



Región de Murcia
Consejería de Agua, Agricultura,
Ganadería y Pesca

esamur
Entidad de Saneamiento y Depuración de la Región de Murcia

Workshop: Building water resilience in times of floods and droughts

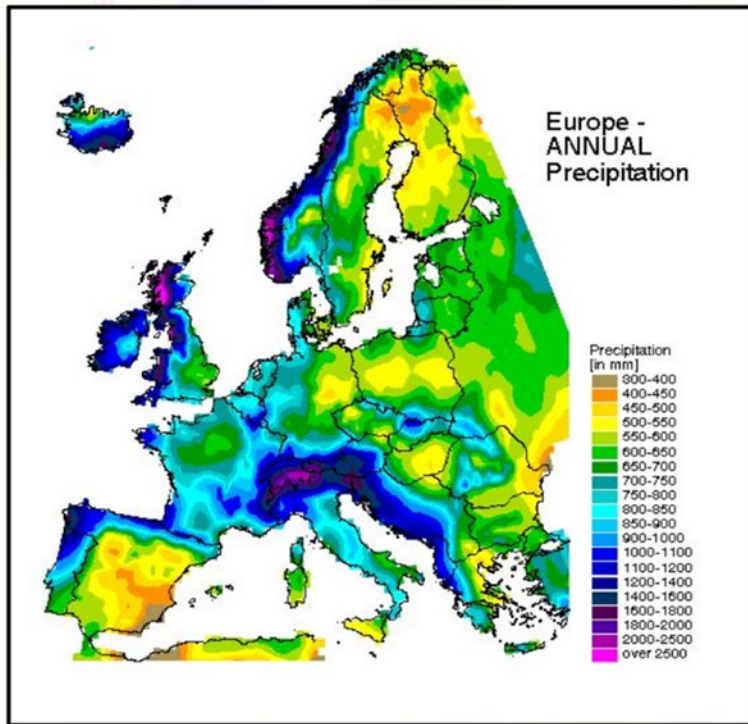
Murcia (Spain)

Module WATER AVAILABILITY AND WATER
EFFICIENCY

THE WATER REUSE PROGRAMME IN MURCIA

Murcia, 26th February 2025

Pedro Simón Andreu
Technical Director ESAMUR



**Average rainfall :
350 mm/year**

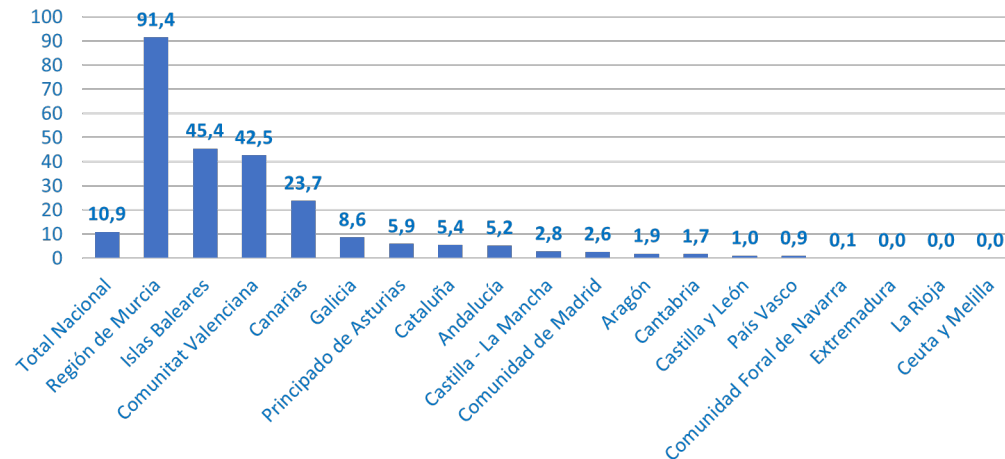
**SPAIN is the country with
highest water reuse in Europe**



**MORE THAN 3 MILLION TONS OF
AGRICULTURAL PRODUCTS ARE GROWN EVERY
YEAR IN MURCIA REGION**



Reutilización agua en España (INE 2020)





Water sources in Murcia Region

Conventional water sources



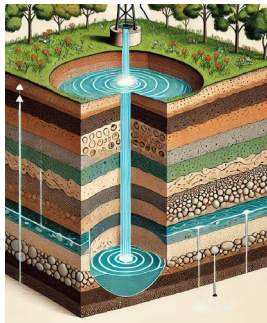
Surface water



Rain water



Water from other basins



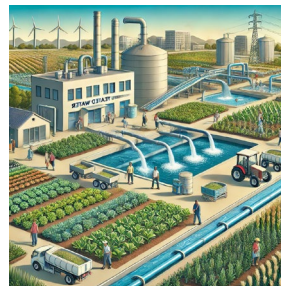
Groundwater



Reclaimed water



Desalinated water

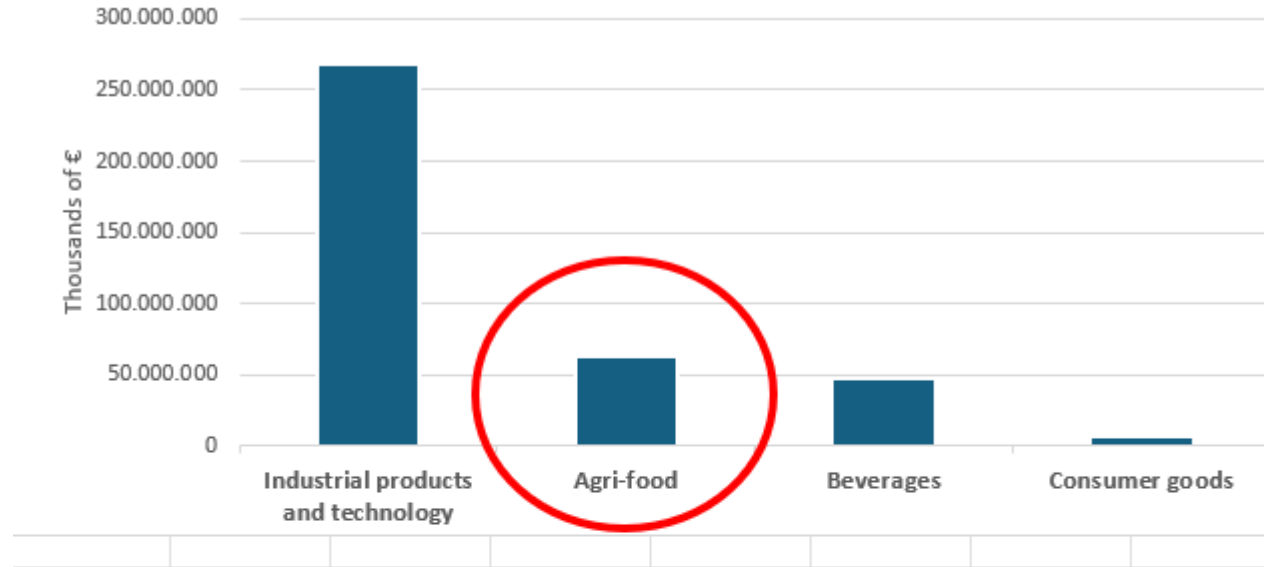


Non conventional
water sources

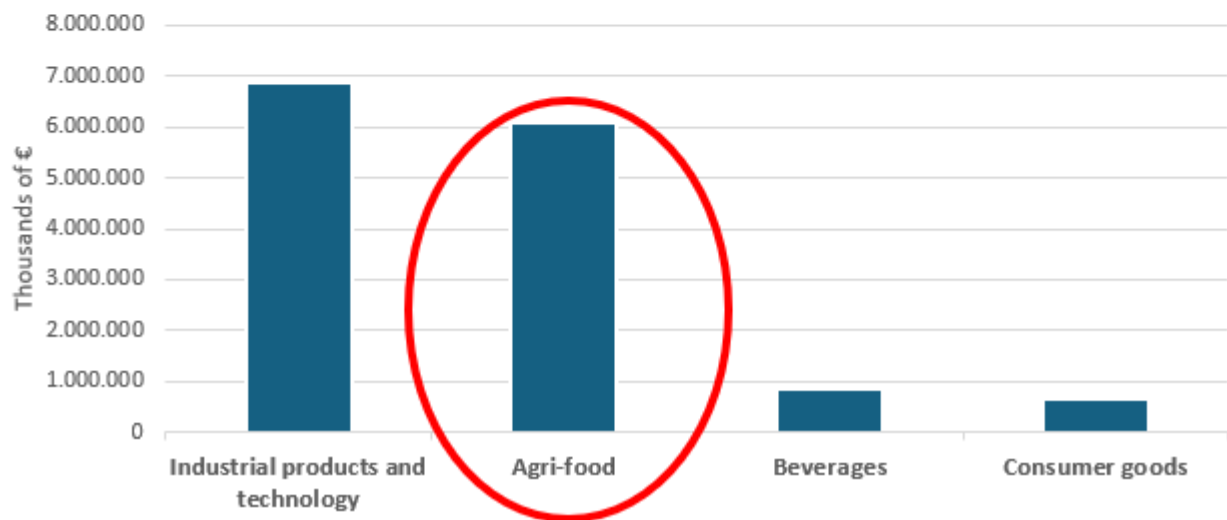




Main export sectors in Spain 2023



Main export sectors in Murcia Region 2023



In Murcia Region:

- **110 Hm3 of reclaimed water are used every year, since more than 20 years**
- **15 % of irrigation water comes from reclaimed water**
- **Reclaimed water is a very reliable water source**



Key points for the water reuse

- Scarcity of water (current or in the future)
- Political will (Sanitation Master Plan 2000: Water Reuse is a key point)
- Adequate and sufficient treatment infrastructures (New European Regulation)
- Adequate control and management systems
- **Users and consumers TRUST**

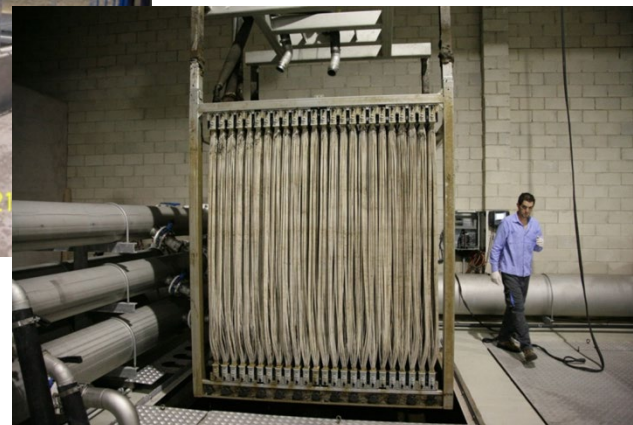
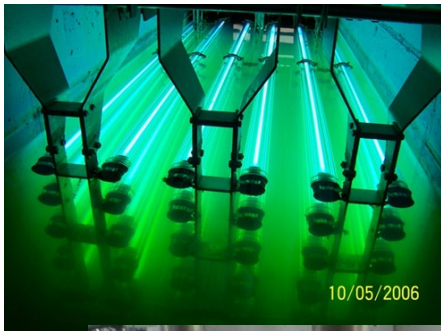


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The most advanced water reclamation treatments

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➤ Water reuse is a responsibility (consumers safety)

➤ Water reuse must be viable (optimization)

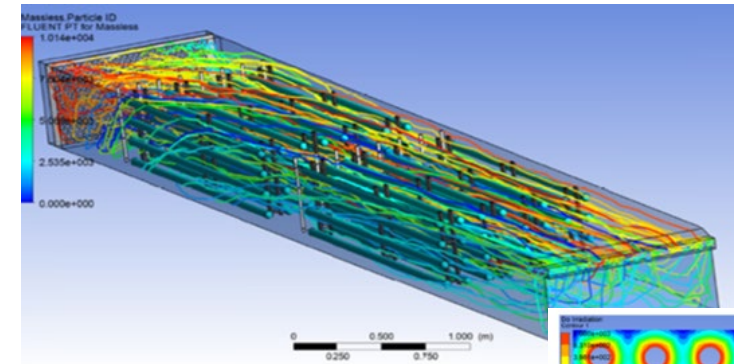
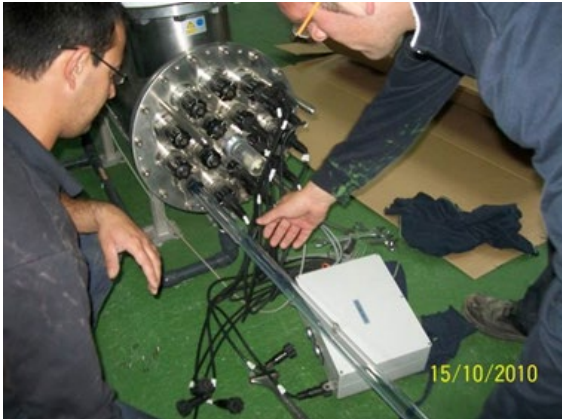
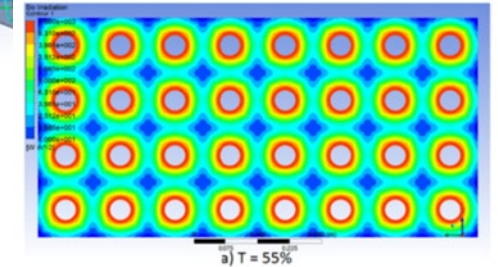


Figura 21. Trayectorias de 100 partículas sin masa liberadas en el reactor.



26/03/2025



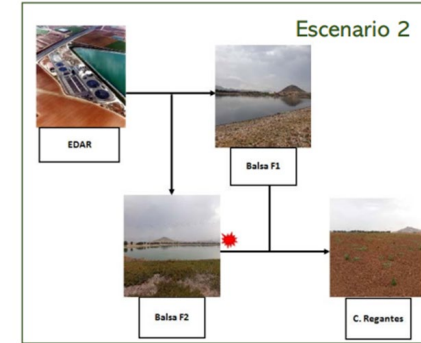
Risk management plan
and strict control by
ESAMUR



Users and consumers TRUST

Concerns:

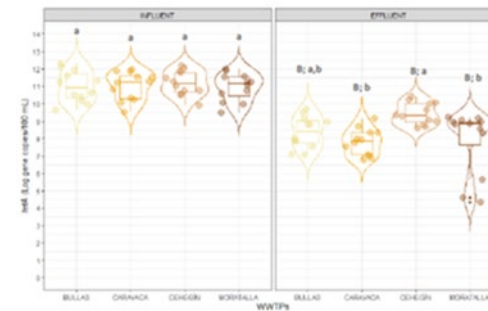
- Pathogens
- Emerging compounds
- Antimicrobial resistance
- New emerging pathogens
- ...



Emerging compounds in water, soil and agricultural products



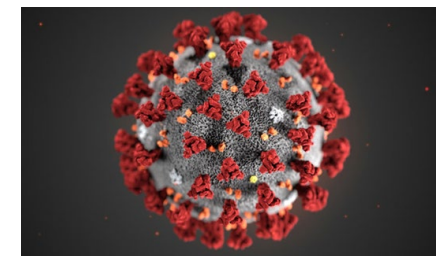
Risk assessment in fields



Antimicrobial resistance



Agua clorada de la SAT (media 4 analíticas, 2022-2023) EDAR Cabezo Beaza	µg/L
4-Aminoantipirina	0,171
4-Methylbenzotriazole	0,460
6-methyl-benzotriazole	0,540
Acetamiprid	0,085
Amisulprida	0,026
Azoxistrobin	0,029
Benzotriazole	2,400
Candesartan	1,500
Carbamazepine	0,140
Ciprofloxacino	0,050
Citalopram	0,140
Claritromicina	0,050
Diclofenac	0,195
Diuron	0,046
Gemfibrocil	0,155
Glifosato	2,300
Hydrochlorothiazide	0,700
Imidacloprid	0,097
Irbesartan	1,500
Ketoprofen	0,092
Levamisol	0,083
Lindano	0,004
Metoprolol	0,020
Ofloxacin	0,237
Sulfamethoxazole	0,510
Terbutrina	0,092
Trimethoprim	0,098
Tributilestaño	0,001
Venlafaxin	0,520
SUMA	12,241



Detection SARS-Cov-2 en WW.

Mpox detection



Transparency and dissemination





Conclusions:

- **Water reuse is safe**
- **It's a very reliable water source**
- **The practice of water reuse protects the environment**
- **Water reuse promotes the circular economy**
- **Water reuse supports the adaptation to climate change**





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