provide opportunities for hydropower.

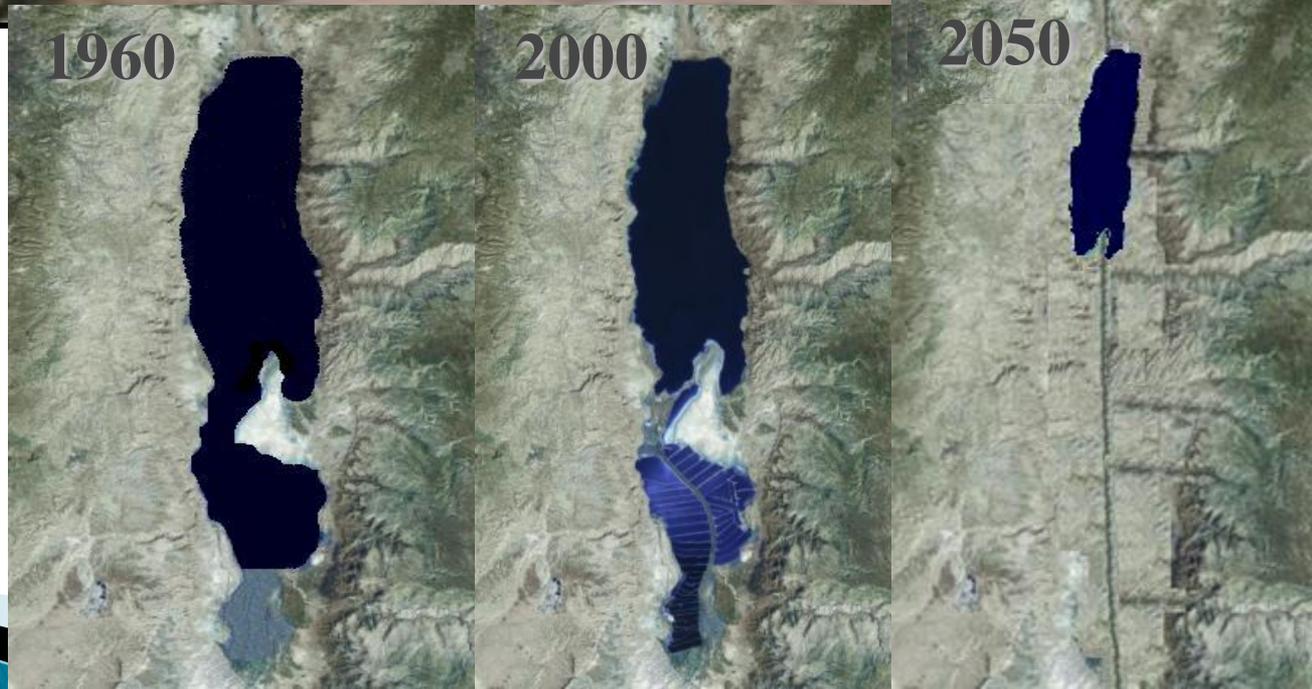


Benefits:

- ▶ (Water supply project with environmental benefits or environmental project with water supply benefits?)
- ▶ Environmental: Restoration of Dead Sea.
- ▶ Water supply: to Jordan ,Israel and Palestine.
- ▶ Economic: tourism, potash & salt industries.



**Drown down of dead
sea level by years**





Factors Facilitating Agreement

- ▶ Lumping in one basket of negotiations the topics of water, energy and the environment.
- ▶ Real intentions to arrive at a peace treaty between the two countries.
- ▶ Each side put himself somewhere other.
- ▶ A thirsty neighbor is not a good neighbor.

Water Development Framework



Have all the right parties been included adequately?

- ▶ Because the Israel–Jordanian water treaty is a bilateral agreement, the three other riparian states (Palestine, Lebanon and Syria) were not included, despite their importance to a comprehensive and sustainable agreement on water resources in the Jordan River Basin



Conclusion

- ❑ The development and management of shared water resources between Jordan and neighbouring countries a challenge for water managers and experts. There is a clear need for a conceptual framework or a methodology to manage shared water resources.
- ❑ The proposed Water Resources Management Plan will help to come to a more just allocation of water resources in the transboundary basins and will stabilize the political situation in the region
- ❑ Needs direct support from international organization.

Thank you for your kind
attention

