

# The Llobregat aquifer in the water cycle management of Barcelona (Spain)

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43<sup>rd</sup>  
IAH congress

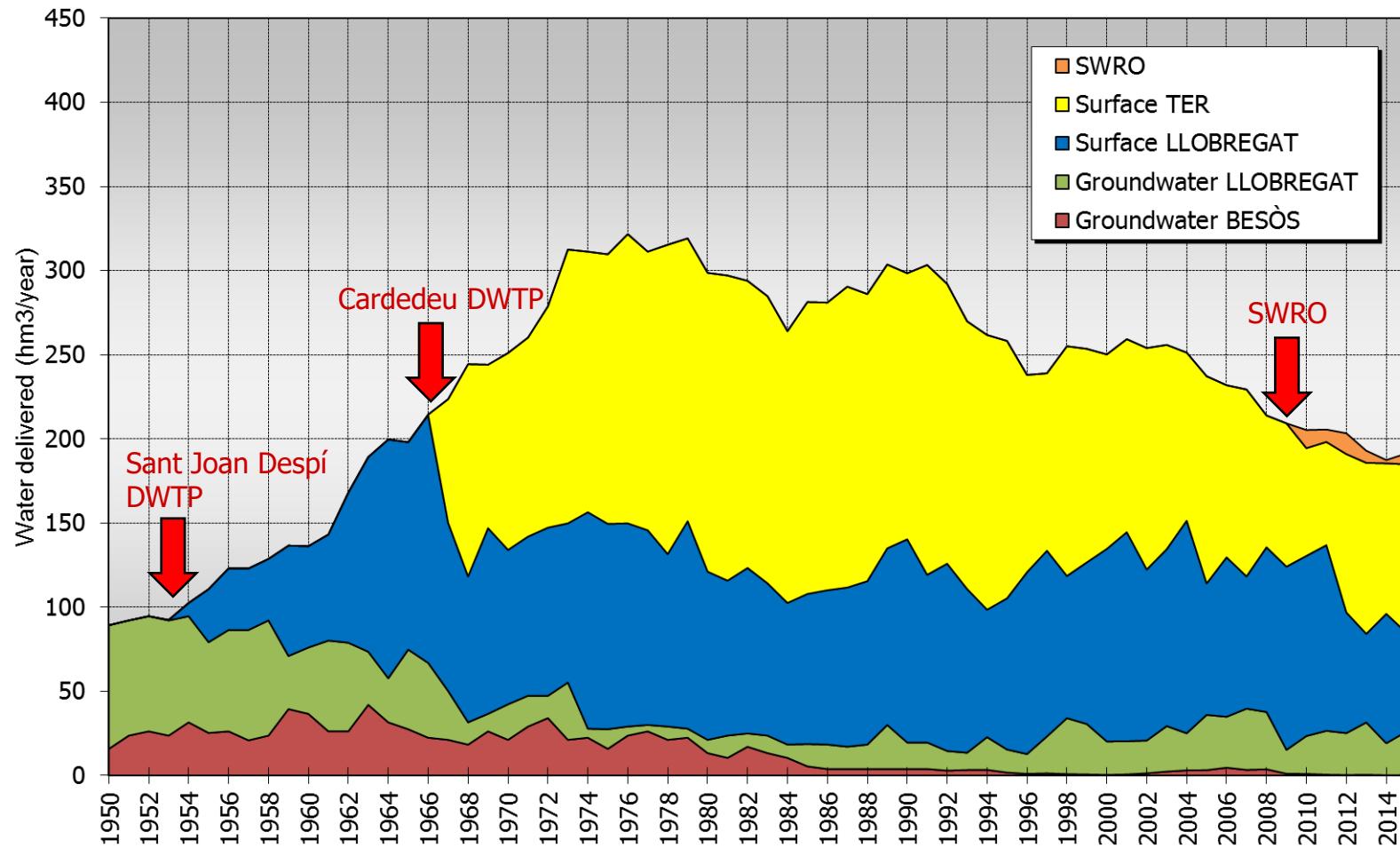


# The water supply system of Barcelona Metropolitan Area

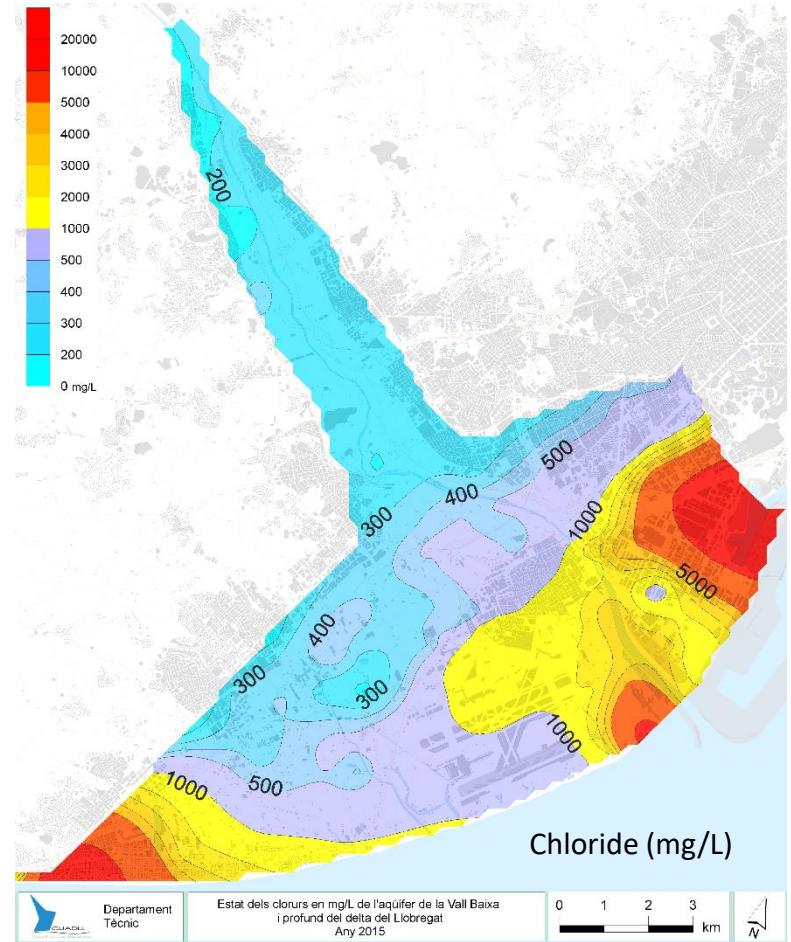
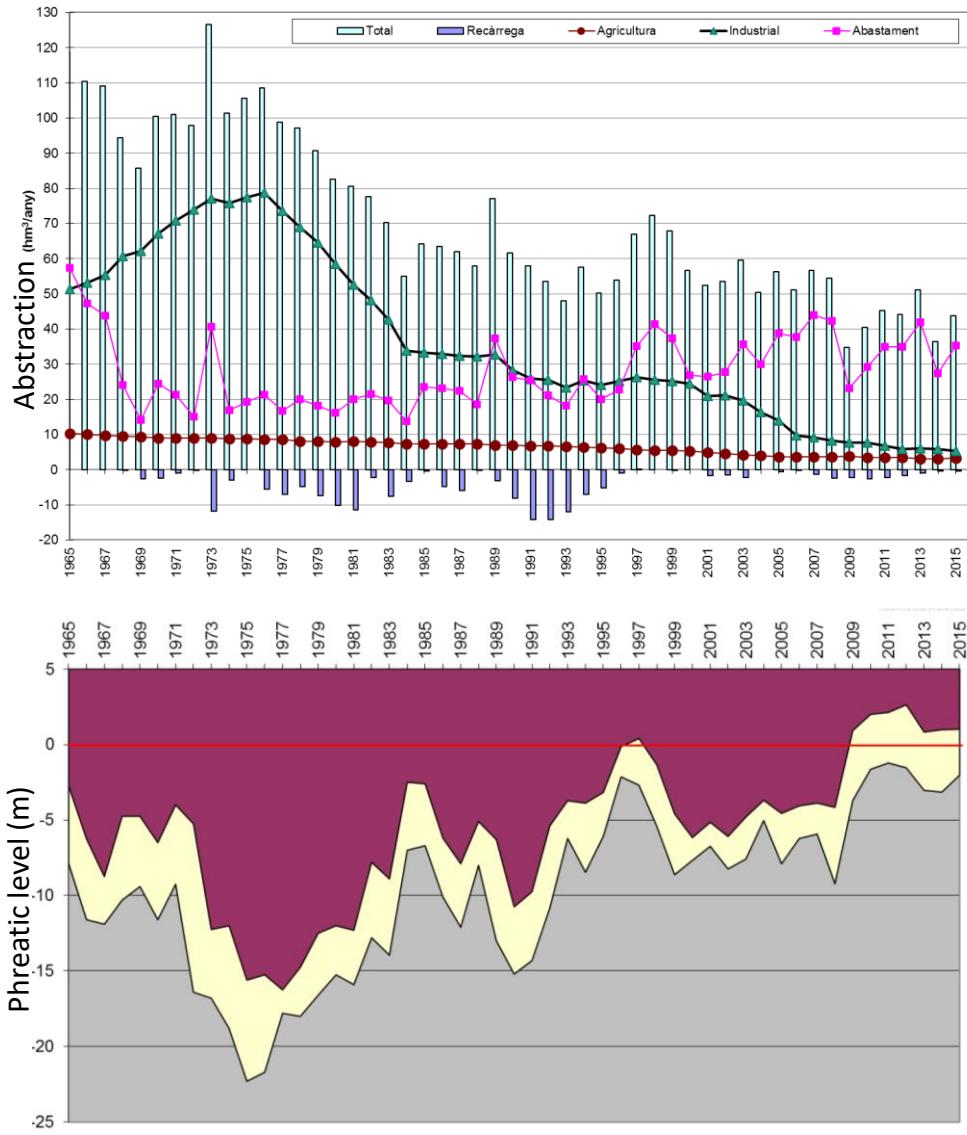
No. of inhabitants supplied	2,815,000
No. of municipalities supplied	23
Length of distribution network	4,521 km
Average daily consumption	425,000 m <sup>3</sup>
Annual demand	155 hm <sup>3</sup>
River Llobregat	60-90 hm <sup>3</sup>
River Ter	50-80 hm <sup>3</sup>
<b>Llobregat Aquifer</b>	<b>15-35 hm<sup>3</sup></b>
Besós Aquifer	1-3 hm <sup>3</sup>
Desalination	(6-50 hm <sup>3</sup> )



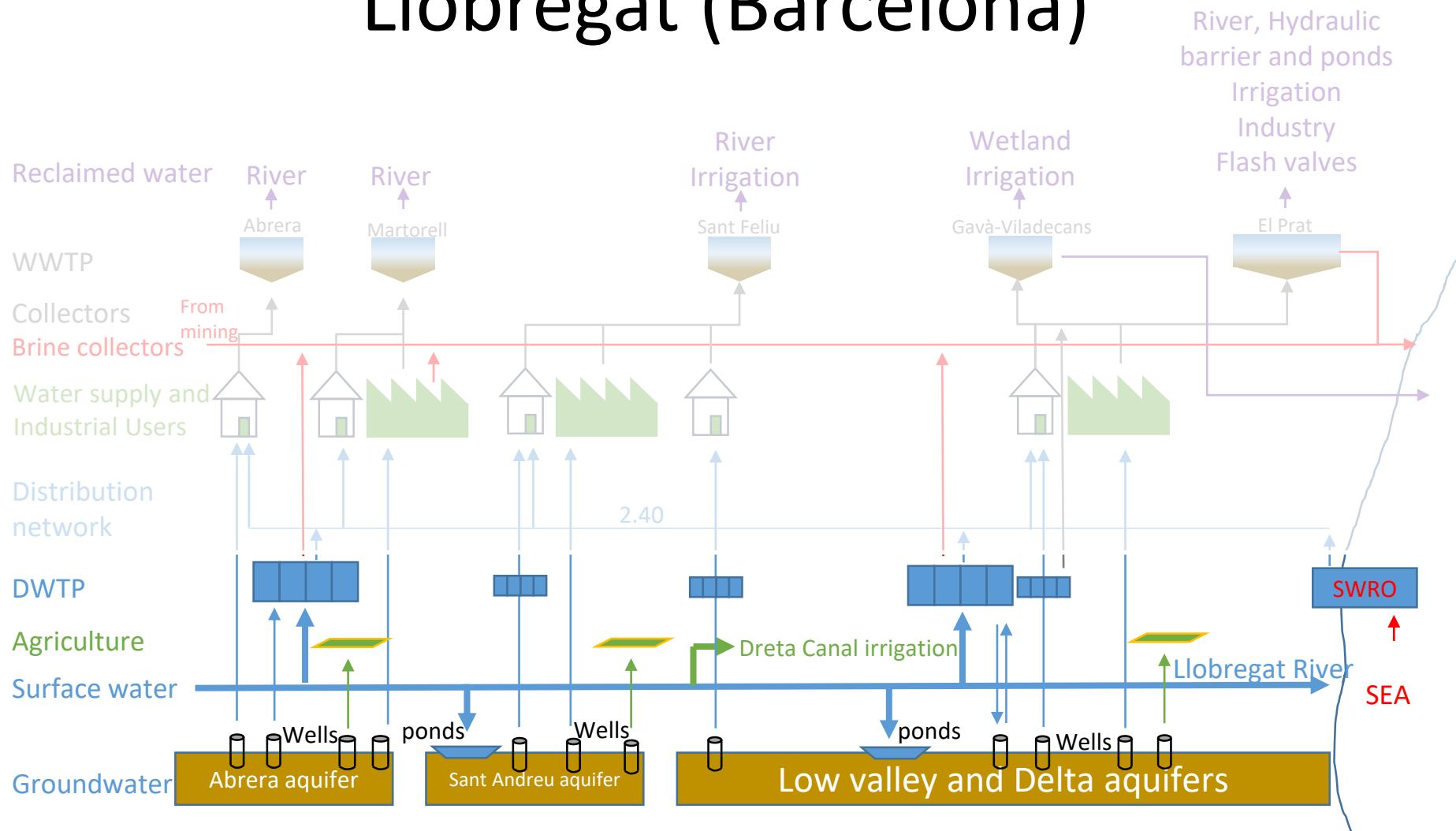
# Evolution of the water delivered to the network in the sphere of Barcelona



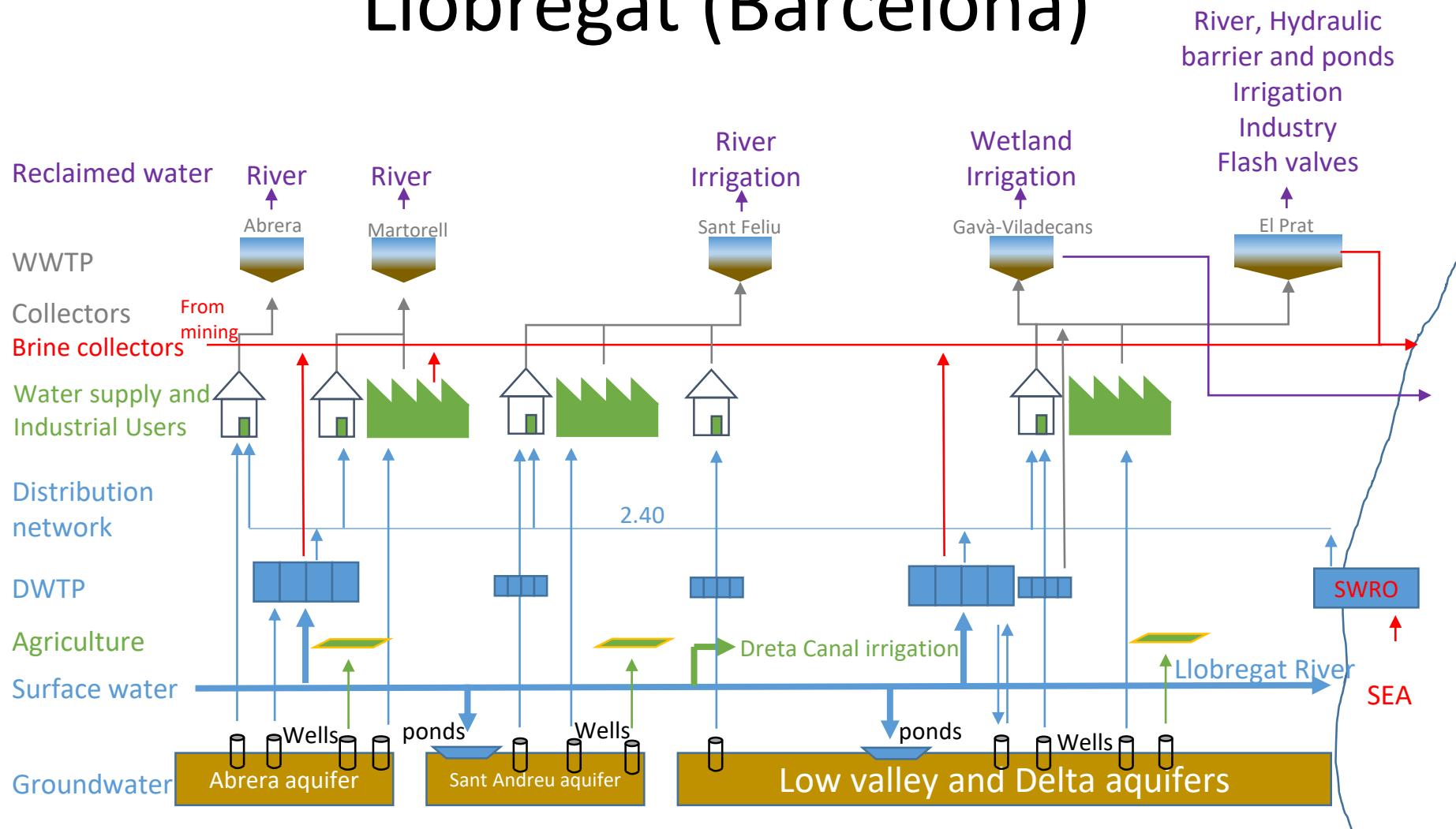
# History of Llobregat groundwater



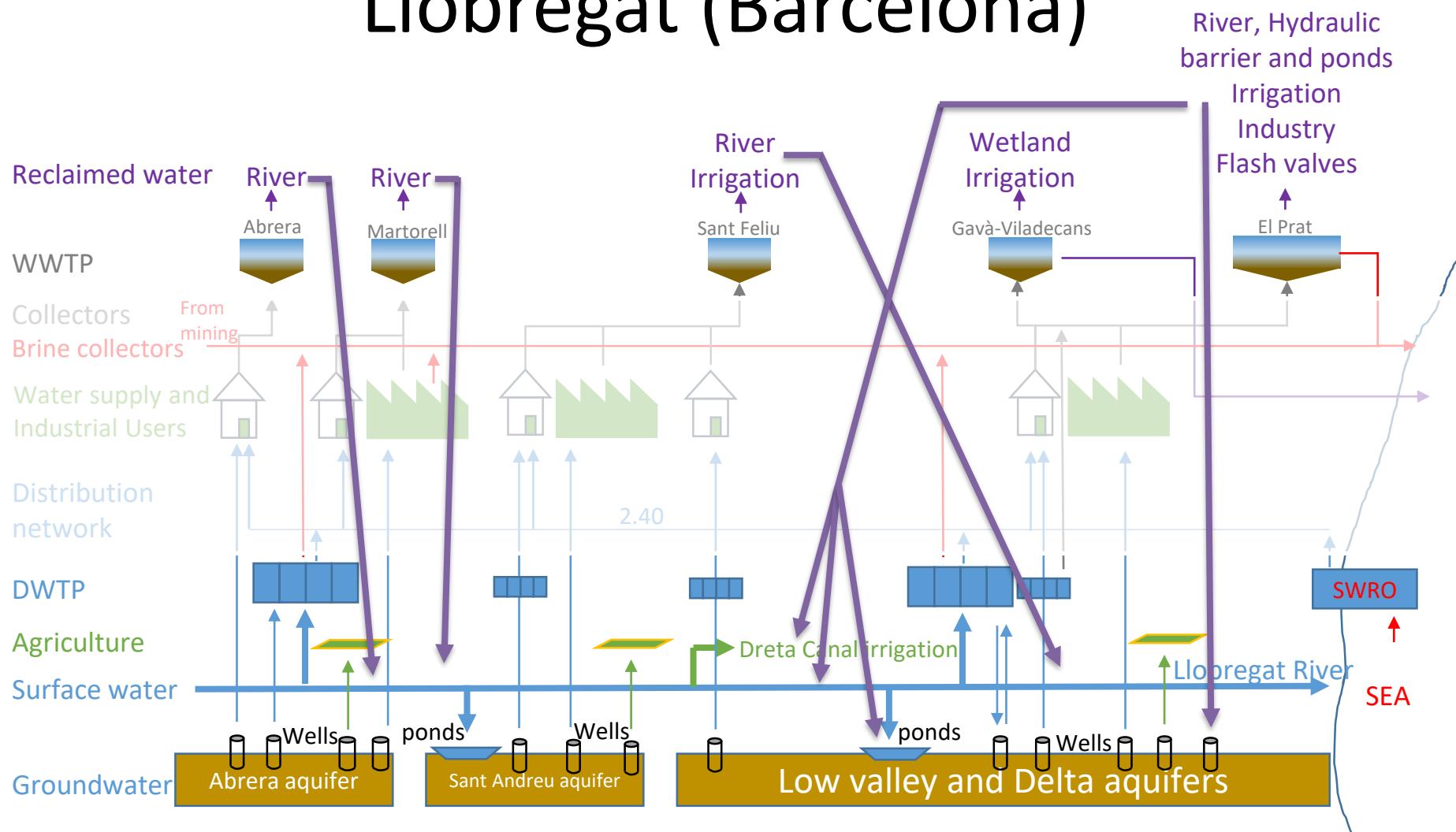
# Integral water cycle in the Low Llobregat (Barcelona)



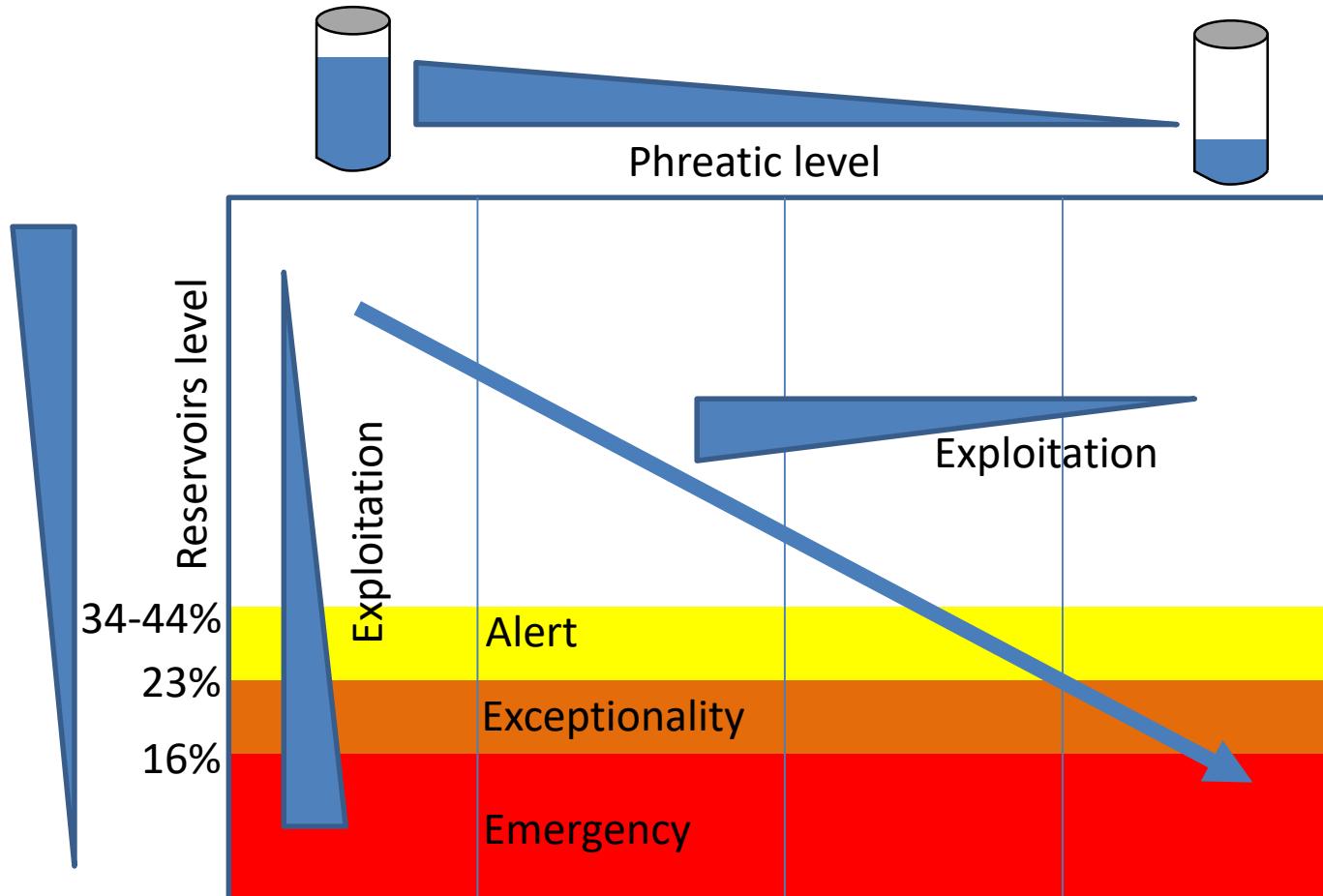
# Integral water cycle in the Low Llobregat (Barcelona)



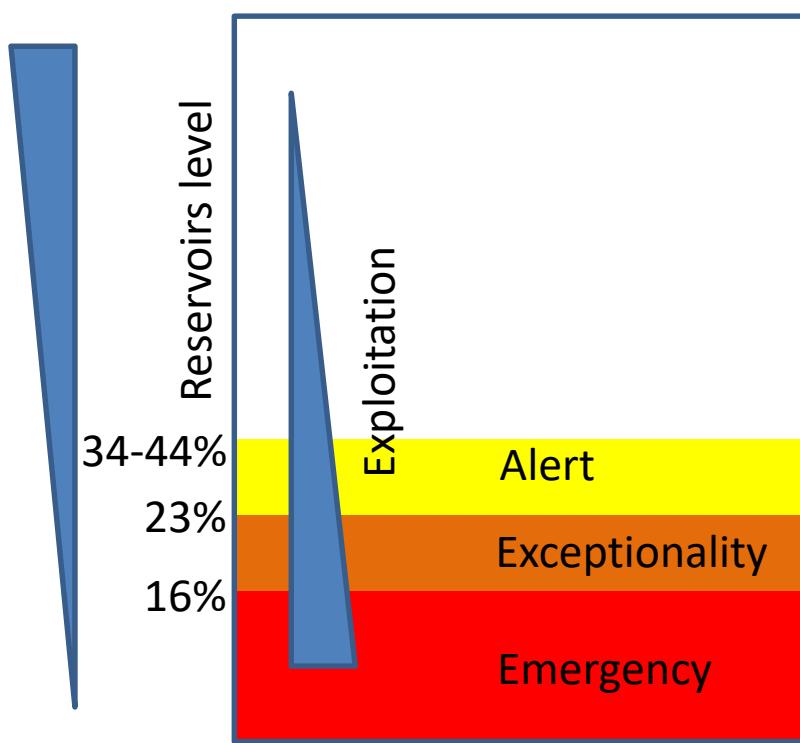
# Integral water cycle in the Low Llobregat (Barcelona)



# Conjunctive water uses: aquifer contributions

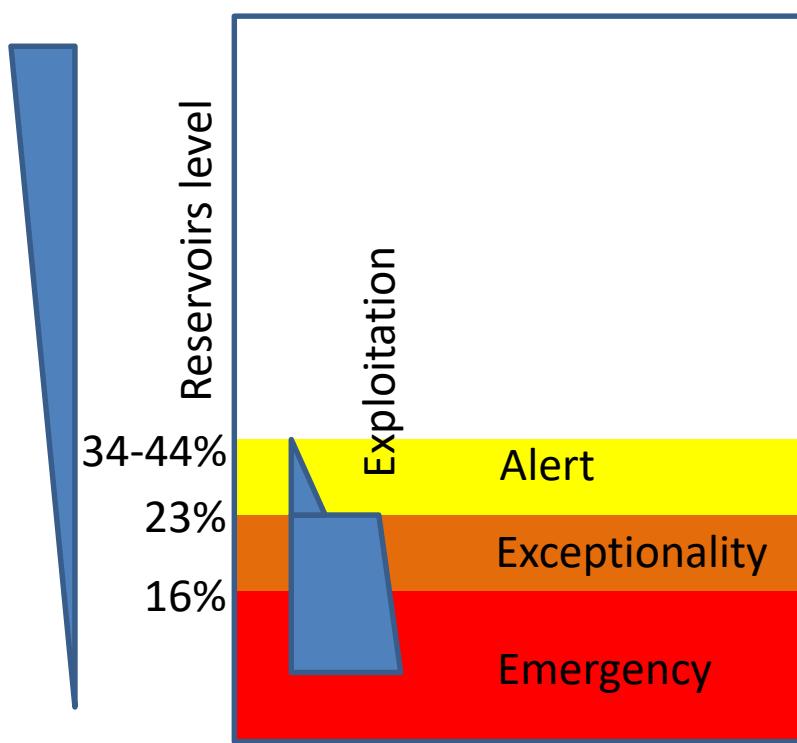


# Conjunctive water uses: contribution of SWRO



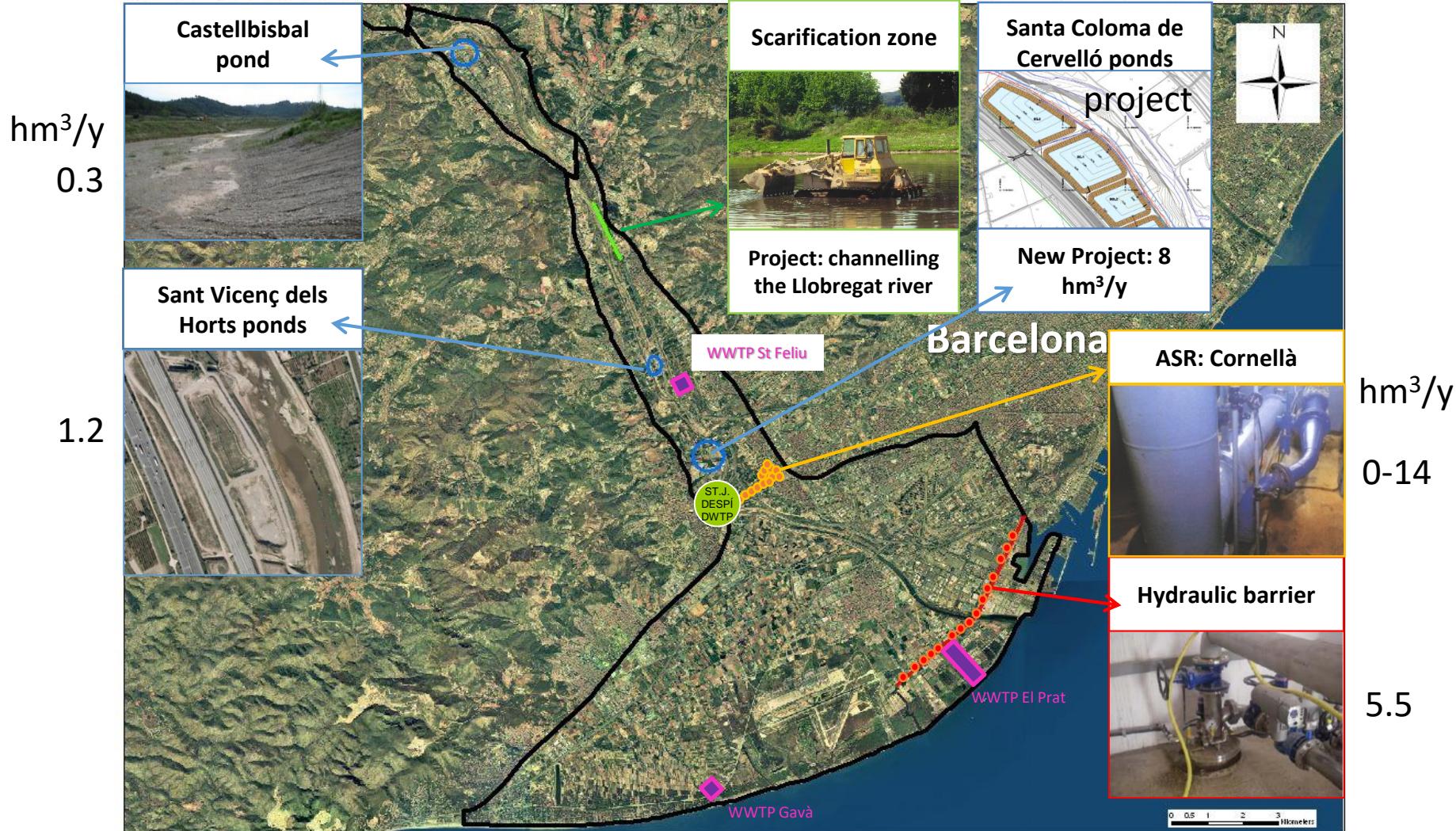
Capacity: 2 m<sup>3</sup>/s  
60 hm<sup>3</sup>/y

# Conjunctive water uses: contribution of reclaimed waste water



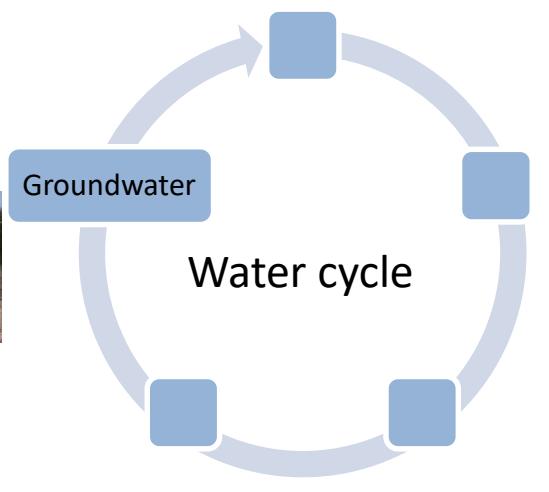
Capacity:  $3.5 \text{ m}^3/\text{s}$   
 $100 \text{ hm}^3/\text{y}$

# Managed aquifer recharge



# Conclusions

1



2 Bad quantitative and chemical status



To increase measures  
in not only drought  
situation



3

Modulation of  
sources water

environmental

Technological

economical

social

