

# World Water Congress & Exhibition 2014, Lisbon

LISBON CONGRESS CENTRE, 21 – 26 SEPTEMBER 2014



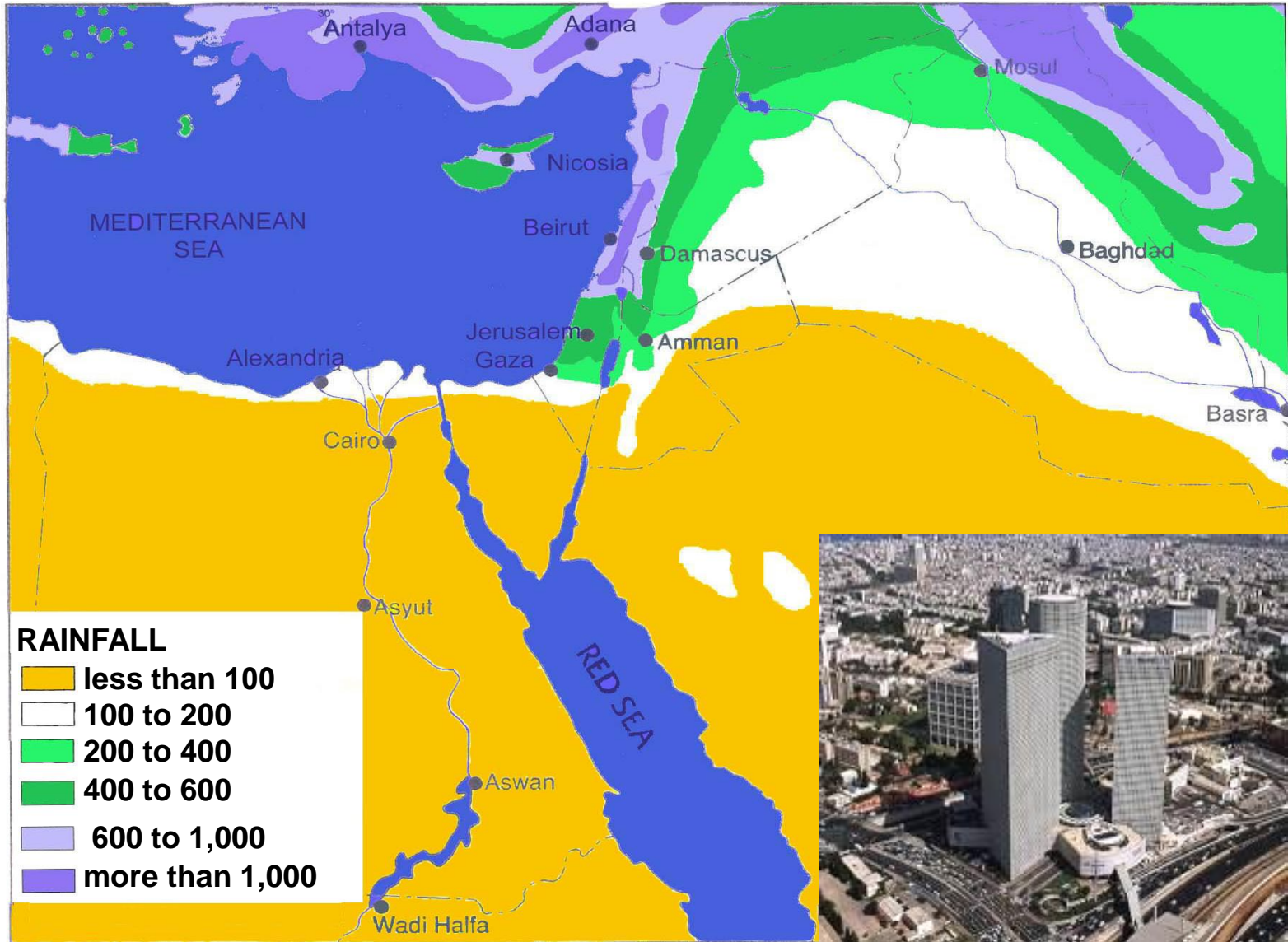
# Emerging challenges and capabilities in the Israeli water sector

SHAPING OUR WATER FUTURE

## PROF. AVNER ADIN

- *Hebrew University of Jerusalem (HUJ)*
- *Jerusalem College of Engineering (JCE)*
- *Adin Holdings “Water Solutions” (AH)*  
*avner.adin@mail.huji.ac.il*

# Water Shortage in Middle East





# Manufacturing Water (Israel):

Wastewater Reuse

Seawater Desalination

Brackish Water Desalination

Water & Energy Conservation



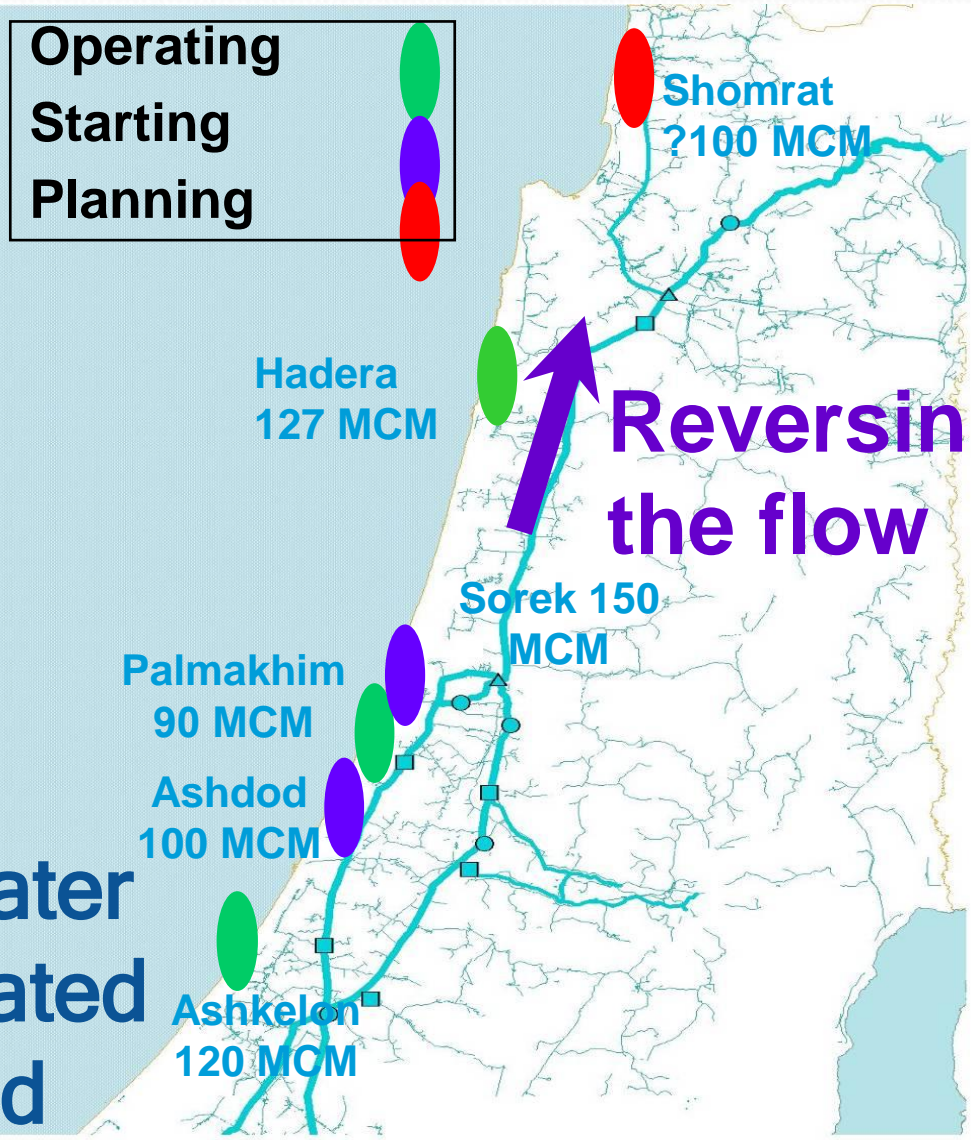


# New water production-Israel(2014)

**Desal.**

**Mixing  
water  
Qualities**

- Surface
- Ground
- Stormwater
- Desalinated
- Recycled



**Reuse**



# Revolutionary Water Cycle - Israel

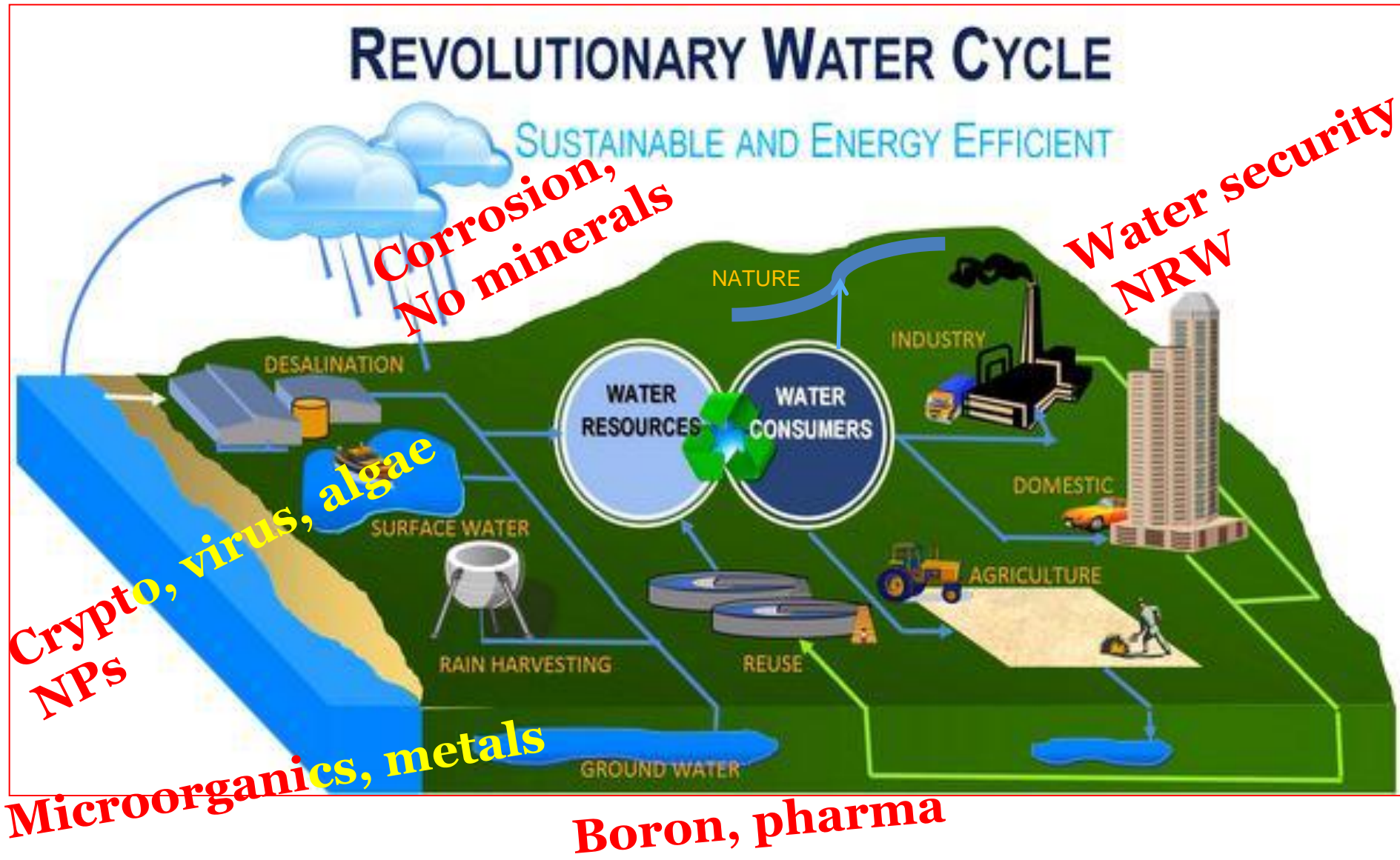
## REVOLUTIONARY WATER CYCLE

SUSTAINABLE AND ENERGY EFFICIENT

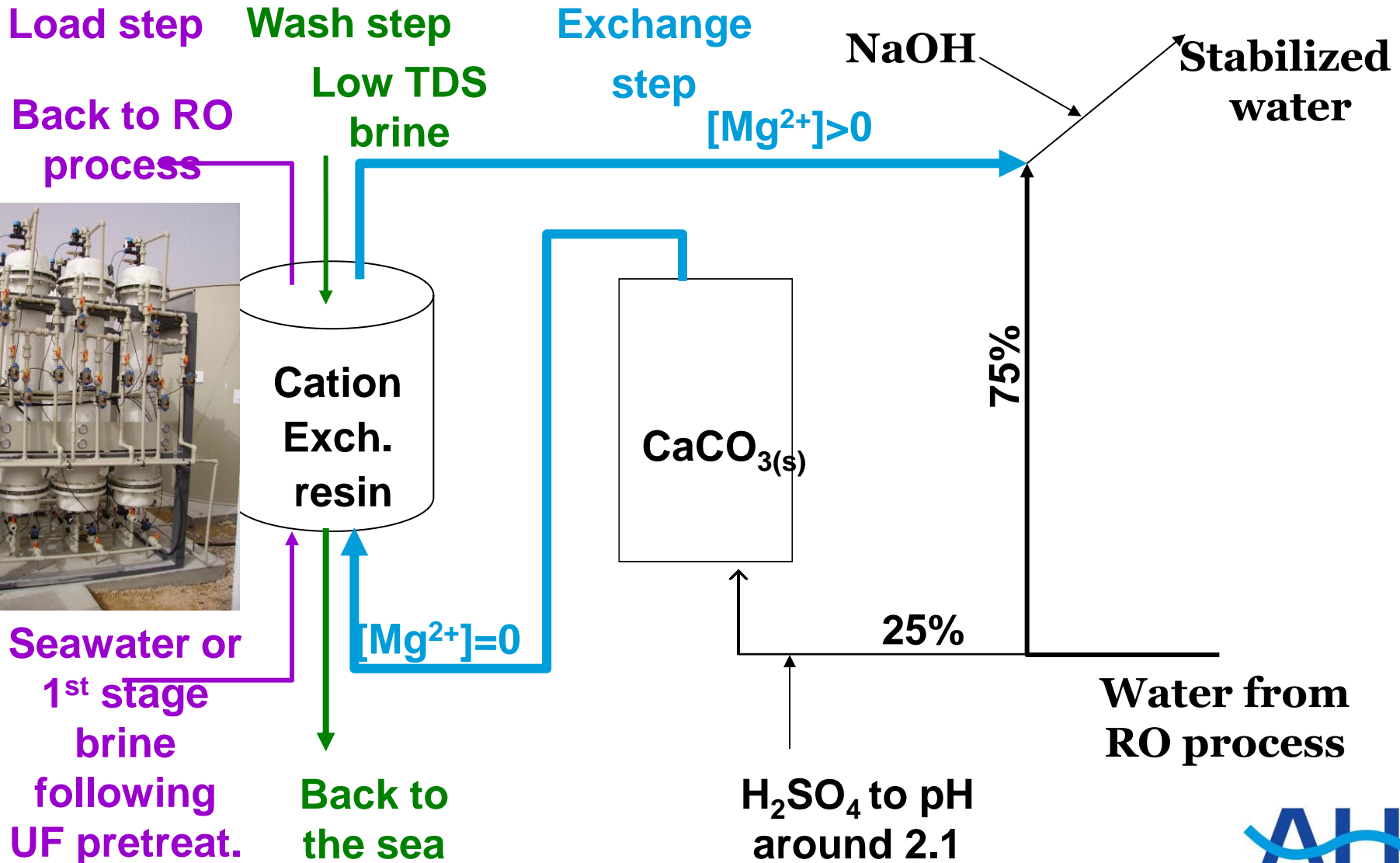




# Water quality challenges



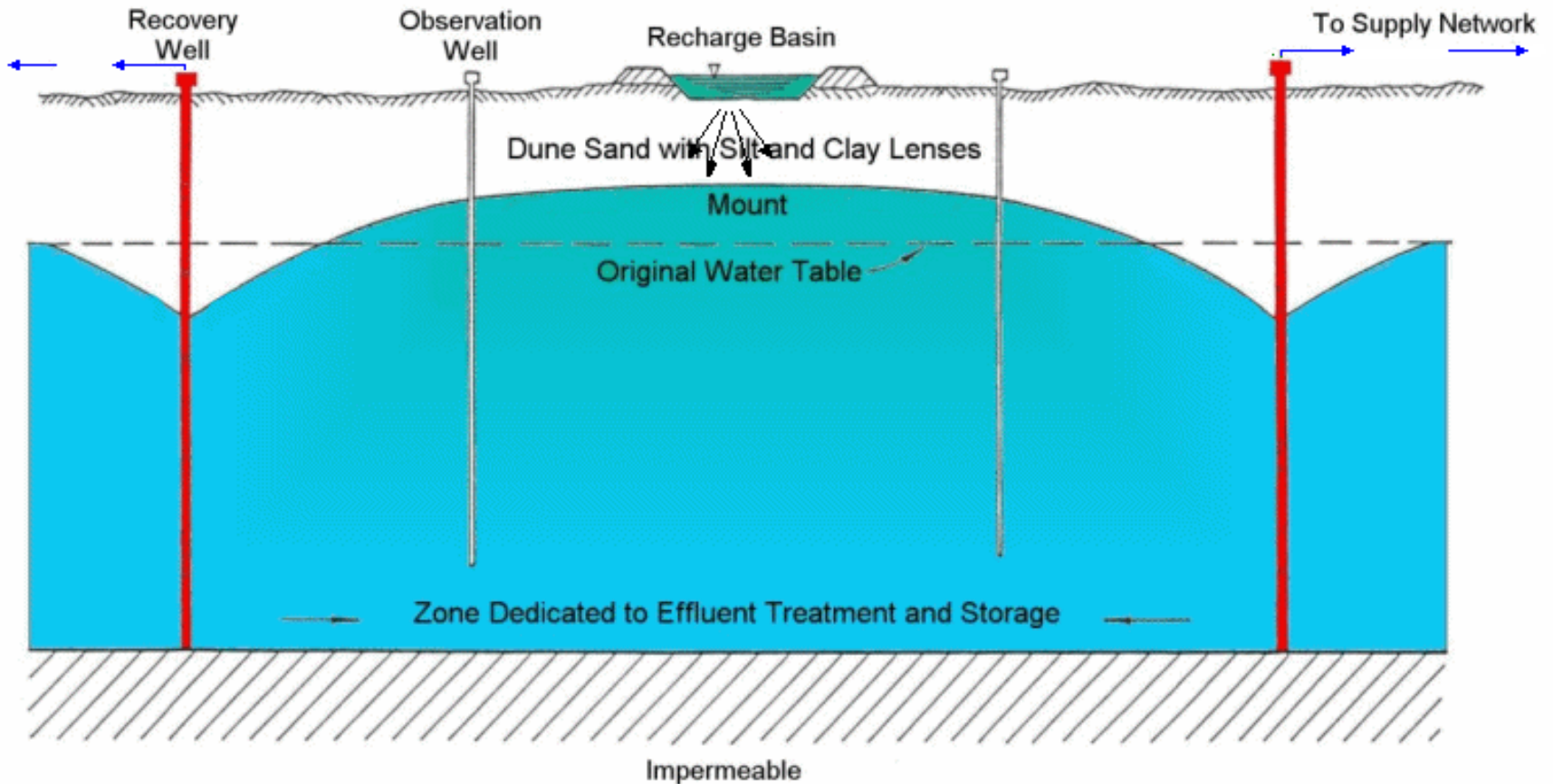
# Mg remineralizing novel system





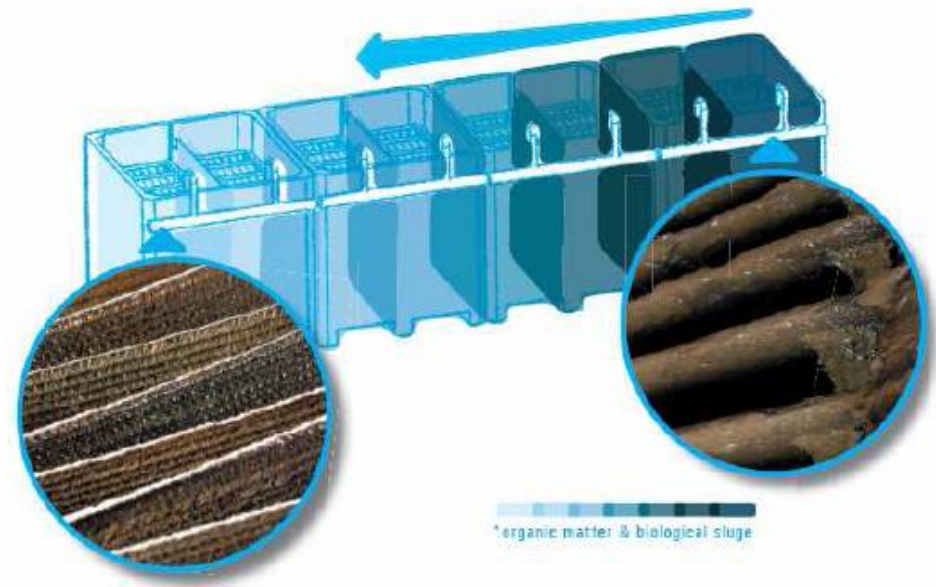
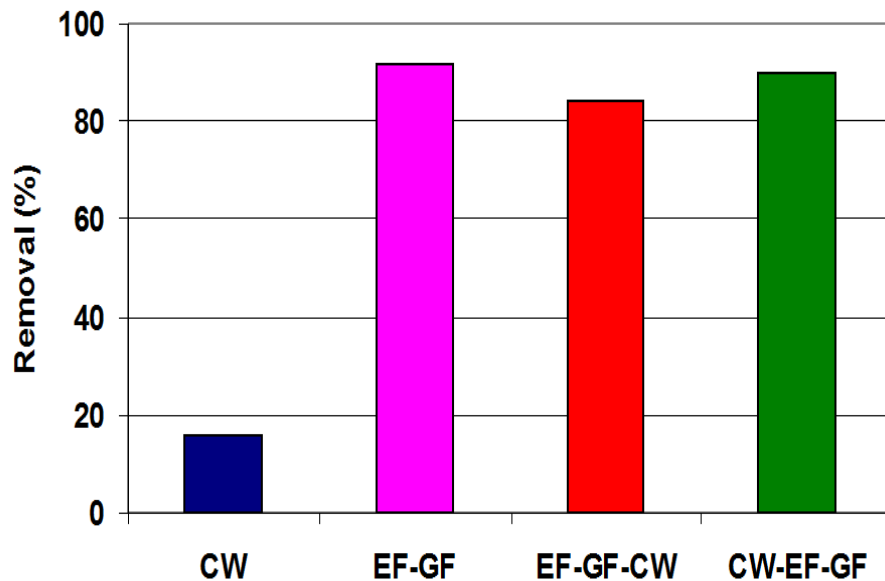
# Recharge-Recovery Scheme

## SAT=Soil-Aquifer Treatment



Recharge - Recovery Scheme

- On-site systems, decentralized
- Electroflocculation-constructed wetland hybrid
- Aerobic-anaerobic compact system



# Some of recent Israeli novel technologies

- **Flexible filter beds with controlled porosity**
- **Fiber optic technology which recycles UV photons**
- **Detecting and counting bacteria in minutes instead of days**
- **Sludge-less bio-reactors**
- **Aerobic membrane bio reactor that consumes no energy for aeration**
- **Hydrophilic membrane with higher flow at lower pressure**
- **Electricity produced by electro genic bio-reactor.**

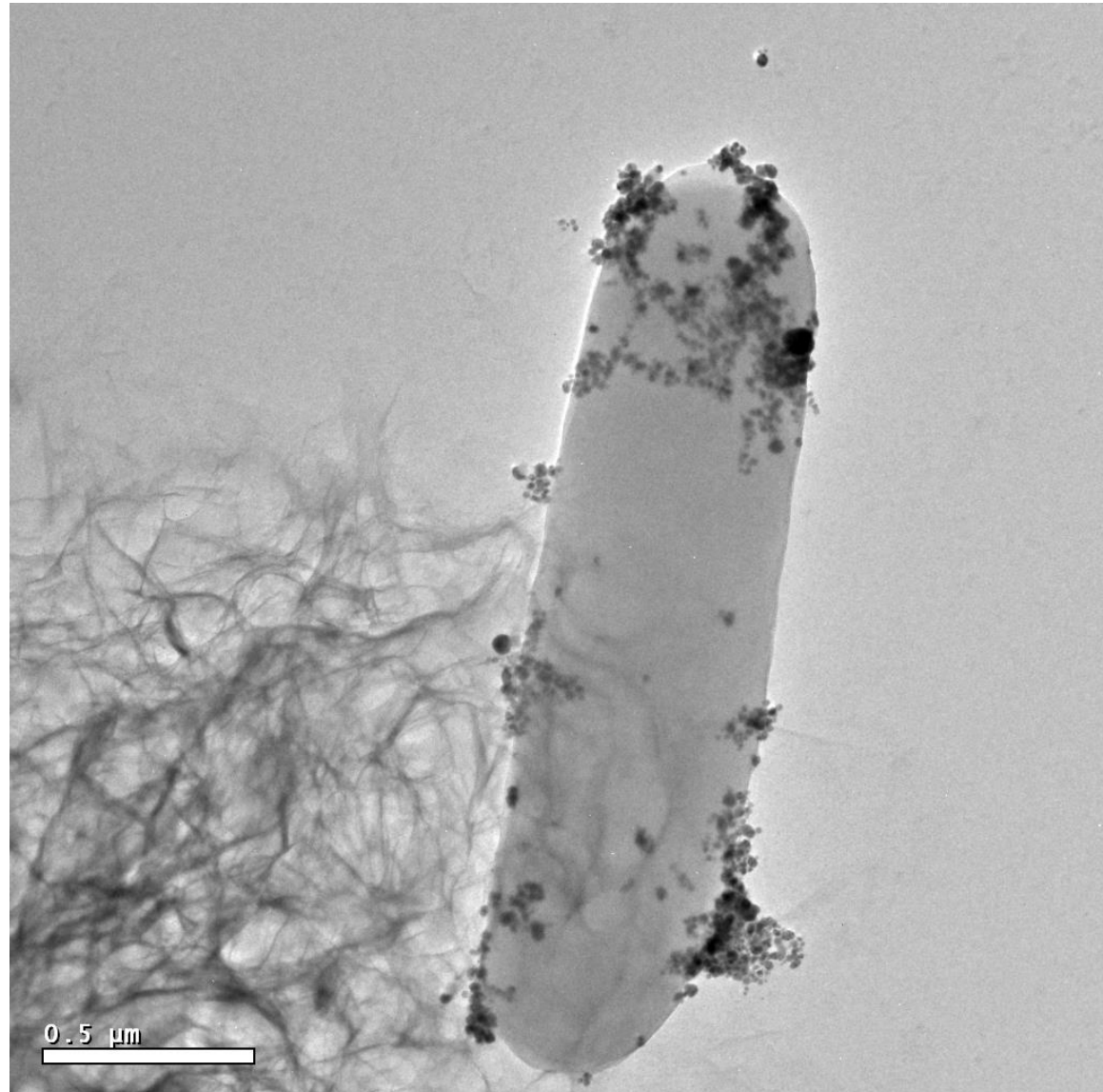


# Bio-fouling prevention

*E.coli*

inactivation  
by molecular  
capped Ag-  
Nano-particles

**Avner Adin**  
**Hadas Maman**  
**Gil Markovich**  
**Avital Dror-Ehre**



# Regulations and standards

- Wastewater quality for unrestricted irrigation
- Wastewater quality for disposal to streams
- Industrial effluent quality
- Drinking water quality
- Desalinated water quality
- Materials and equipment

**ISO: Standards are a major driving force in the development of water industry**

# Conclusions

- **Learn and establish your water cycle holistically**
- **Make technology-based plans**
- **Turn the city into a water recycling community**
- **Upgrade regulations and standards**
- **Recognize: water industry is of strategic importance**
- **Support self-innovation through close collaboration industry-academy locally and internationally.**



## WATER IS LIFE





# Water on a Global Level

August, 2014

# Vision and Mission

**VISION: Clean, plentiful and applicable water**

**Adin Holdings Ltd. (AH)** is an Israeli based international company providing advanced solutions for water quality and supply, minimizing the use of energy and maximizing the efficiency of the operation.

AH utilizes Prof. Avner Adin's and the Company's team of experts' knowledge, experience and global network of professionals, companies and organizations.

AH integrates field proven Israeli innovation, where applicable, bringing its customers to the leading edge of technology.



# Vast Experience (selected)

- **Around the world:** Israel, USA, Mexico, Canada, South Africa, Italy, China, Singapore, EC, Spain/Tenerife, and many more . . .
- **International and national organizations:** World Bank, World Health Organization, USAID, USEPA, WRC, CSRI, and many more . . .
- **Various project types:** Water reuse and recycling projects; Integrated river basin Pollution Control; Water treatment and quality control Projects; Regulation and Certification
- **Customers:** Industries; authorities; Water utilities; research institutions
- **Advanced knowledge:** Development of Innovative technologies; Training and capacity building Courses



# Collaborations

- Arison Group



- Mekorot



- United Engineering



- Ngee Ann Polytechnic

- MADEP S.A.

- Shfris



- Elgeressy



- Treatec21 Industries

- NCTM



- ...

# Recent International Activity

- Bahamas/WSC - Wastewater Master Plan (won tender vs. CDM Smith, SAIC, Haze&Sawyer - USA; AMBISAT - Spain; PROCESL - Portugal; Aquatech - France; EXP Services - Canada)
- EU/India - Decision Support System for rural area water source development in India
- National Polytechnic of Mexico (IPN) representation in Israel





# Recent Business Activity (Israel)

- Selected customers: Municipal; Industrial; Legal; . . .



# Recent Business Activity (Intl')

- Selected customers:



The Bahamas



Mexico

Canada-Israel Industrial  
Research & Development  
Foundation



Fondation Canada-Israel  
Pour la Recherche et le  
Développement Industriels

הקן למחקר ופיתוח תעשייתי  
קנדה - ישראל

Canada



Singapore

