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Water Resources Management

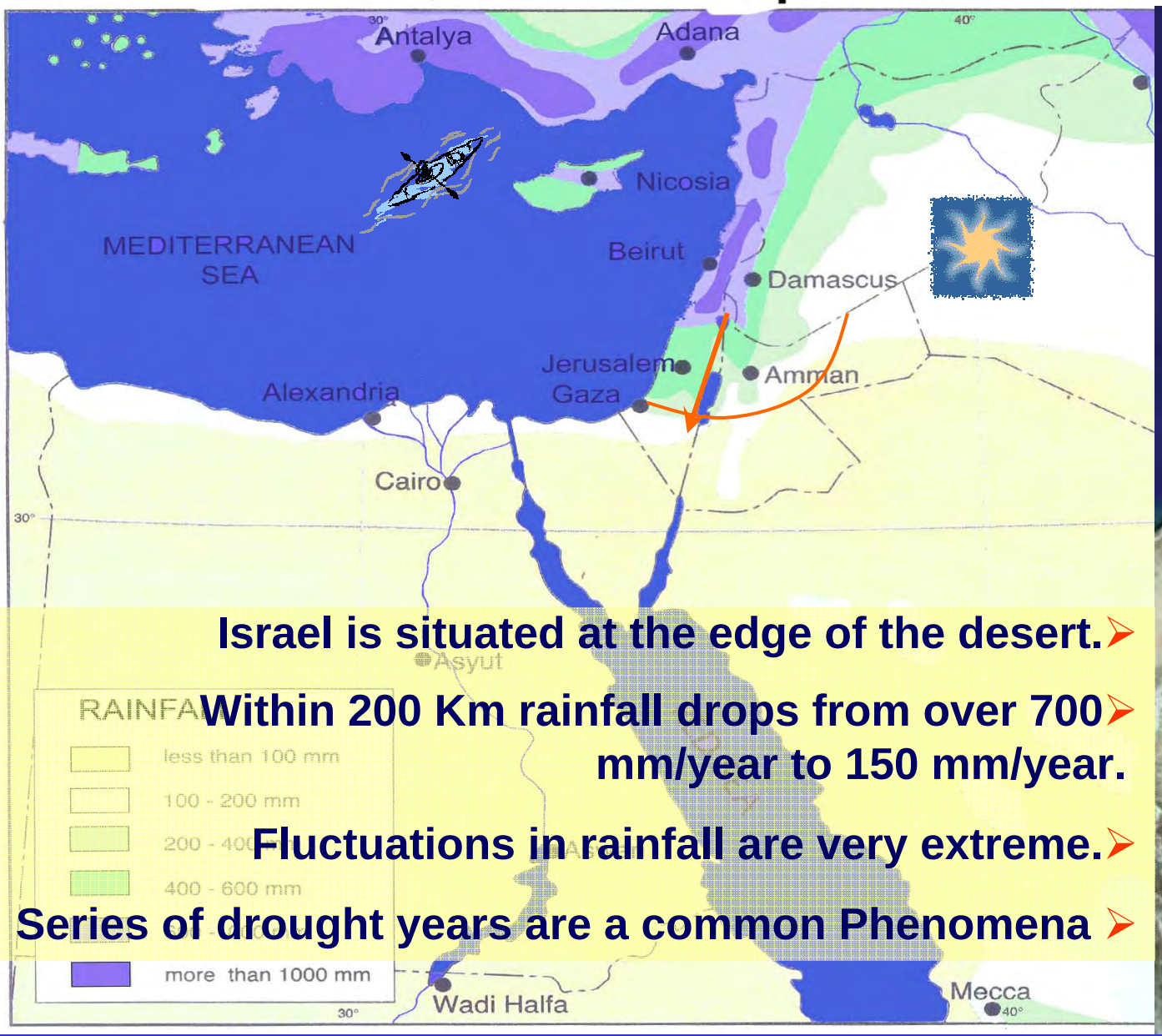
Socio-Economic Perspective

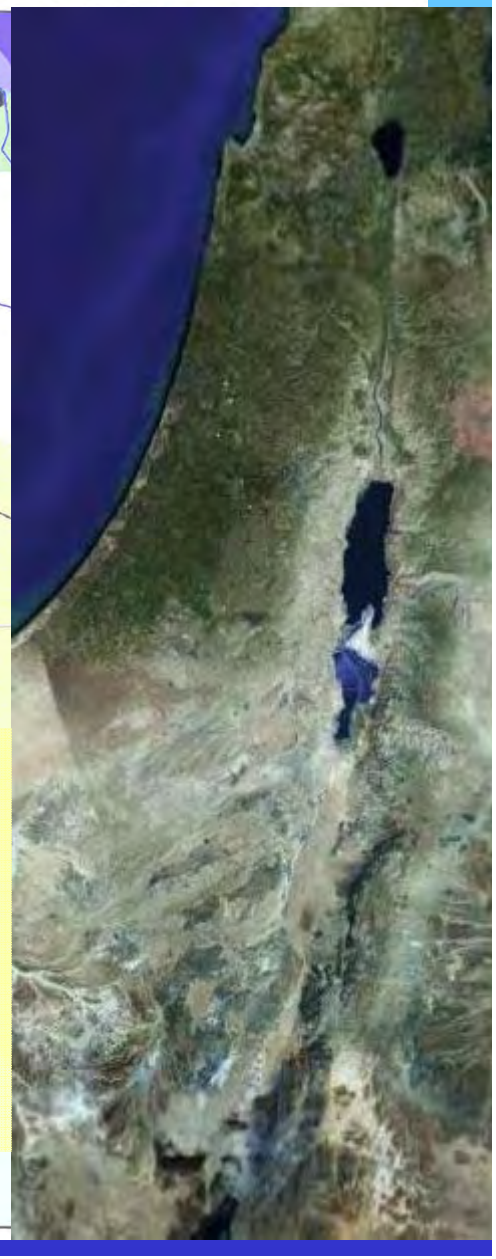
Tami Shor , Deputy Director (Regulation)

Israel Water Authority

April, 2010

The Desert Strip in the Middle-East





Israel is situated at the edge of the desert.

Within 200 Km rainfall drops from over 700 mm/year to 150 mm/year.

Fluctuations in rainfall are very extreme.

Series of drought years are a common Phenomena

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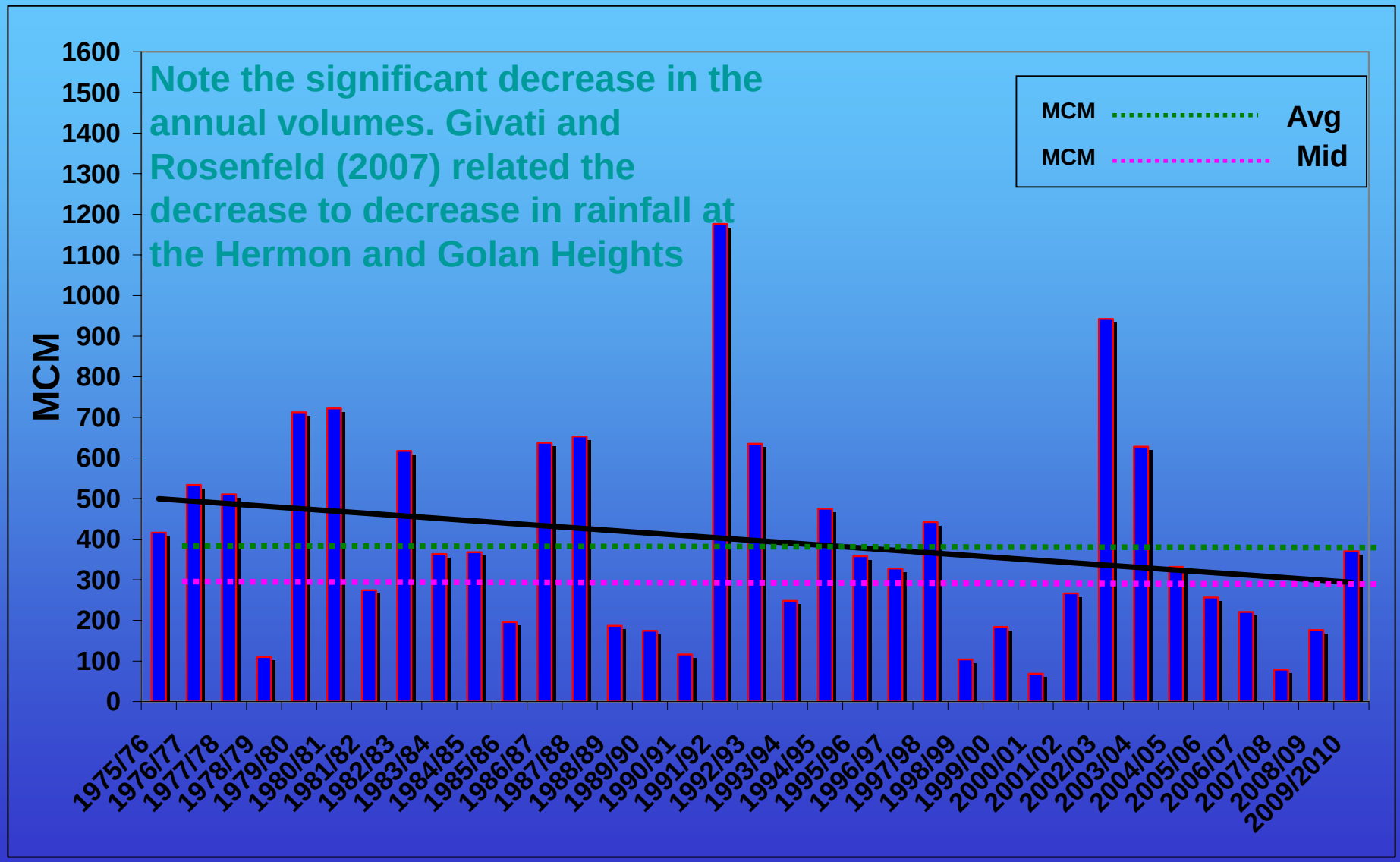
Time series for annual available water volumes in Lake Kinnert



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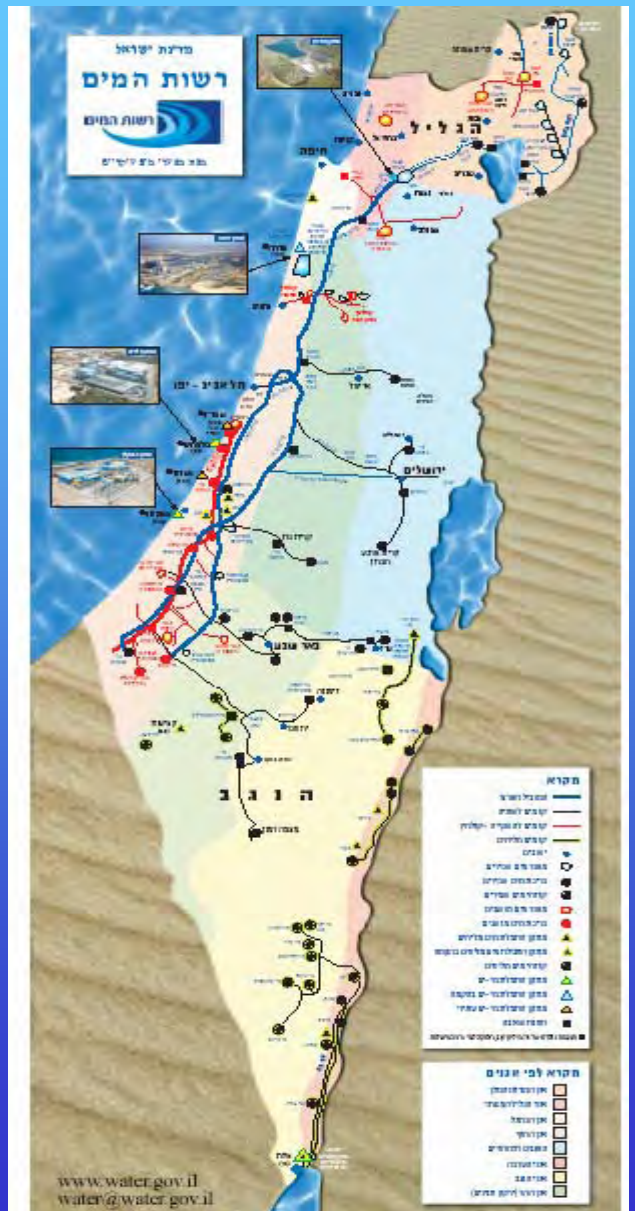
Main National Water Supply System



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Complexity of the water distribution system

- Different Sources to the main system: ground water, surface water, desalinated water
- Utilization of the different sources changes based on the hydrologic situation
- Different types of uses from the main system: domestic, agricalture, industry

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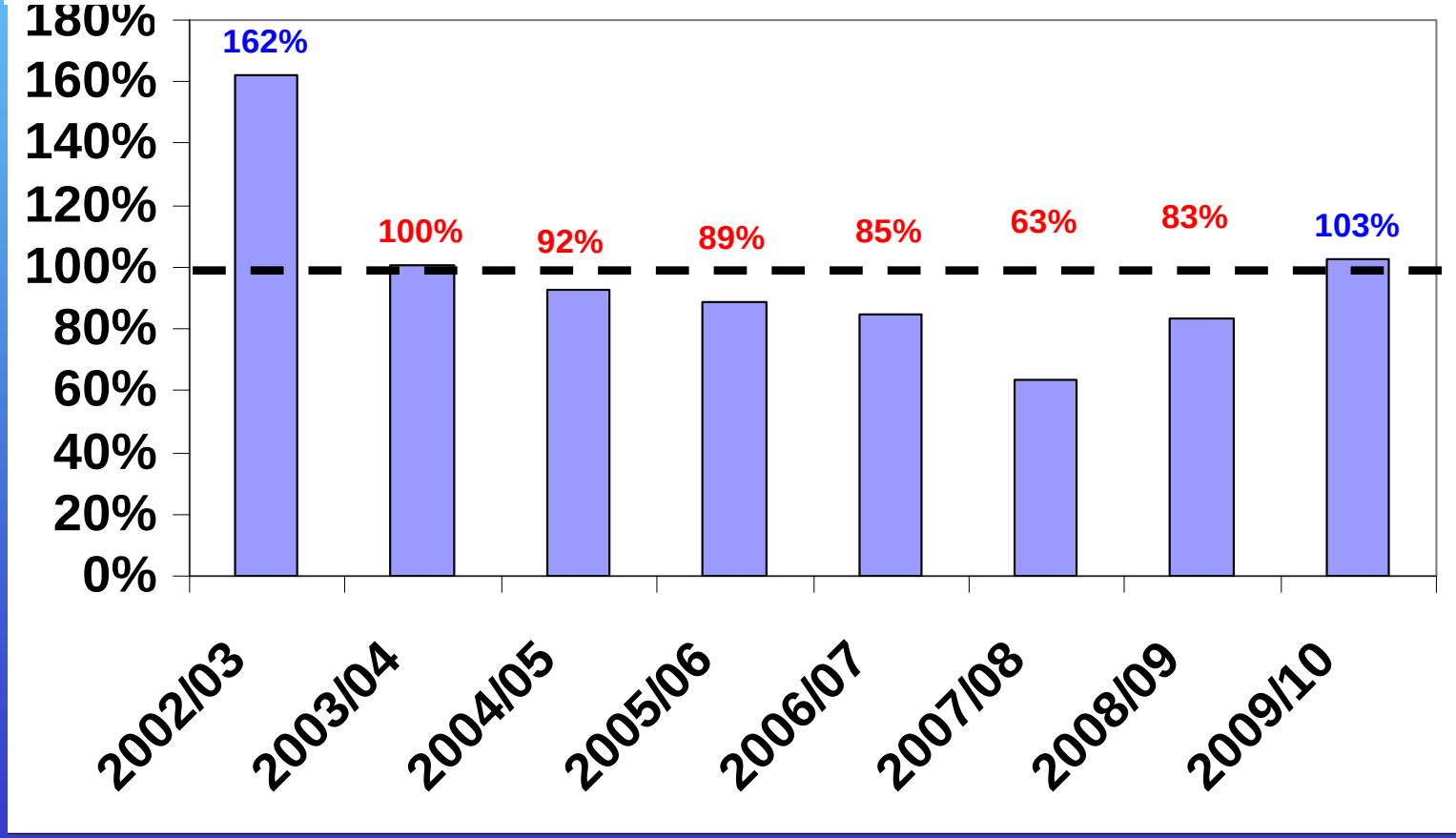
Annual precipitation at the Golan Heights (Lake Kinnert drainage basin) in respect to annual average



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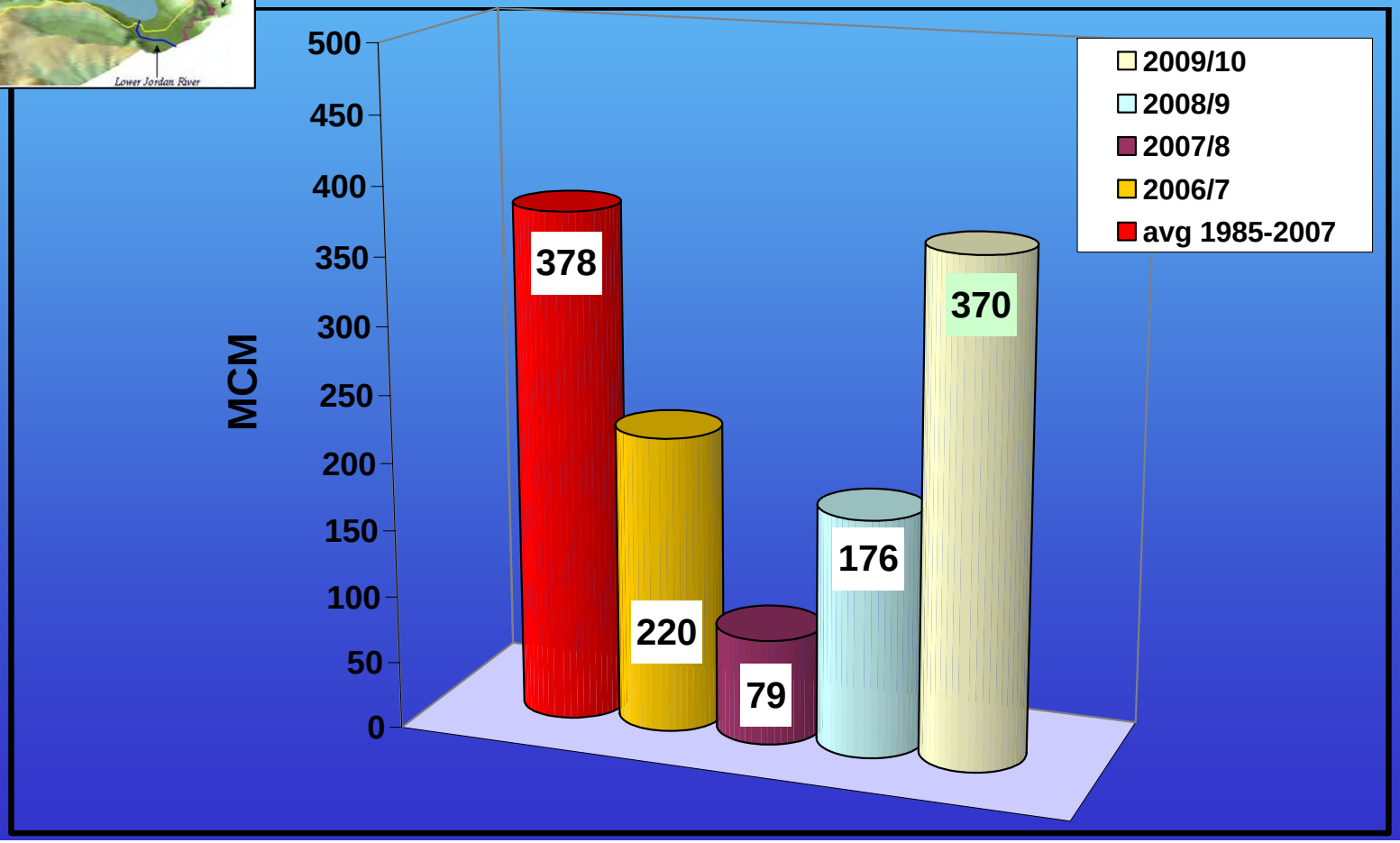
Annual available water volumes in Lake Kinnert



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Potable Water Balance for Years 2007-2009 (MCM)

2009	2008	2007		
176	513	753	Initial Storage	Supply
891	826	1059	Replenishment	
169	141	127	Sea Water Desalination	
20	14	14	Brackish Water Desalination	
80	60	0	Drought Actions	
1160	1041	1200	Total Supply	
661	721	744	Domestic	Demand
88	88	88	Industry	
359	433	474	Agriculture	
9	6	7	Nature	
137	130	127	Neighbors	
1254	1378	1440	Total Demand	
94	337	240	Deficit	
82	176	513	Final Storage	

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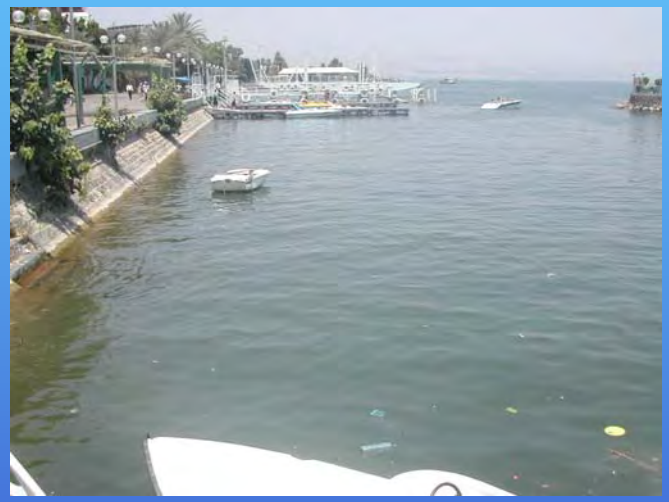
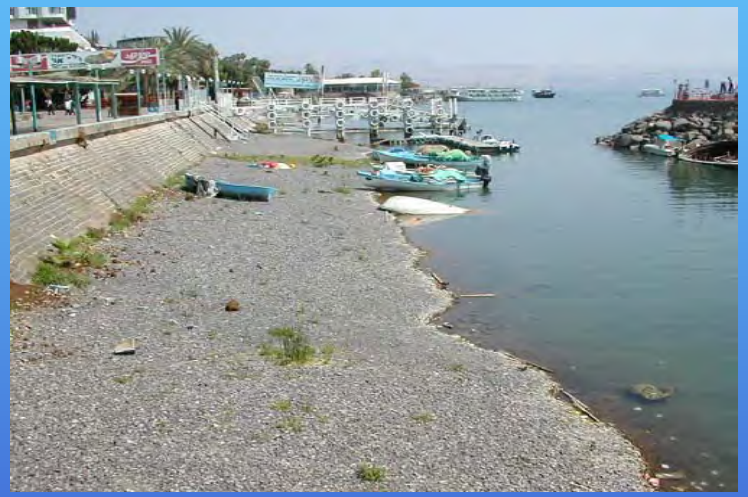
Sea of Galilee





Actions for Closing the Gap Between Supply and Demand – Long Term

- Water saving and efficient use of water.
- Water wells purification and aquifers water quality improvement.
- Increasing capacity of waste water treatment and upgrading effluent quality.
- Desalination.

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Sea Water Desalination

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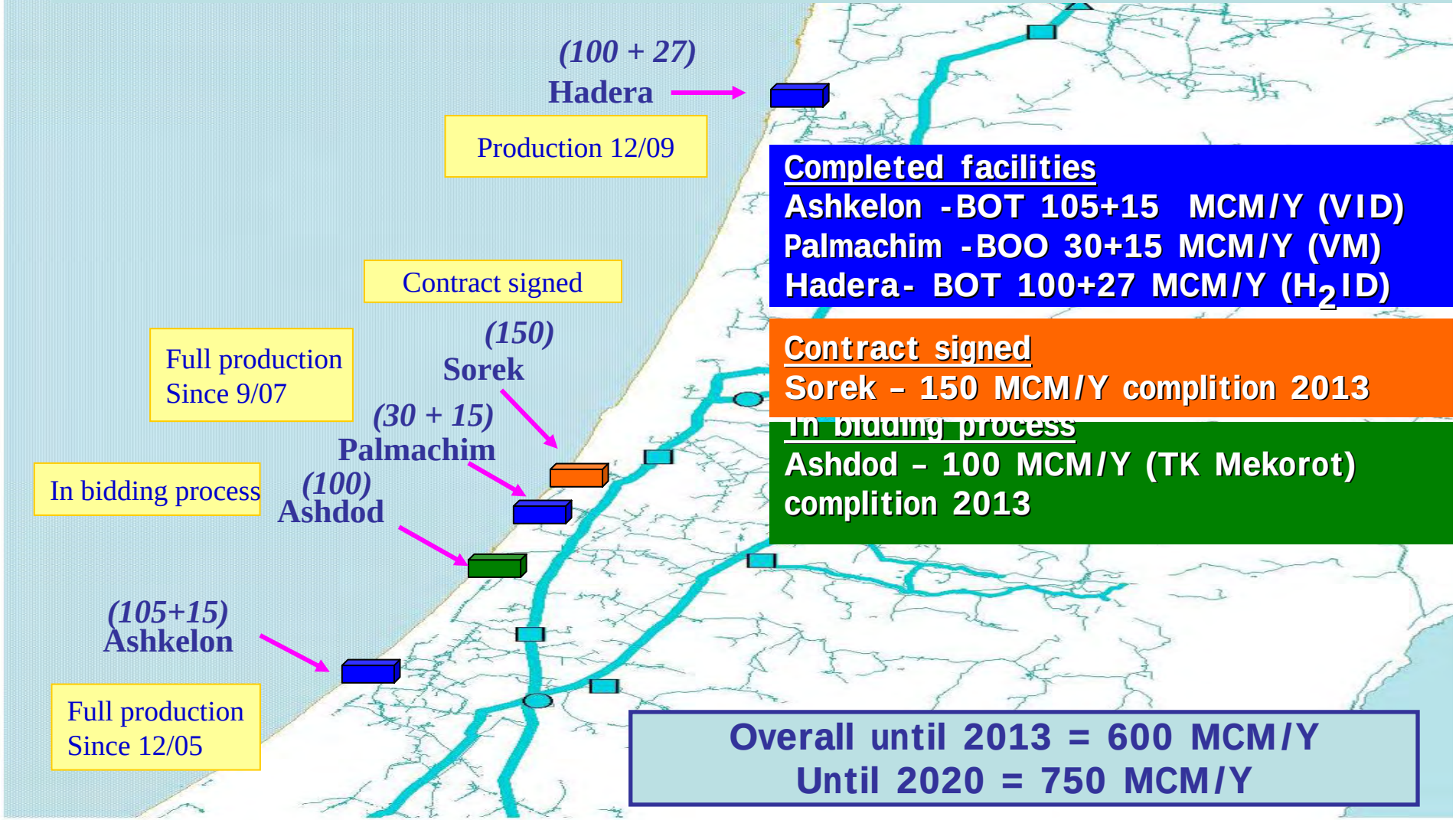
According to government decisions (between the years 2001-2008) sea water desalination facilities are being built :



Completed facilities
Ashkelon -BOT 105+15 MCM/Y (VID)
Palmachim -BOO 30+15 MCM/Y (VM)
Hadera- BOT 100+27 MCM/Y (H_2ID)

Contract signed
Sorek – 150 MCM/Y complition 2013

In bidding process
Ashdod – 100 MCM/Y (TK Mekorot) complition 2013

Overall until 2013 = 600 MCM/Y
Until 2020 = 750 MCM/Y

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120 million m3/year Ashkelon plant

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45 million m3/year Palmachim plant

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Image of Hadera Plant
127 MCM/Year

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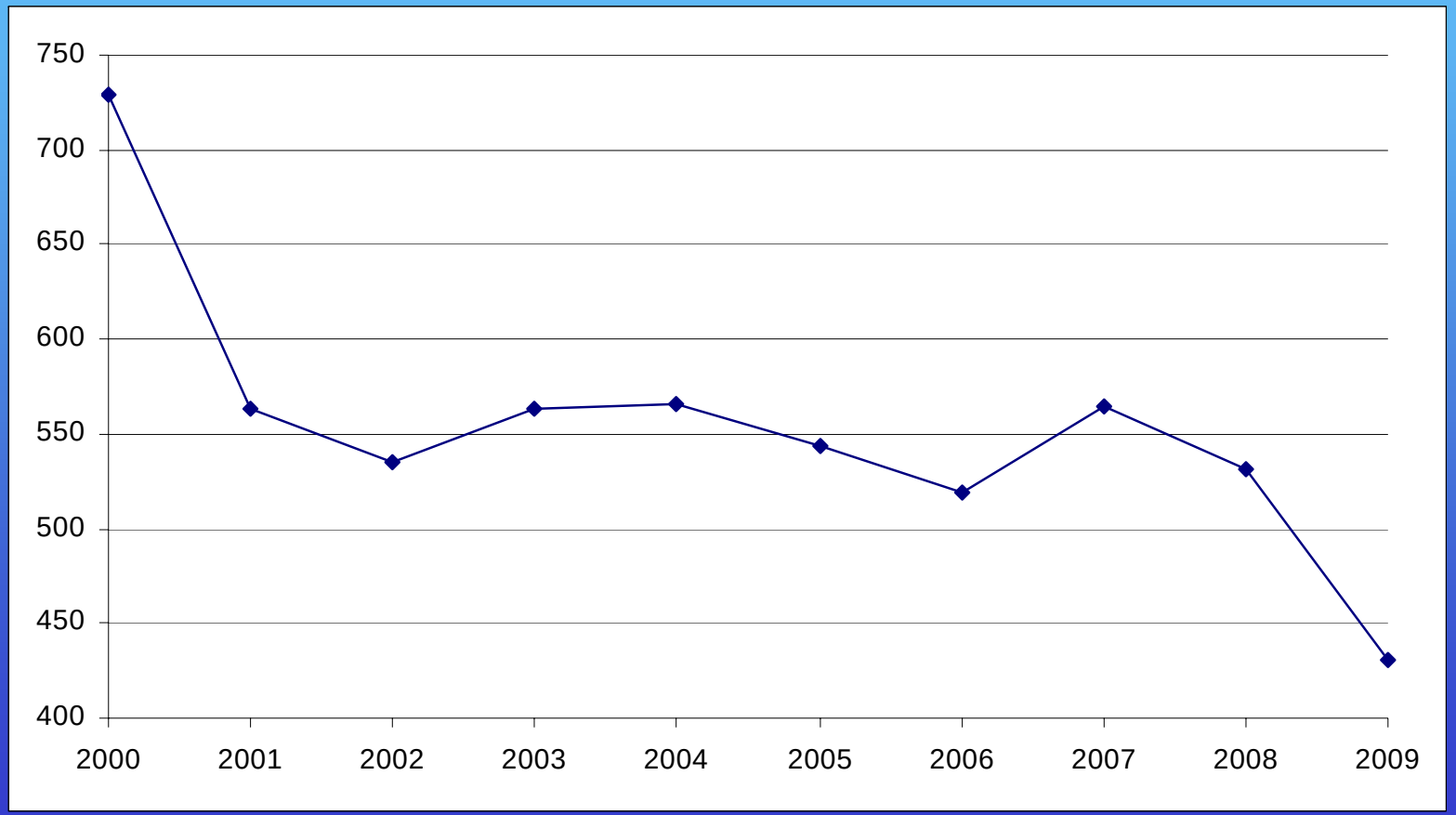
Fresh Water used for Agriculture (MCM)



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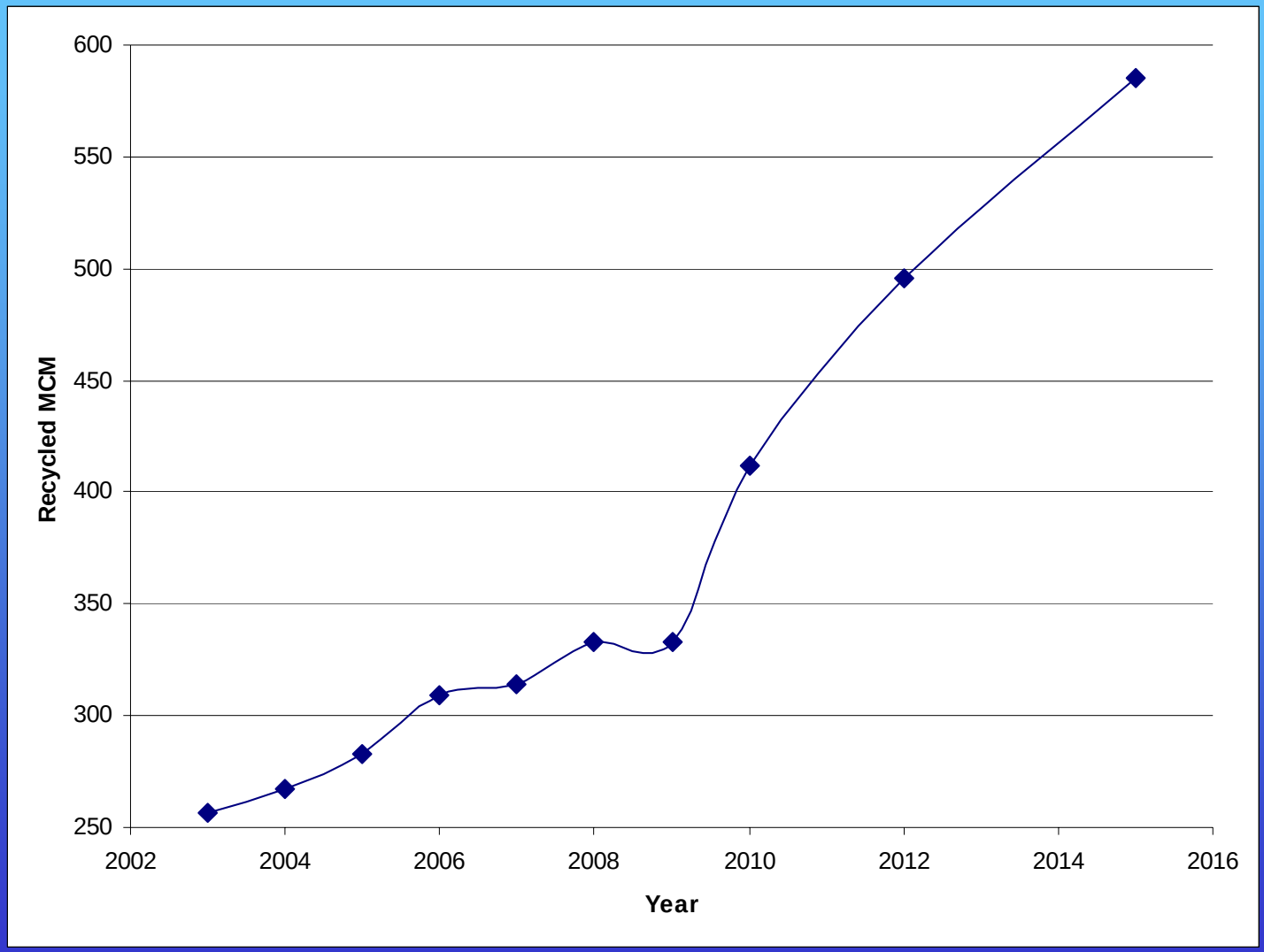
Reused Water for Agriculture (MCM)

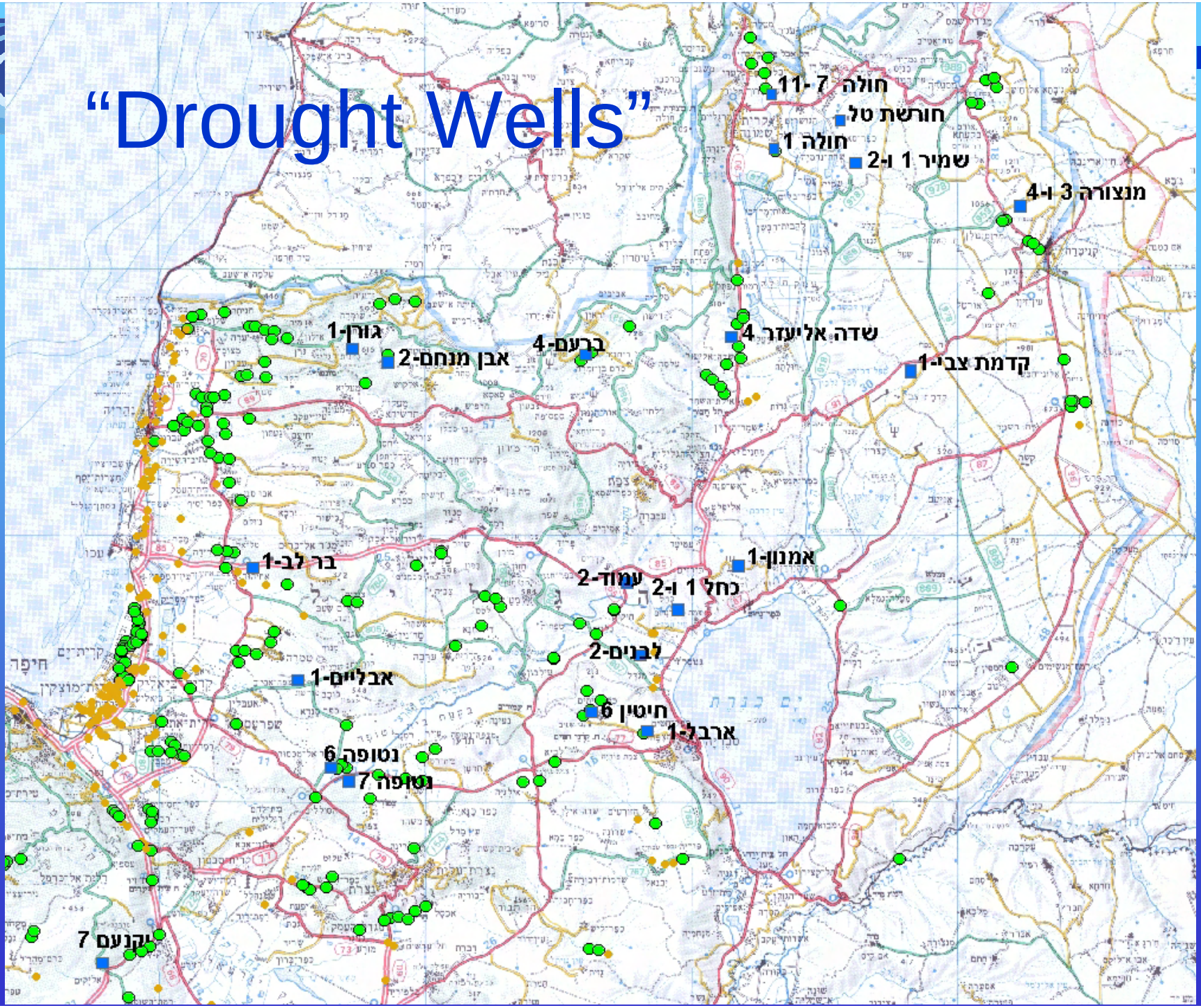


Actions for Closing the Gap – Short Term

Drought Actions to Increase the Supply

- Expanding Desalination Plants
- Heightened Monitoring of the Water Resources
- Efficient Use of the Aquifers

“Drought Wells”



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Actions for Closing the Gap – Short Term

Water saving and efficient use of water

- Allowing Reduced Water Quotas for Agriculture
- Increasing Water Prices - Excess Consumption Levy
- Rationing Water use for Public Gardening
- Media publications and Teaching activities
- Installation of water saving accessories for domestic purposes

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Water conservation campaign

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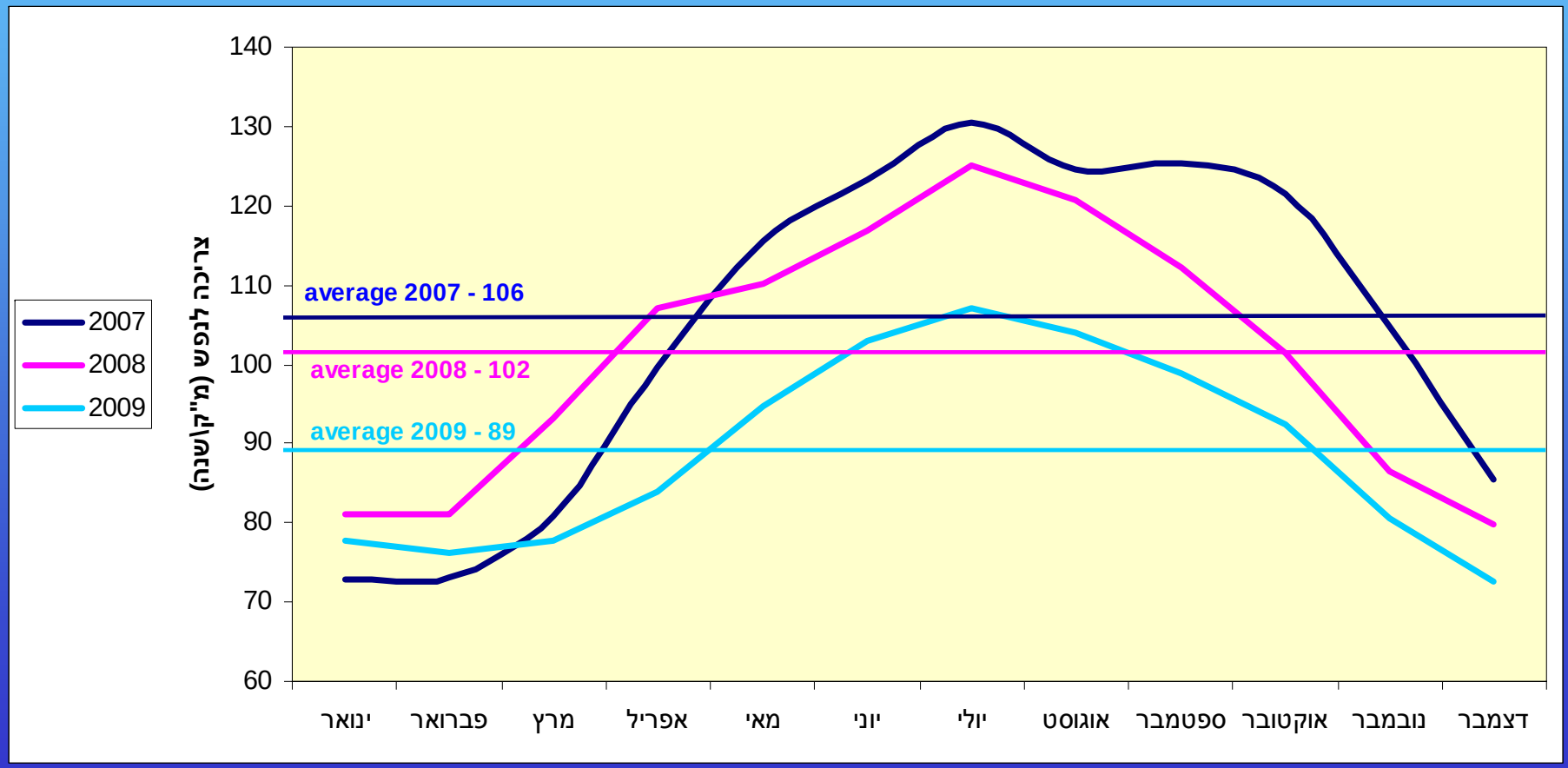
Domestic Consumption per Capita



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Potable Water Balance for Years 2007-2012

2013	2012	2011	2010	2009	2008	2007		
60	15	38	82	176	513	753	Initial Storage	Supply
940	940	940	940	891	826	1059	Replenishment	
595	385	295	277	169	141	127	Sea Water Desalination	
70	67	63	34	20	14	14	Brackish Water Desalination	
40	50	60	70	80	60	0	Drought Actions	
1645	1442	1358	1321	1160	1041	1200	Total Supply	
718	704	689	675	661	721	744	Domestic	Demand
88	88	88	88	88	88	88	Industry	
454	454	454	454	359	433	474	Agriculture	
9	9	9	9	9	6	7	Nature	
145	143	141	139	137	130	127	Neighbors	
1414	1397	1381	1365	1254	1378	1440	Total Demand	
-231	-45	23	44	94	337	240	Deficit	
291	60	15	38	82	176	513	Final Storage	

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Thank you.