

# Market opportunities for water reuse technologies (MEDA & tourism)

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**LGi**

**sustainable innovation**

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LGI Consulting

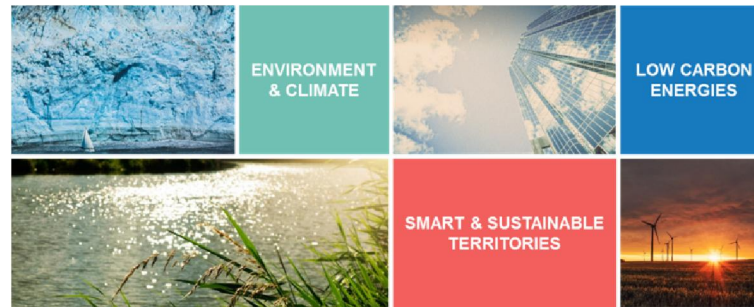
demEAUmed final conference  
18<sup>th</sup> May 2017  
Barcelona, Spain

# Agenda

- **LGI & demEAUmed** – Role & approach
- **Water sector** – Current situation & potential solutions
- **Water reuse** – Current situation, policy & challenges
- **The tourism in MEDA region** - Market overview
- **Innovative solutions** – Market recommendations
- **DemEAUmed solutions** – Market opportunities
- **Conclusion**

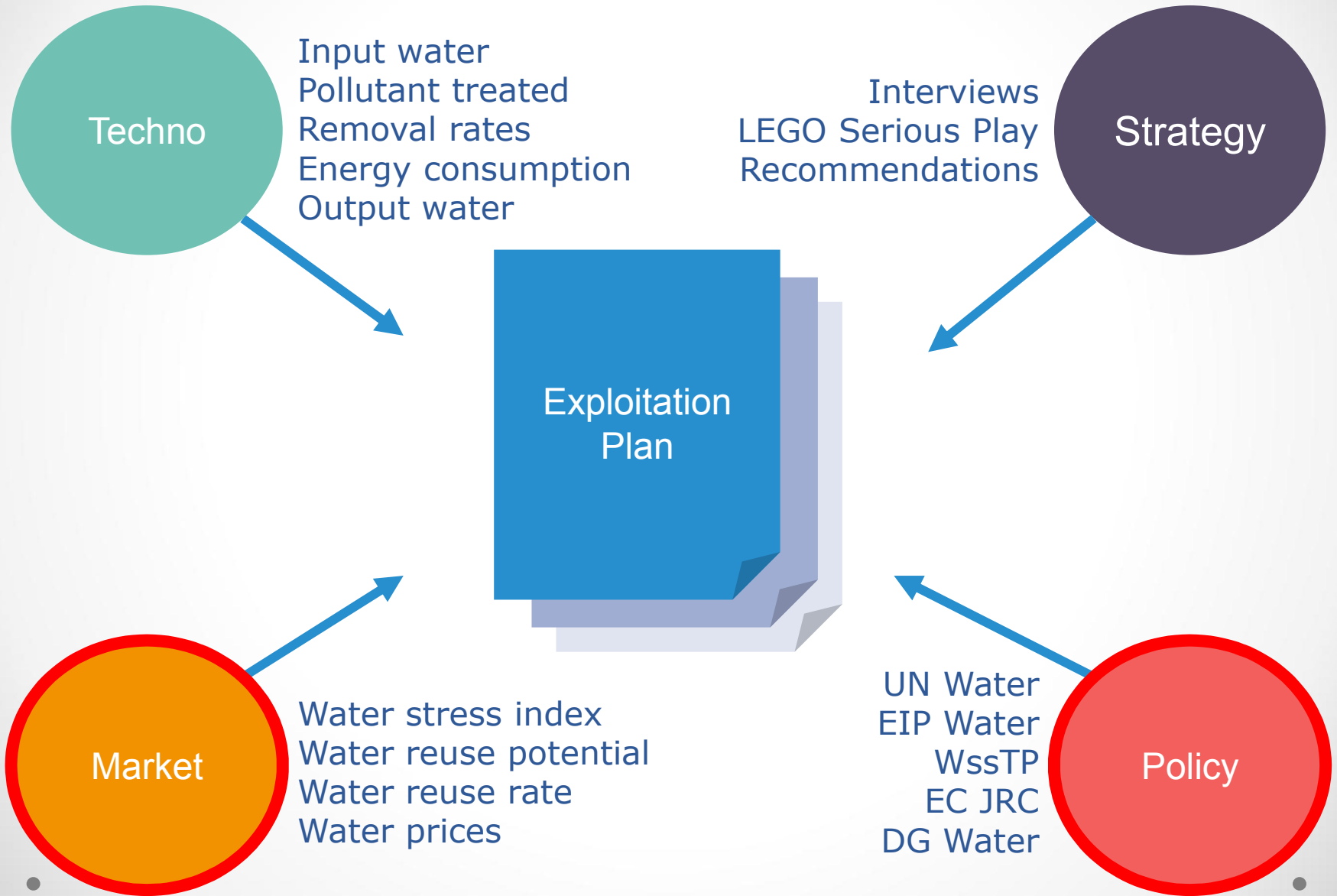


**LGI** is an actor of the **innovation** ecosystem, transforming knowledge and technology into products, processes and services that fuel a more **sustainable economy**



DemEAUmed **exploitation manager**, in charge of developing and implementing effective knowledge management strategy for exploitation of project results

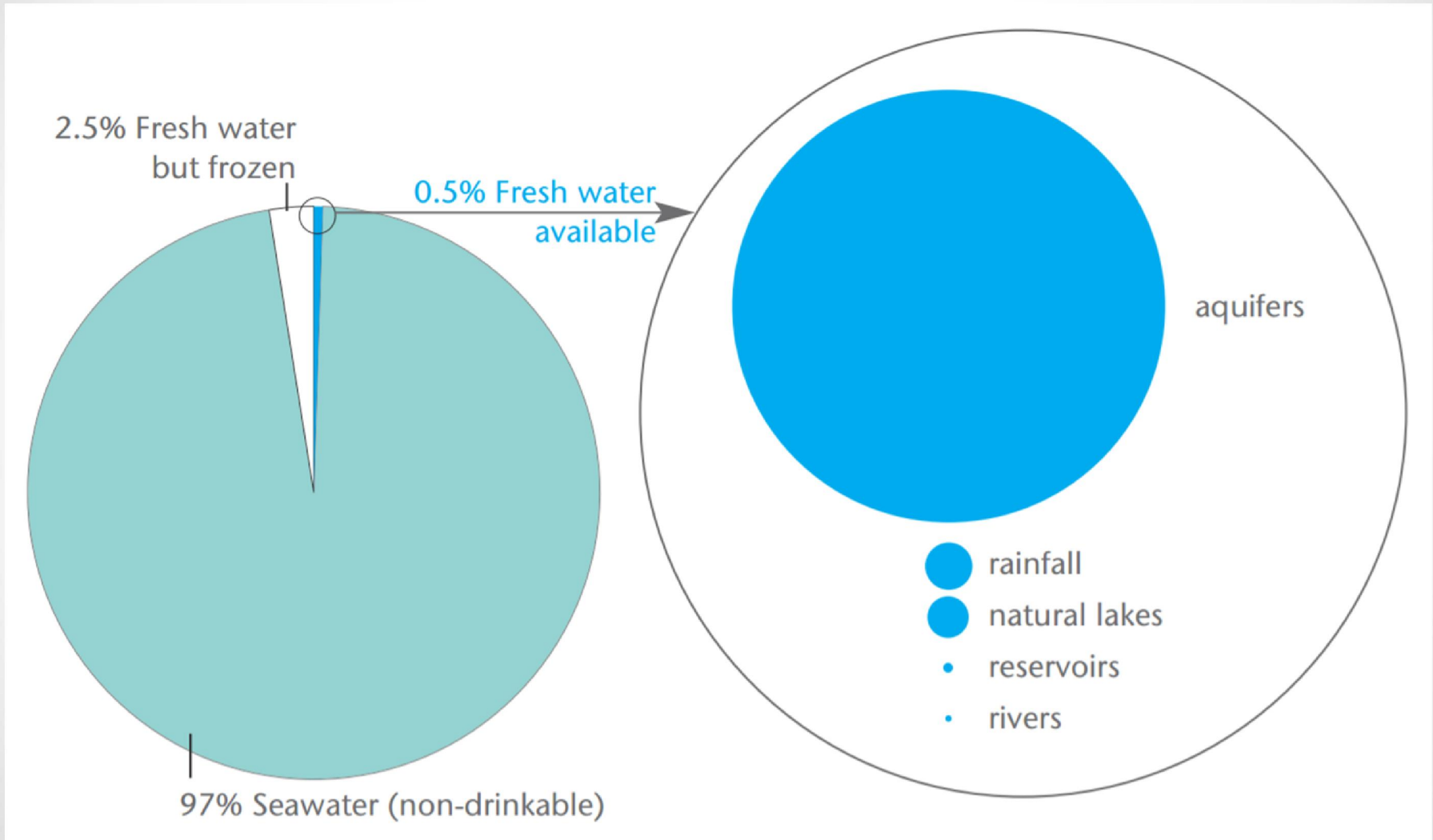
# LGI's approach



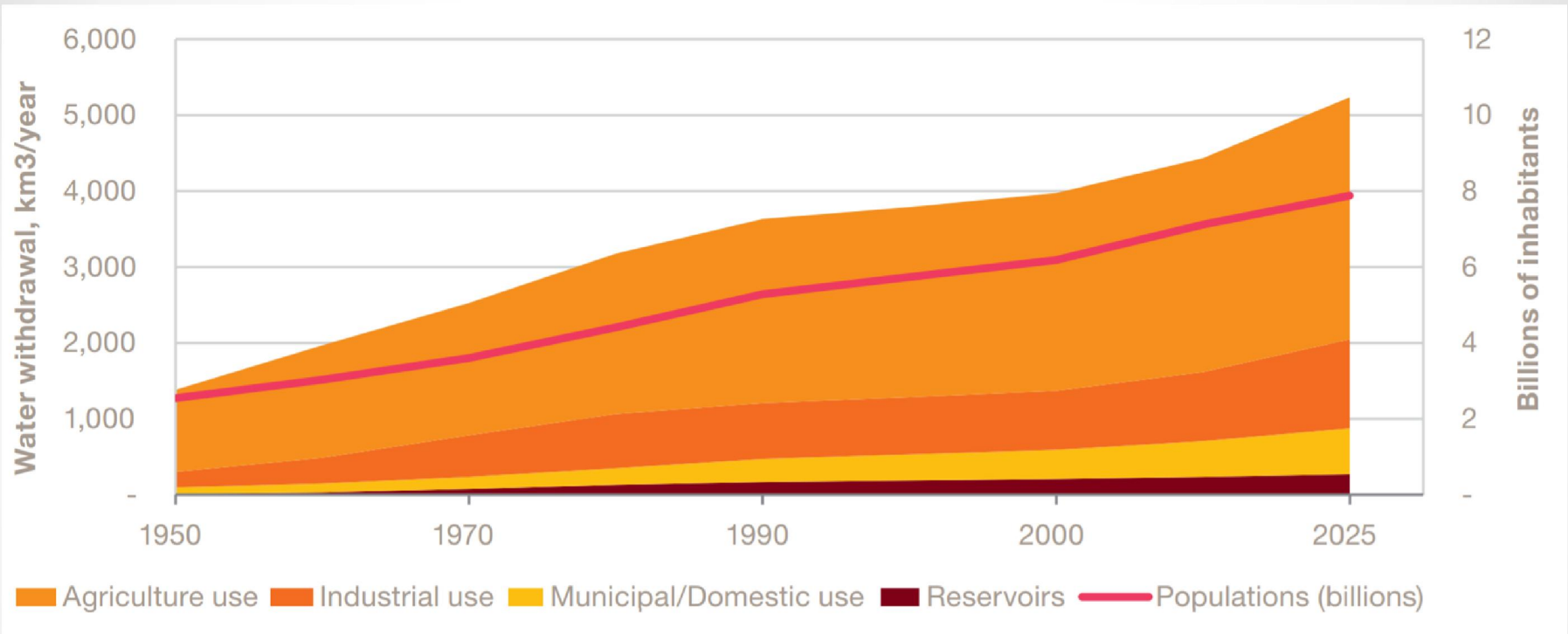
# **WATER SECTOR**

## General context

# Freshwater availability



# Freshwater withdrawal



- Domestic use (2011): **11%** of total water withdrawal
- **+30%** increase expected by 2025
- **Costal & urban** areas will be firstly affected



# Impact of tourism

- **Coasts & islands, preferred touristic areas**  
Already face water issues due to scarce resources
- **Tourists use more water than local**  
Usually about 30% more
- **Seasonal water consumption** (up to a 5-fold increase)  
when resources are at their lowest and used for irrigation



# 4 strategies

## **Water avoidance**

vacuum sewers and toilets, waterless cooling / laundry, waterless dyeing, etc.

## **Water conservation & control**

Leak reduction, efficient appliances, smart monitoring, customer awareness, etc.)

## **Alternative water sources**

Desalination, seawater toilet flushing, rain-water harvesting, etc.

**Treated wastewater reuse** consisting of decentralised wastewater treatment and reuse

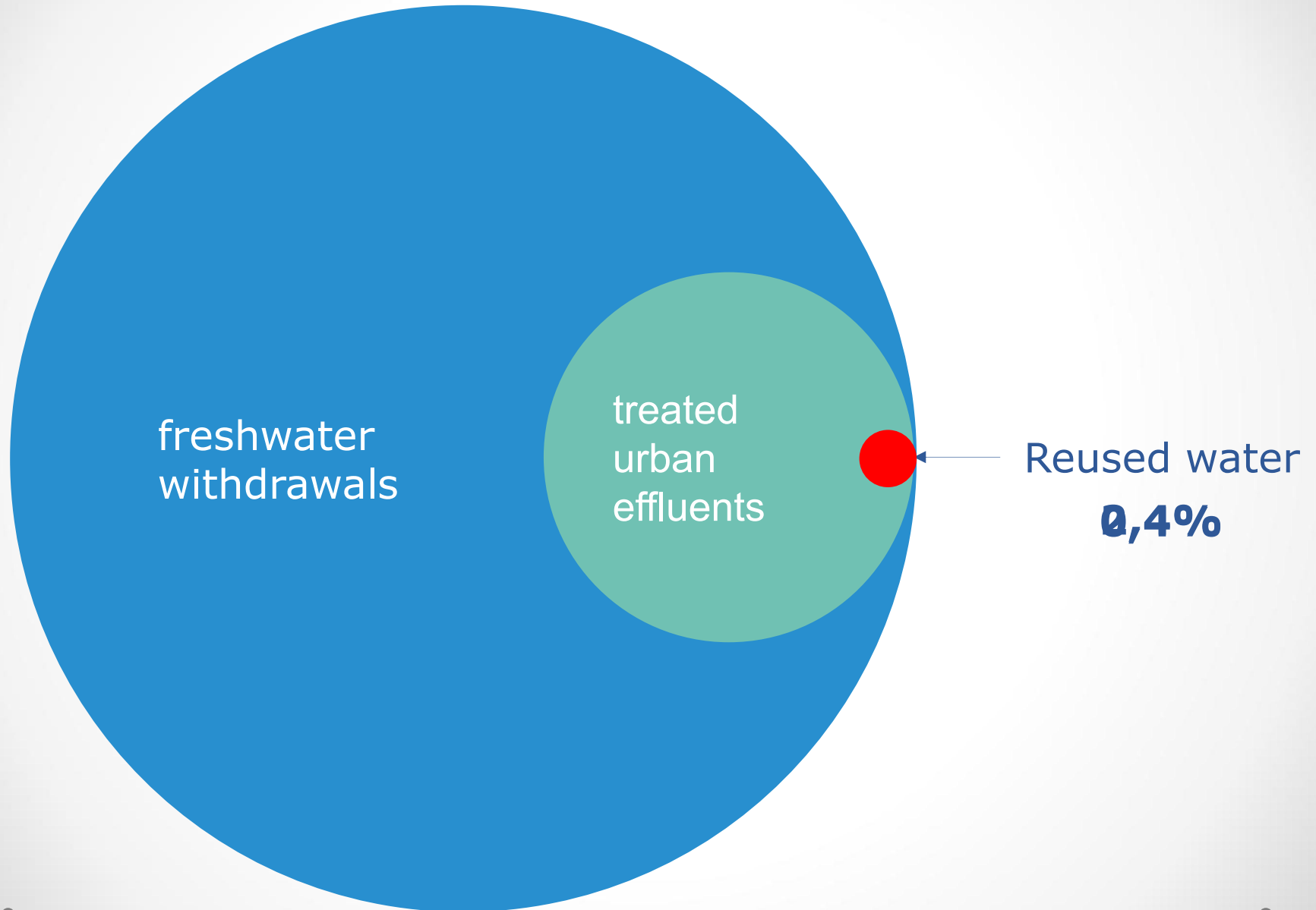
# **WATER REUSE**

Current situation in key figures

## Absolute key figure

**~1 billion m<sup>3</sup>**  
of urban wastewater  
**treated & reused**  
per year in Europe

# Relative key figure



# **WATER REUSE**

## Challenges in MEDA region

# Challenges in MEDA

## Economical & societal



- **Inadequate water pricing**

Insufficient price differentials between reused and freshwater, in particular due to a poor enforcement of the cost recovery principle (WFD, art. 9)

- **Low public awareness & acceptance**

Lack of confidence in the health & environmental safety (even for non-potable use) and low recognition of benefits or water reuse

# Challenges in MEDA

## Technological & strategical



- **Competition from a broad variety of waste water treatment technologies**

Different level of efficiency, treatment capacity and purchase/operational costs

- **Competition from alternative water sources**

Since 2010, large desalination plants installed in MEDA regions and island (Catalonia, Murcia in Spain, Cyprus, Israel, etc.)

# Challenges in MEDA

## Politic & regulatory



- **EU level** - No harmonised water reuse legislation
  - Stringent legislations (CY, ES, FR, EL, IT, PT)
  - No legislation at all (all other member states)
- **Regional level**

Lack of commitment on water reuse from public authorities in most affected regions



# **WATER REUSE**

## Latest policy changes

# Water reuse policy



# Key messages

*"The water market is still largely unexploited"*

*"bring together voices from the investors' side and perspectives from the problem owners' and 'solution providers"*

## **WssTP Water Market Europe (March 2017)**

*"There is great potential to reuse wastewater in the Mediterranean region as only around 1% of it is recycled."*

## **Union for Mediterranean World Water Day (March 2017)**

# THE MEDA REGION

## Market overview

Water reuse in tourism facilities



# Focus on 5 EU-MEDA countries



# EU-MEDA regions



	Falkenmark Water stress index	Wastewater reuse potential 2025 (Mm <sup>3</sup> /a)	Current wastewater reuse rate	Average water prices
Cyprus	Severe	25	~100%	1,4 - 5,4€
Malta	Severe	13	60%	1,7 - 5,1€
Spain	High	1261	5 – 12 %	1,1 - 2,9€
Greece (mainland)	Moderate	57	5 – 12 %	1,2 - 1,59€
Italy	Moderate	497	5 – 12 %	0,5 - 2€



- **North Africa**

Highly water stressed

The entrance to the market is not facilitated

Geo-political instabilities as important barriers

- **Turkey & Israel**

Interesting market mainly due to proactive policies on water reuse



## Tourist accommodation

Resort      Golf      Garden

Camping site      Eco hotel

## Leisure & wellness areas



Spa



Swimming pool



Water park

## Niche customers



Zoo

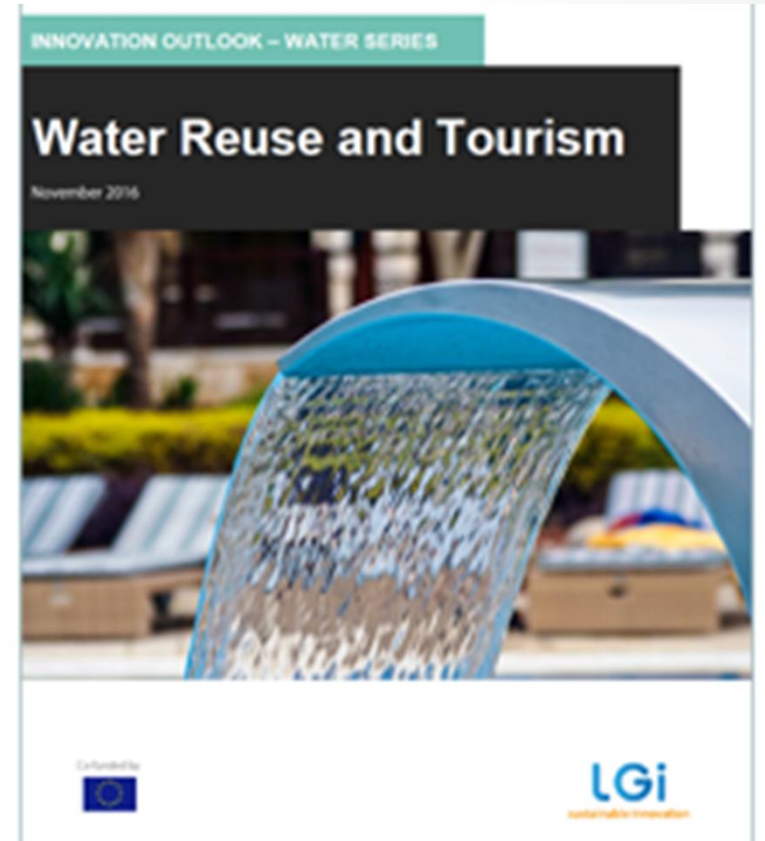


Aquarium



# More information on market

The most relevant information is available in the **Water Reuse and Tourism LGI Innovation Outlook** published in November 2016.

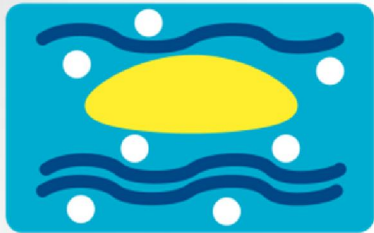


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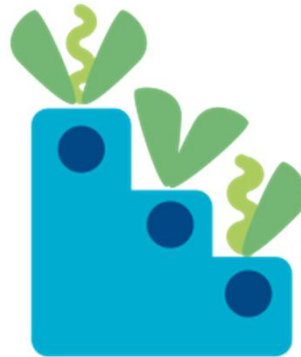
# **DEMEAUMED SOLUTIONS**

Examples of exploitation opportunities

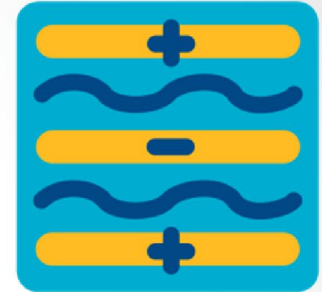
# Focus on most mature technologies



**UVOX**  
(WAPURE)



**VertEco**  
(alchemia-nova)



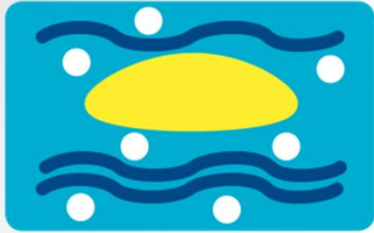
**Plimmer**  
(Idropan)



**DSS**  
(ICRA)



## Healthier water for swimmers



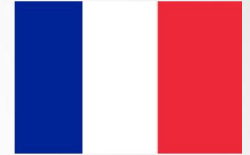
**UVOX**

WAPURE International



**Regulation**

Disinfecting water



**French market**

First in Europe

Second WW (after USA)

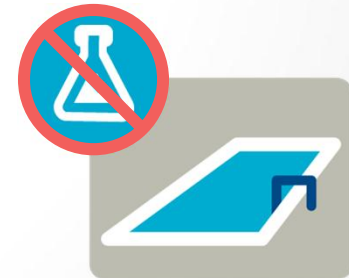
6 246 public (2012)

1,8 million individual (2015)



**Health**

Effect of chlorine



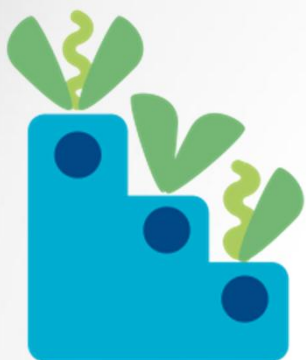
**Trend**

Chlorine-free  
disinfecting processes

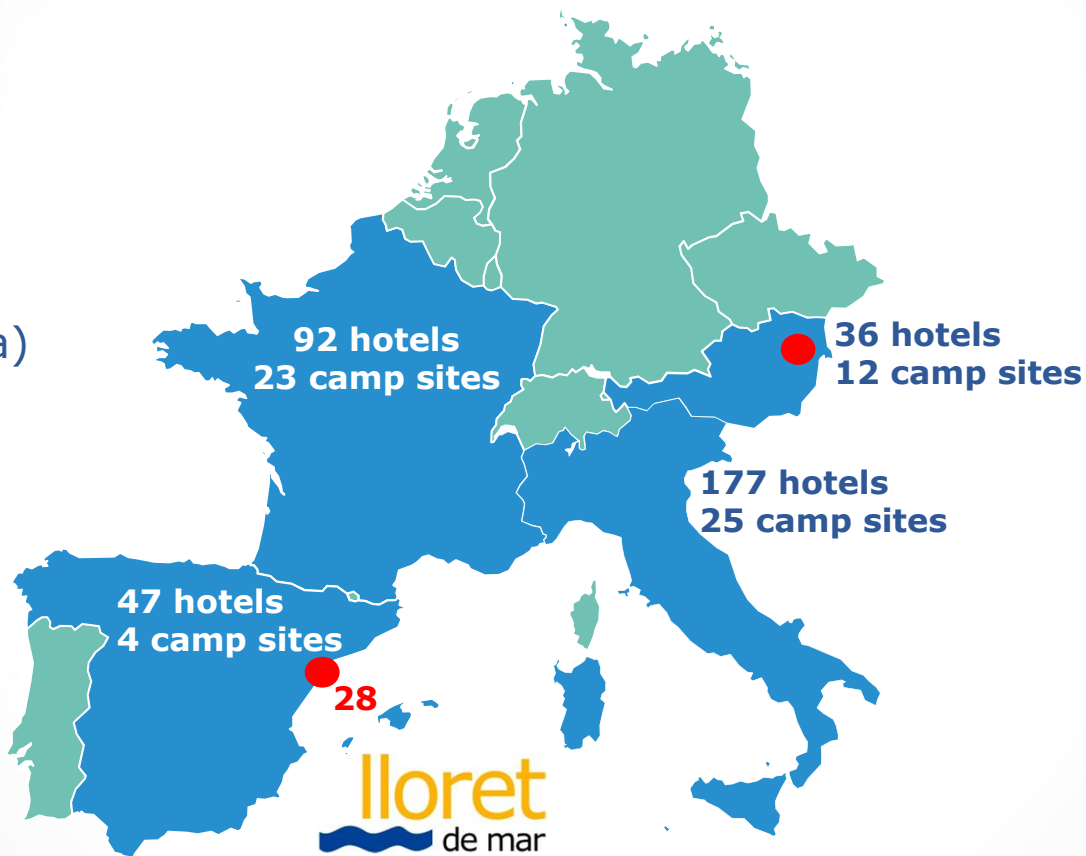
# VertECO



## Visible & aesthetic water treatment



**VertEco**  
(alchemia-nova)



**EU market**  
Eco-tourism

## Recover valuables from the sludge

### Salts

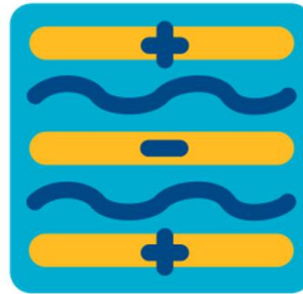
- Calcium and Magnesium Bicarbonates
- Chlorides and Sulphates
- Nitrate and Nitrates
- Ammonia
- **Phosphates**
- Arsenic

### Heavy Metals

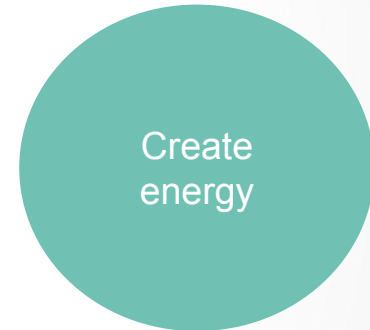
- Chromium +6
- Chromium +3
- **Iron**
- **Copper**
- Zinco
- Nickel
- Cadmium
- Lead
- Mercurium
- **Silver**
- **Gold**

### Others

- Humic Acids
- Pesticides
- Perchlorates
- ● Aerobic Bacteria



**Plimmer**  
(Idropan)





DSS (ICRA)

Techno  
developer

Techno  
provider

Construction  
manager

Water  
NGOs



# **WATER REUSE MARKET**

## Conclusion & key messages





# Conclusion

- **Real needs, not a fancy problem**
- **Water reuse, one solution among others**
- **Need of a political boost**
- **The importance of non-economic benefits**

# Thank you for your attention

# LGi

sustainable innovation

For further information:

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