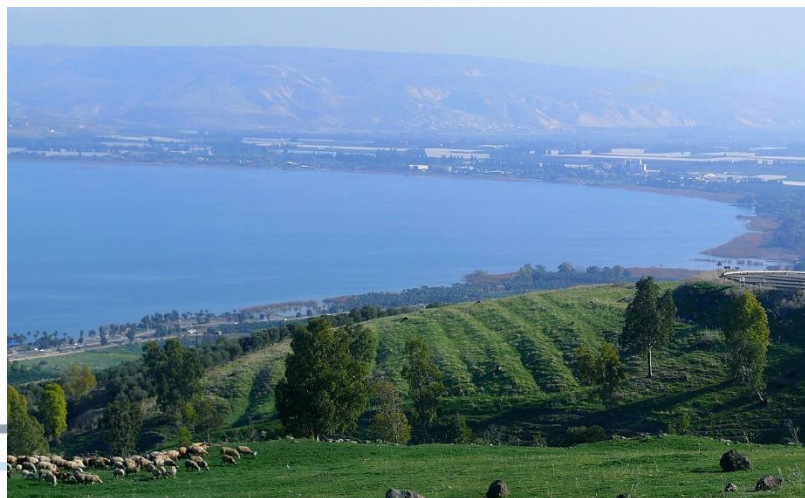




# Israel Water Sector

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Ministry of Water Resources  
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# The Future Is Now: Iran's Drought Crisis Is Fueling the Country's Political Instability

Khuzestan's water crisis and the public backlash that it has caused are a preview of the challenges that Iran will endure in the years to come.

by **Matthew Reisener**

**I**n recent weeks, Iran has experienced a number of **demonstrations** protesting the lack of clean water in southwest Iran. Oil wells and sugar cane refineries, the historic economic lifeblood of the region, contribute to the crisis by polluting the water and inflicting residents with a myriad of health complications. Broken water pipelines, extended water outages, and widespread illnesses caused by the consumption of contaminated water resulted in an extensive grassroots response from those impacted by the crisis.

While protests against Iran's oppressive regime are hardly a new phenomenon, the recent uptick in demonstrations focused on grievances related to the Iranian government's mismanagement of environmental issues should be of great concern to regime officials. Specifically, the rising discontent in the oil-rich Iranian province of

AUGUST 30, 2017

## Jordan faces likelihood of much more frequent long and severe droughts, Stanford researchers find

*Jordan is among the world's most water-poor nations, and a new, comprehensive analysis of regional drought and land-use changes in upstream Syria suggests the conditions could get significantly worse.*



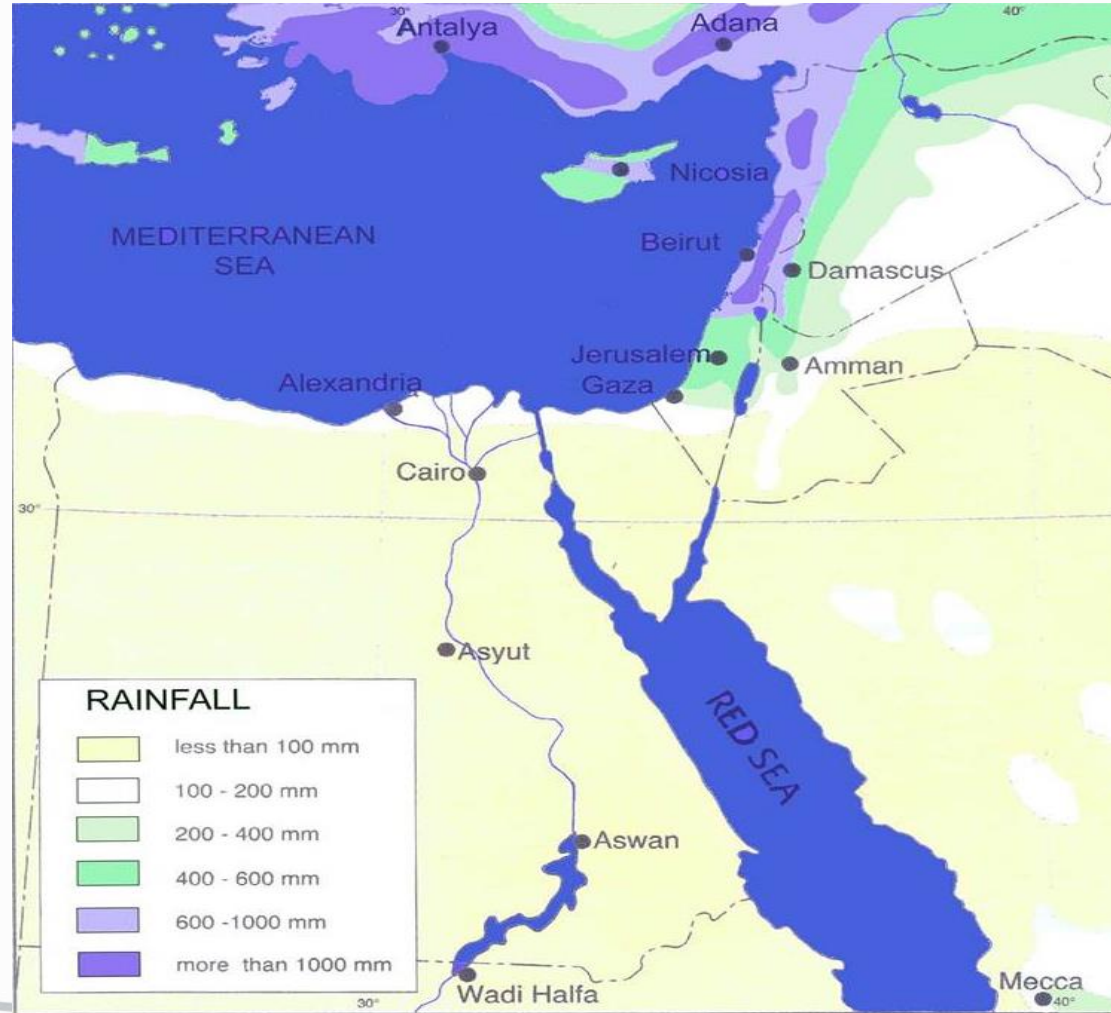
BY ROB JORDAN



A new analysis of drought in Jordan – one of the world's most water-poor countries – suggests that without alternate water sources, better land use and improved water-sharing agreements, the country could face a future of potentially disastrous droughts. The research, which was the first to analyze several types of drought and to take into account land use changes in upstream Syria, could inform water policies in other arid countries with shared rivers.

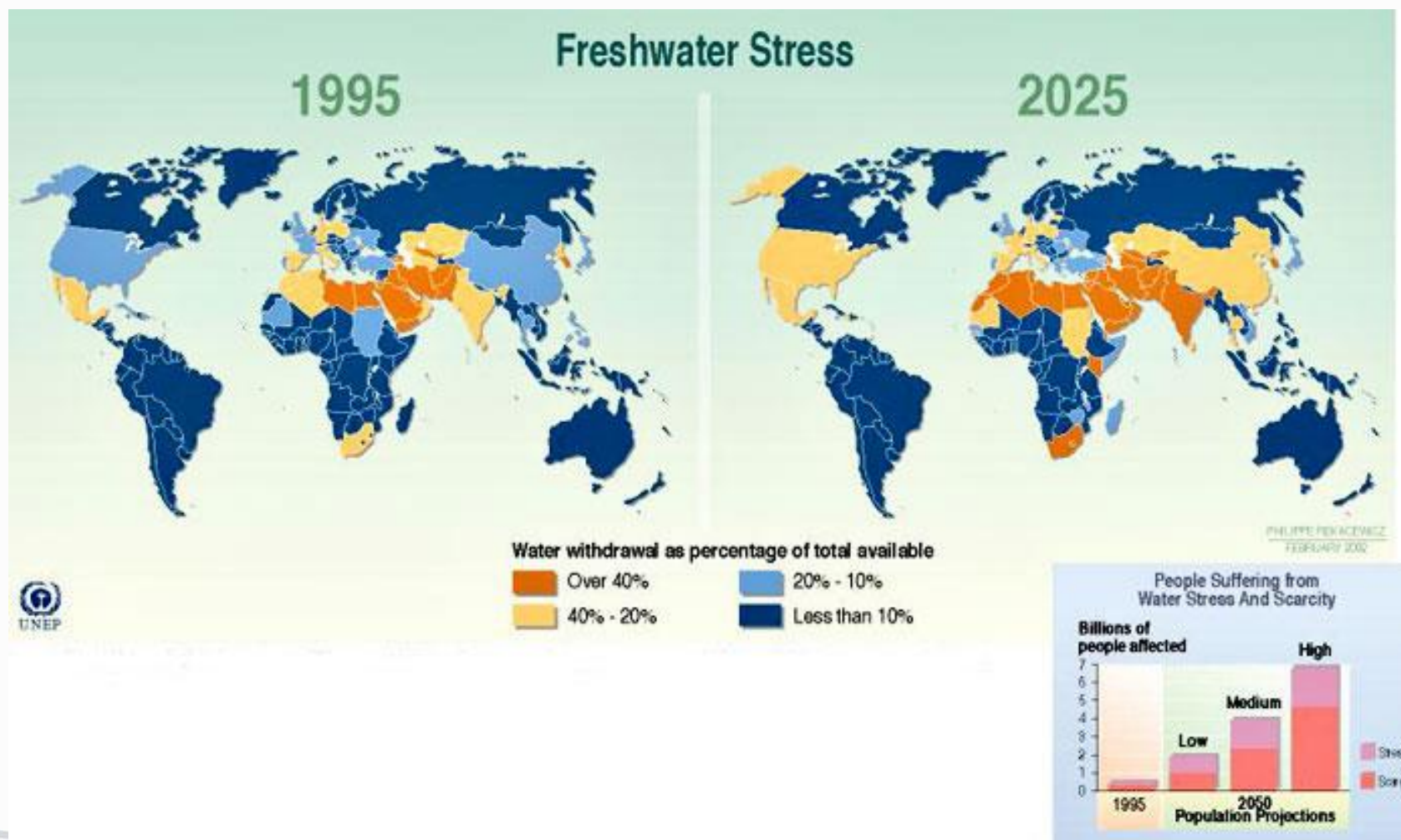


# The Desert strip in Israel



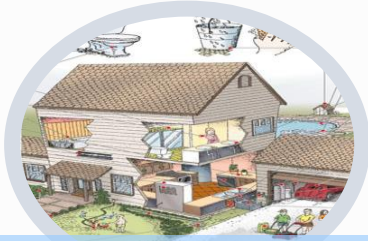


# Worldwide



# Israel Water Sector – Visit Card

Annual Water Supply – Over 2 billion m<sup>3</sup>



9 million  
residents



200,000 Ha irrigated  
fields  
To 14,000 farms



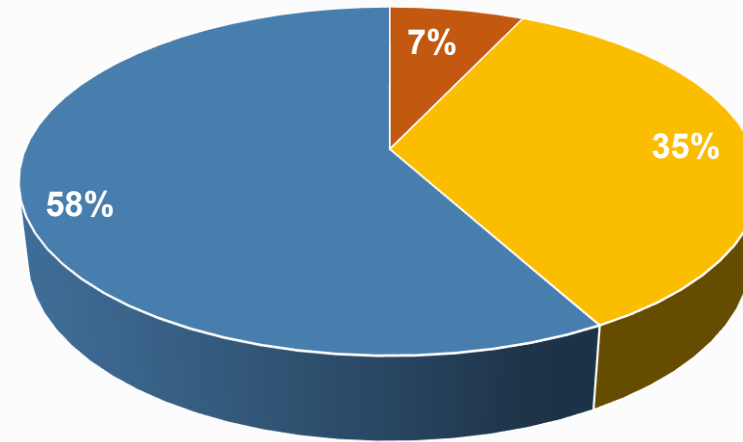
Over 1,000 Industrial  
plants



**Annual financial volume**  
**3 billion \$US**



# Water demand in Israel



- Industry 140 MCM
- Domestic 733 MCM
- Agriculture 1200 MCM

- **+ Supply to Neighbors:**
  - PA – ~60 MCM
  - Jordan – ~50 MCM

**Total annual demand of about 2200 MCM**



# Water Gap

**NATURAL WATER  
RESOURCES**



**WATER DEMAND**  
**2200 MCM/year**

Sea of Galilee – 450 MCM/year  
Costal Aquifer – 240 MCM/year  
Mountain Aquifer – 340 MCM/year  
(small aquifers – 140 MCM/year)

**Total – 1170 MCM/year**

## Forecast for potable water demand:

2020 ~ 1.7 billion m<sup>3</sup>/annum  
2030 ~ 1.95 billion m<sup>3</sup>/annum  
2040 ~ 2.2 billion m<sup>3</sup>/annum  
2050 ~ 2.45 billion m<sup>3</sup>/annum



# Closing the water gap

- Water saving
- Wastewater Reuse
- Desalination





# Water Saving in the Urban sector



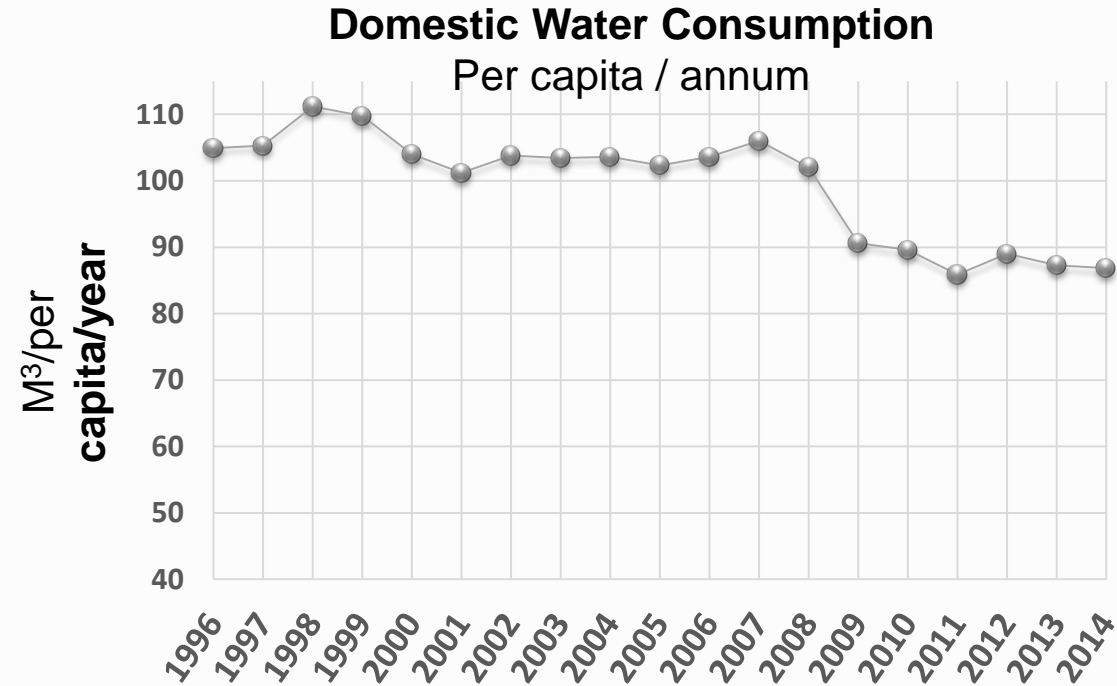
Increasing public awareness



Dripping Irrigation  
and Water saving in  
gardening

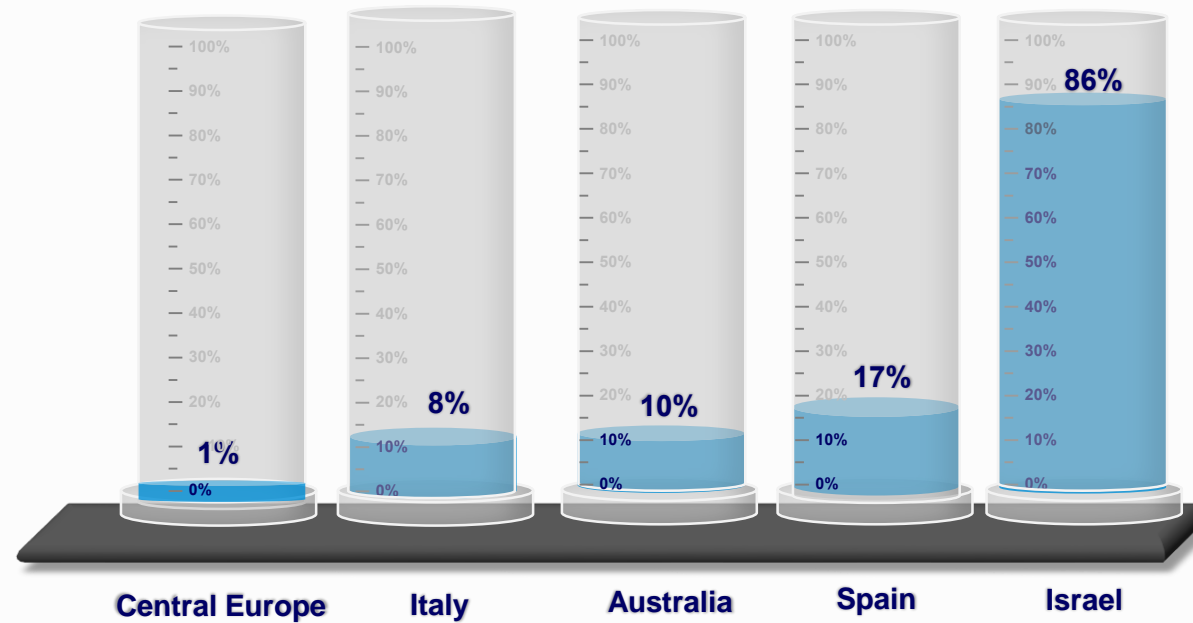


Installing water saving devices



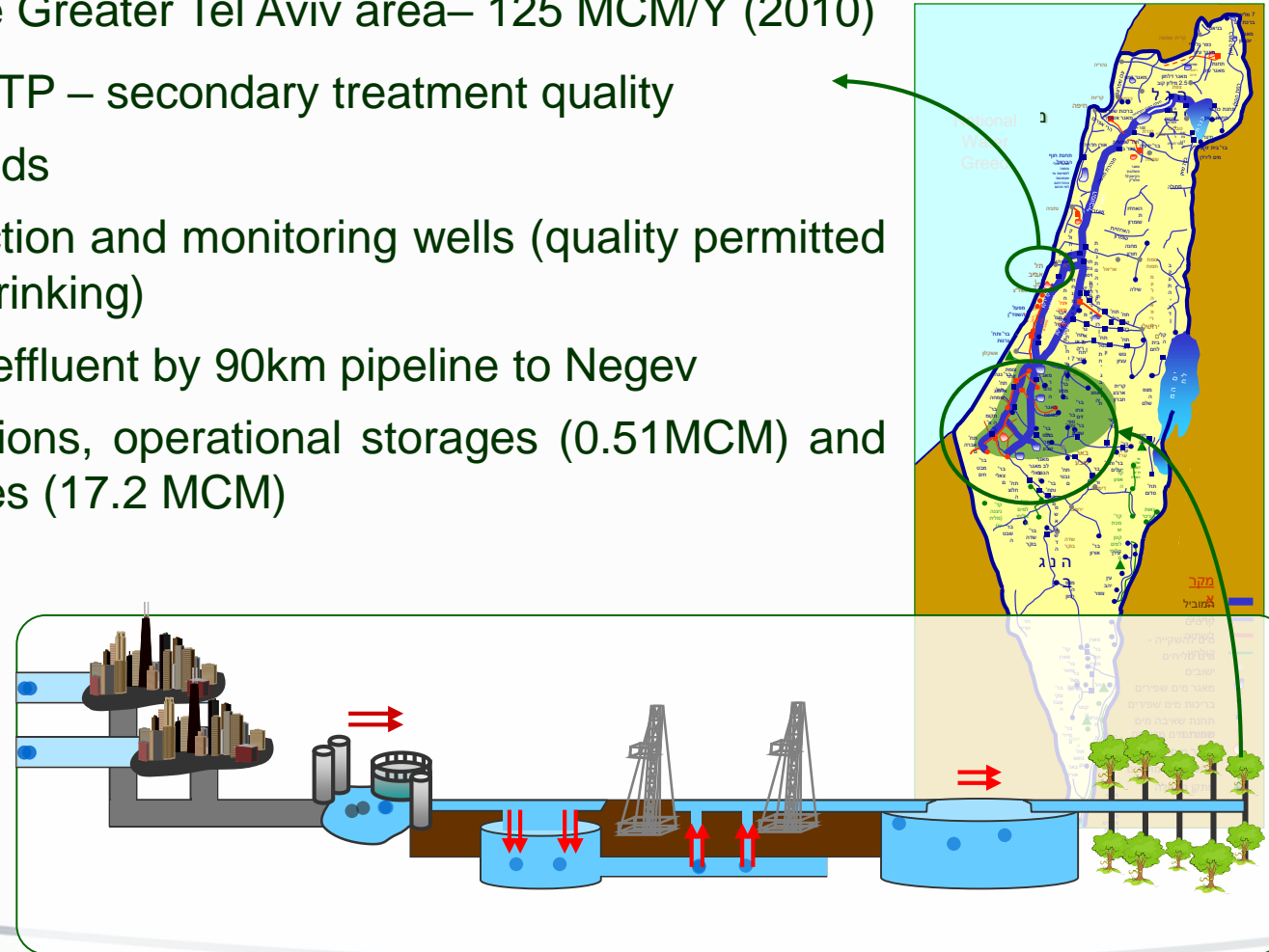
# Water Reuse

- Israel reuses **86%** of the treated effluents – the highest rate in the world
- Quarterly wastewater treatment by means of ultra filtration and desalination

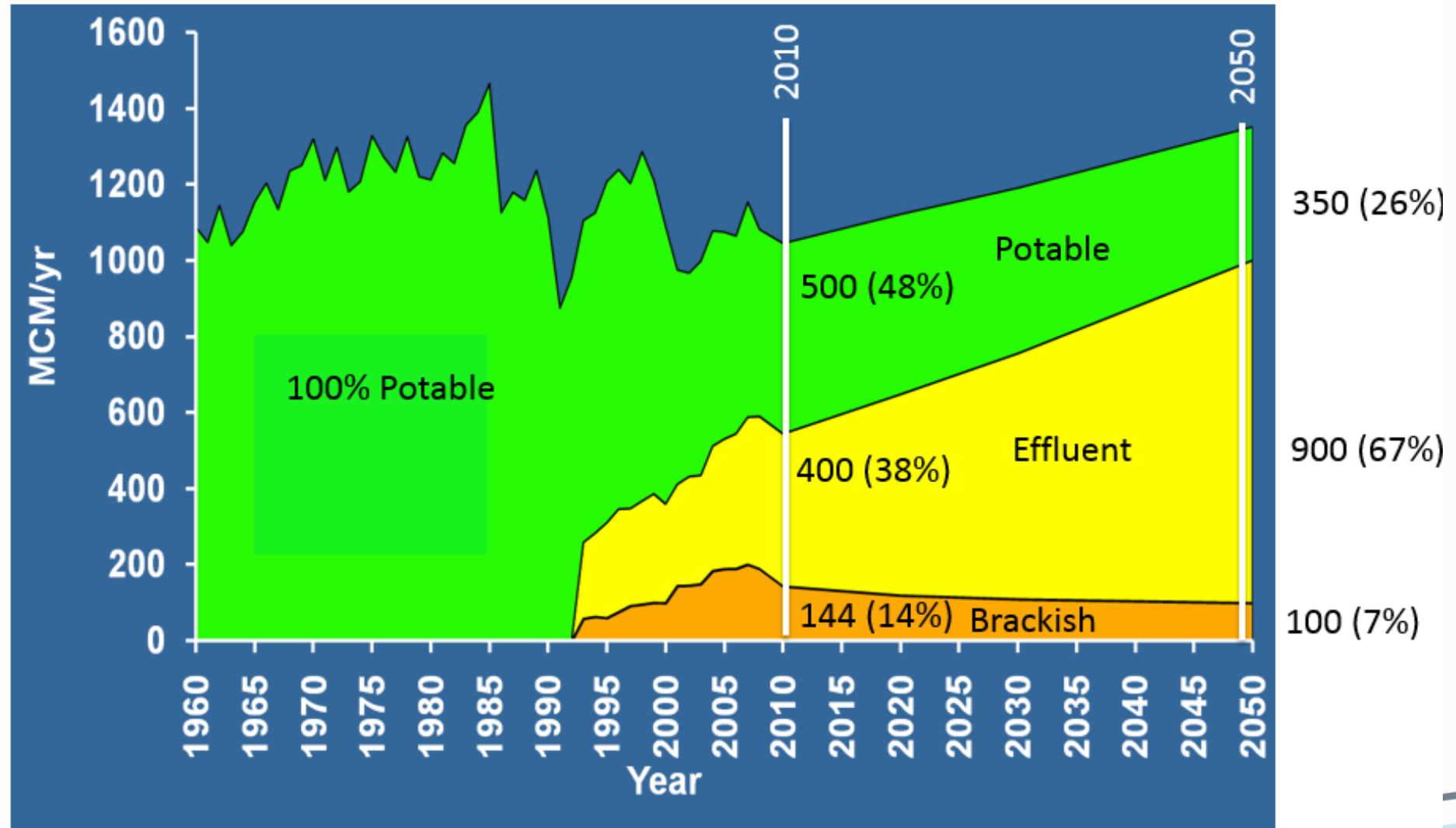


# Sewage Effluents Reuse

- Sewage from the Greater Tel Aviv area– 125 MCM/Y (2010)
- Large-scale WWTP – secondary treatment quality
- Six infiltration fields
- Over 150 production and monitoring wells (quality permitted for “occasional drinking)
- Diversion of the effluent by 90km pipeline to Negev
- 32 pumping stations, operational storages (0.51MCM) and seasonal storages (17.2 MCM)



# National Consumption of the Agricultural Sector



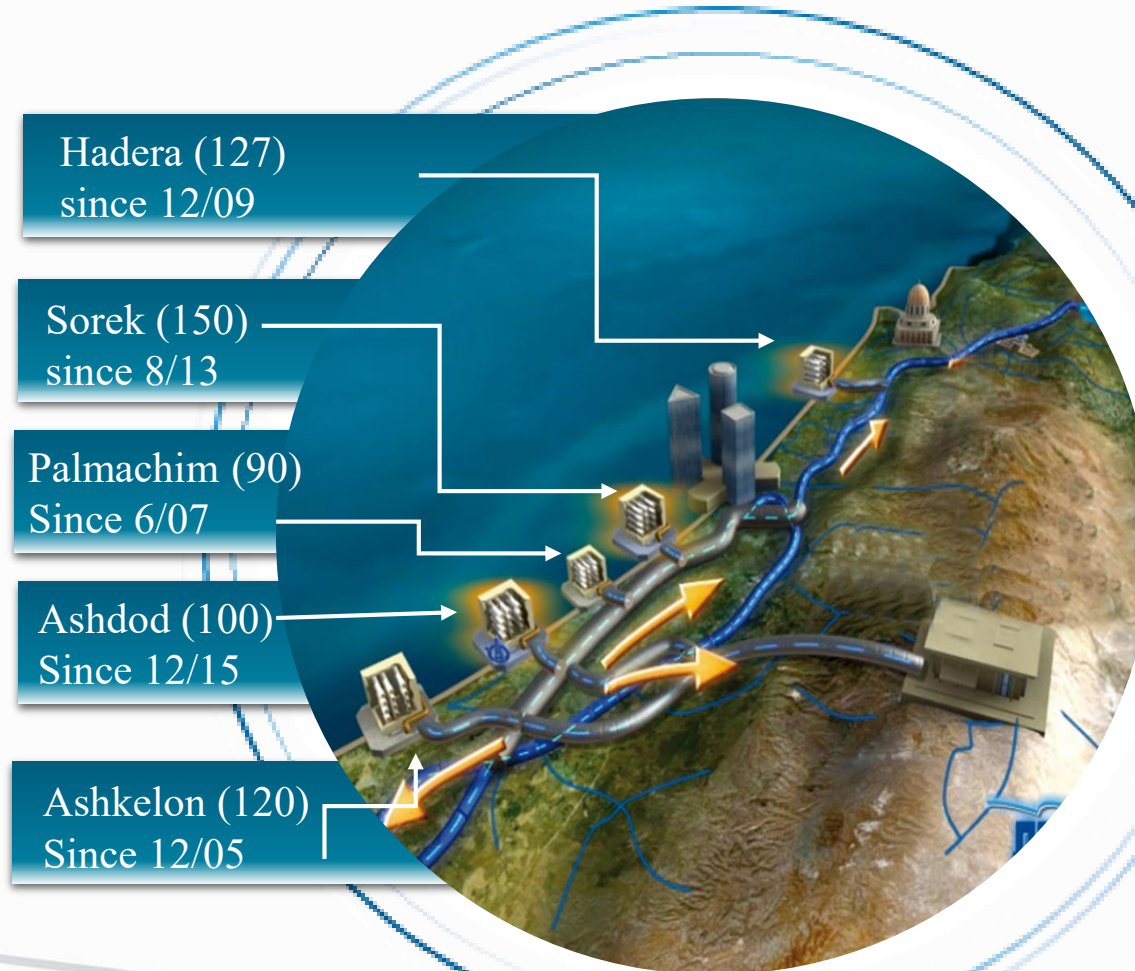


# Desalinized water - Game Changer

- Water Management: Enlarge or reduce the quantities of desalinated water production in accordance with the annual water balance requirements
- Long term water management at a national level
- Improved quality of potable water and sewage Development of the national and regional infrastructure

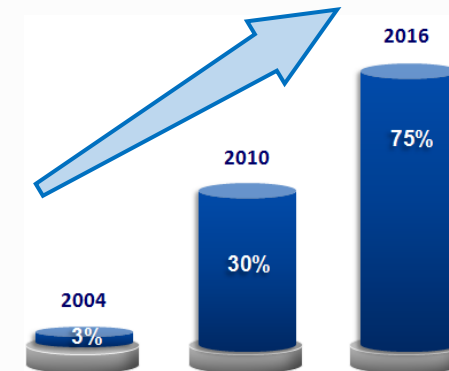


# The Israeli Water Revolution- Desalination (BOT)



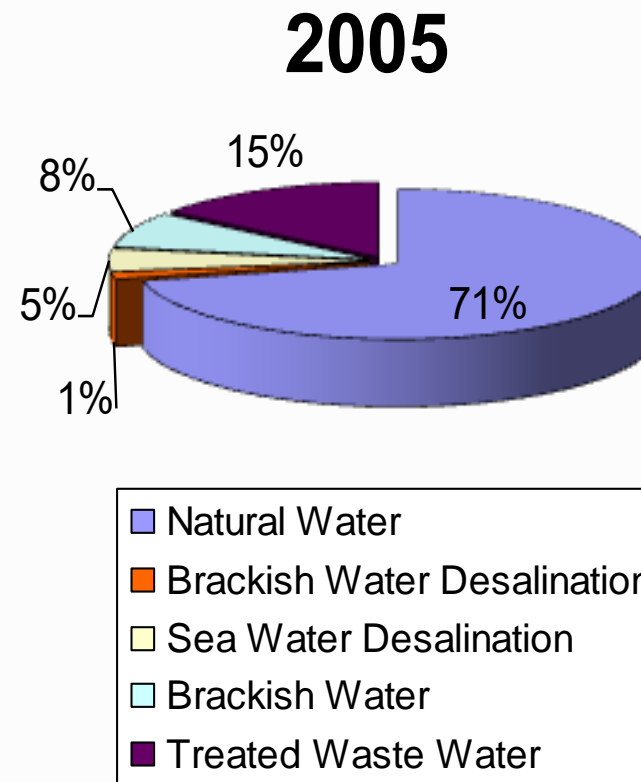
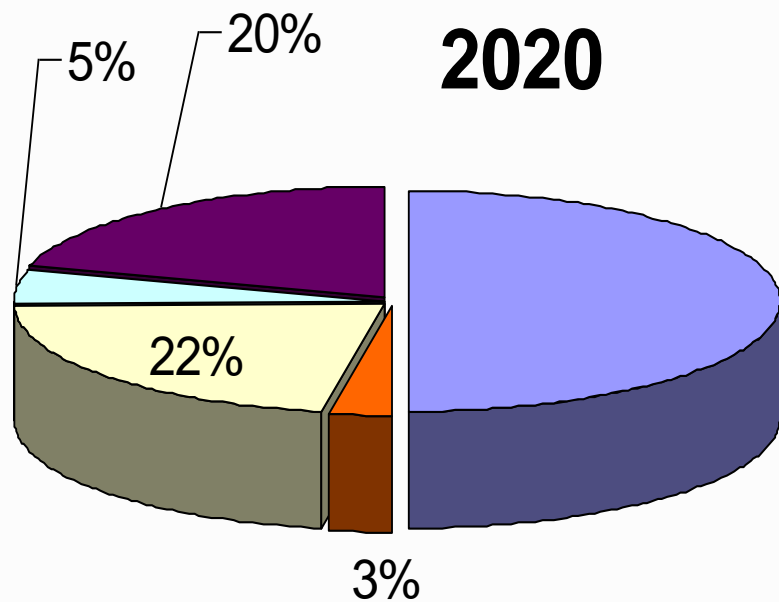
Supplying water from the Sea of Galilee  
within 7 days

Supplying desalinated water  
within 3 hours

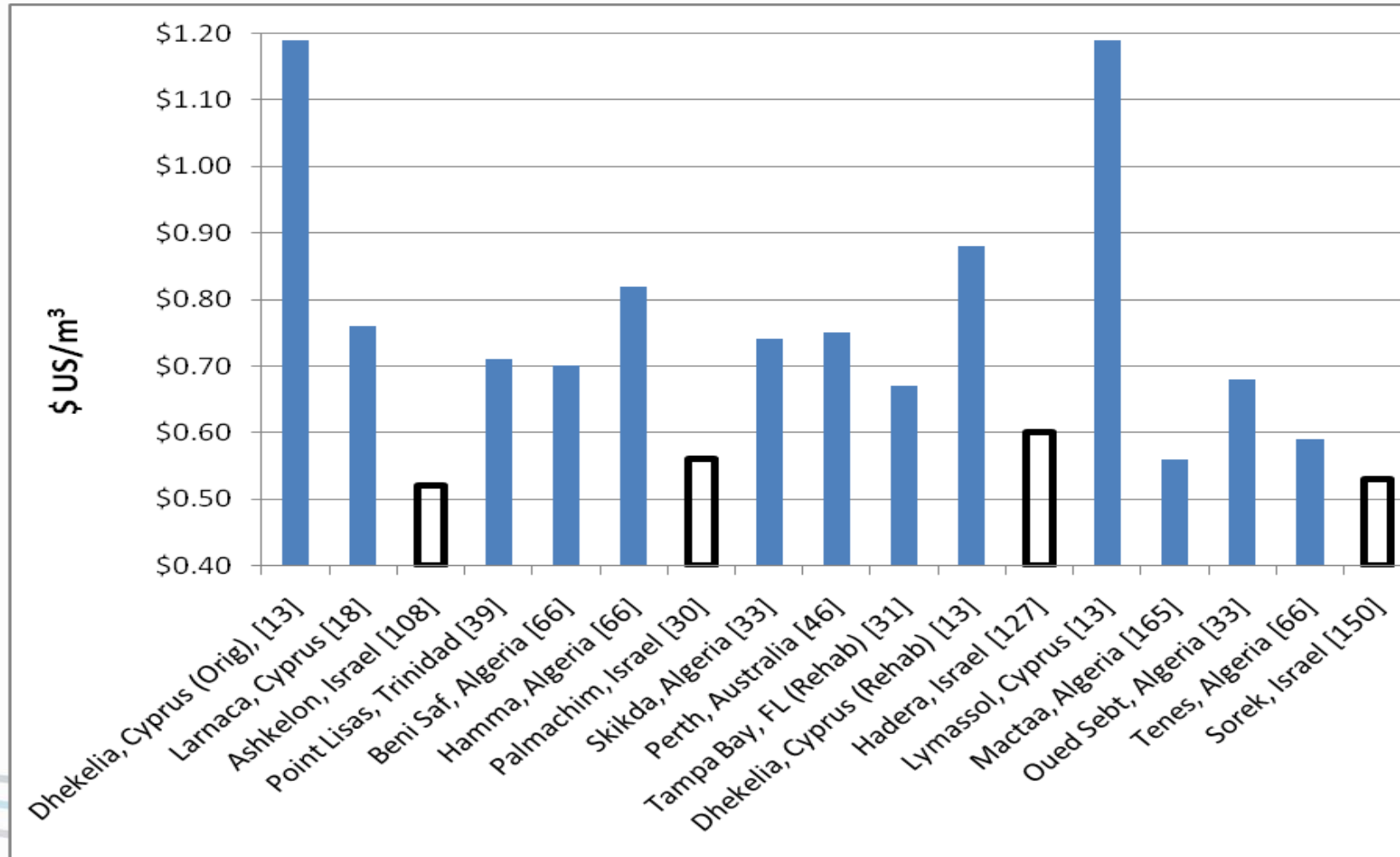


Since 2016, 75% Of The Drinking Water  
Comes From Desalination Facilities

# Water Sources in 2005 and 2020



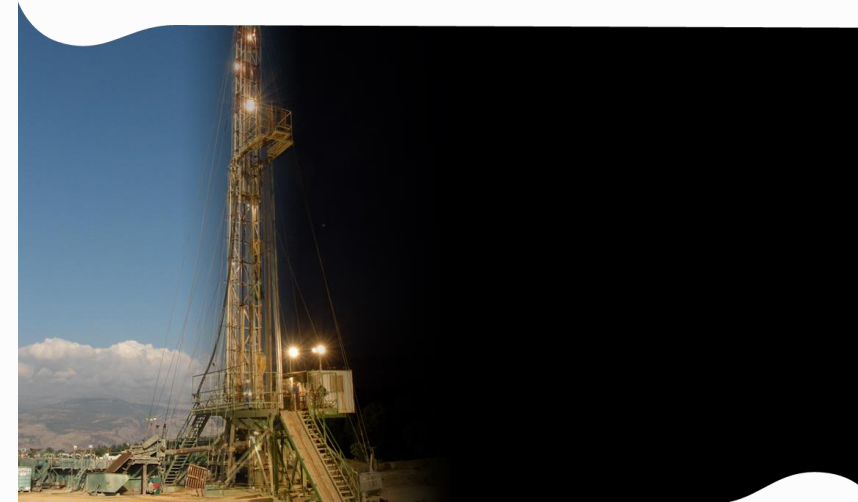
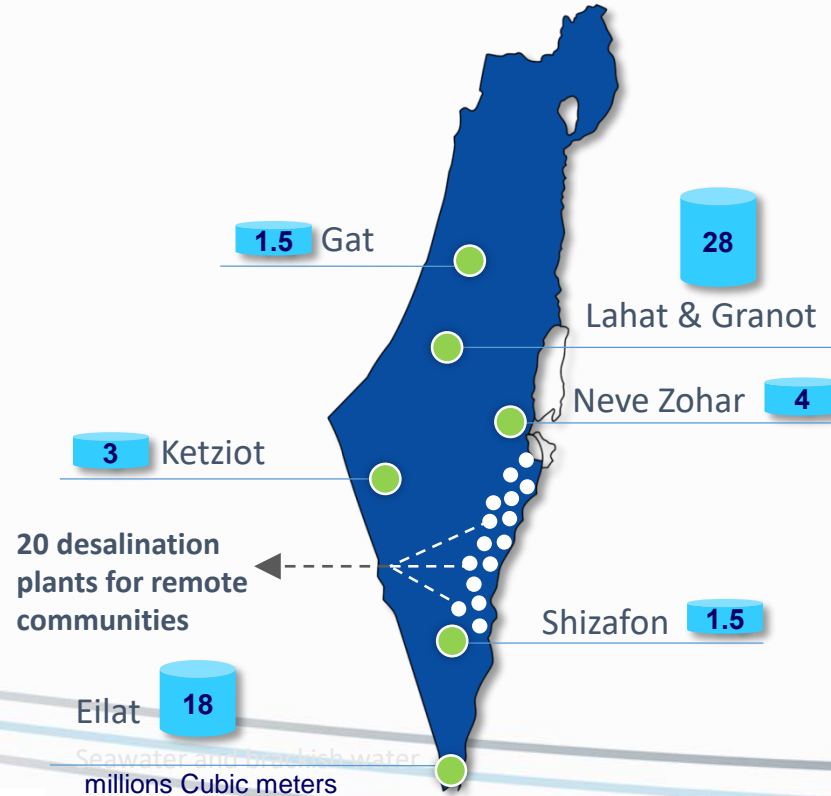
# Desalination Costs





# Desalination of Brackish Water

- **Types of Treated Water:** Brackish water, Secondary effluents, Surface water
- **Operational Facilities:** 39 brackish water desalination plants



# Water Security

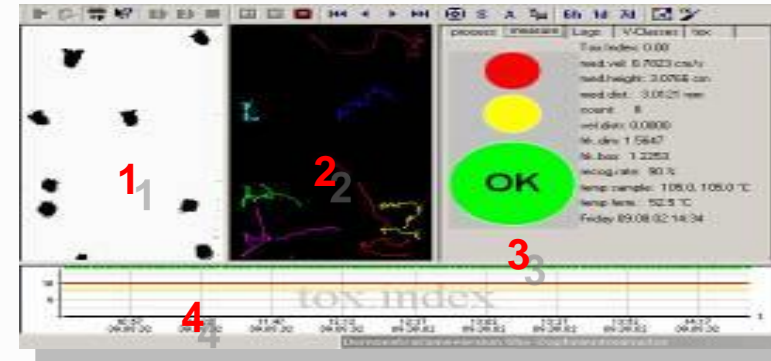
- Poisoning the water
- Sabotage of water facilities
- Missile attack\Act of war
- System failures
- Human error
- Earthquake/tsunami/storm

- **water quality Failure**
- **Lack of Water**

Israel definition: Eight hours without water for residents Means "water crisis"



# On line Detection Systems



# Innovation and technology challenges

- Water – Energy Nexus
- Water and wastewater quality/treatment
- Water security
- Water reuse
- New water - desalination
- Management of water systems & events
- Smart cities – smart water system
- Water loss
- Remote/online monitoring





# Future Projects

Ashkelon



Ashdod



Palmachim



Sorek



Hadera



West. Galilee



Sorek II



Desal. Target 2030 – 1.1 BCM

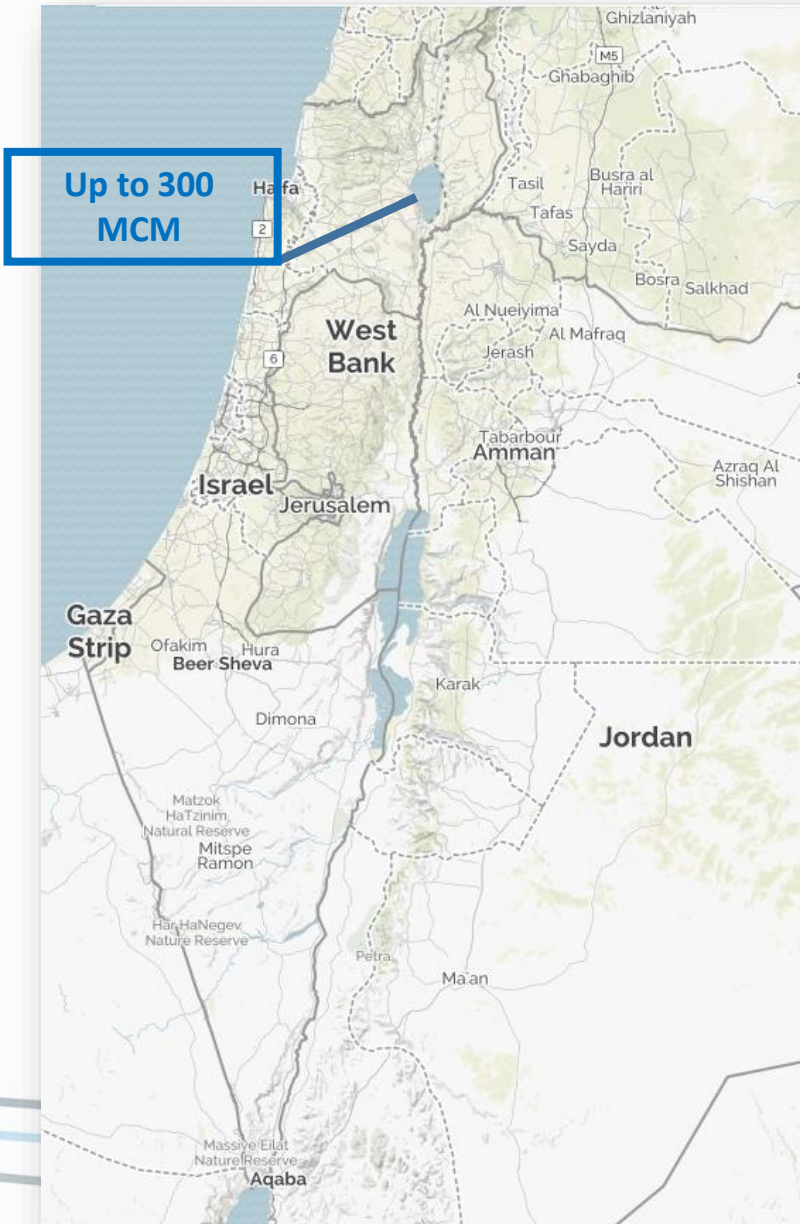
MCM 100

MCM 300

MCM 585



# Saving the Sea of Galille



# Rivers Rehabilitation

connecting areas to the national system

Golan Heights



Western  
Galilee



Upper Kinneret



Eastern Vallyes



Tzipori



Na'aman



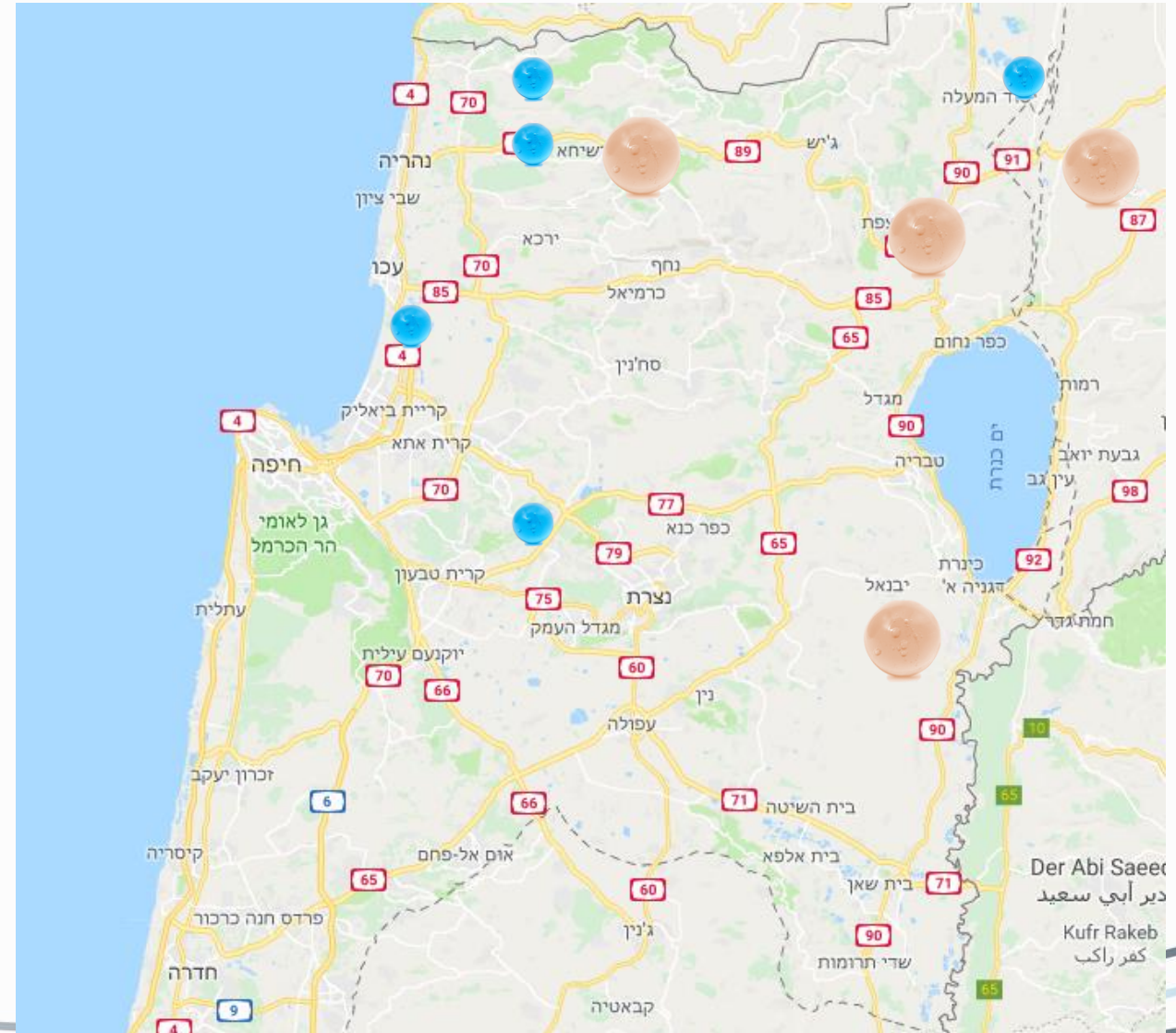
Ga'aton



Bet'set



Eynan



# Future Projects

- Annual Investment
  - ~B1 NIS → ~B1.5 NIS
- Over 100 new water wells
- Shafdan enlargement
- Other massive projects





# Thank you

## Israel, always a drop ahead

