UN 2023 WATER CONFERENCE

SUSTAINABLE WATER & ENERGY SOLUTIONS NETWORK

The dream of the possible

Water and Energy for Sustainable Development

Integrated solutions supporting regional cooperation, sustainable urban and rural development, climate resilience and biodiversity

Mr. Miguel Ángel Gálvez, Canal de Isabel II, Spain

Canal de Isabel II

We are obliged to separate economic growth from the consumption of new raw materials

REGIONAL COOPERATION

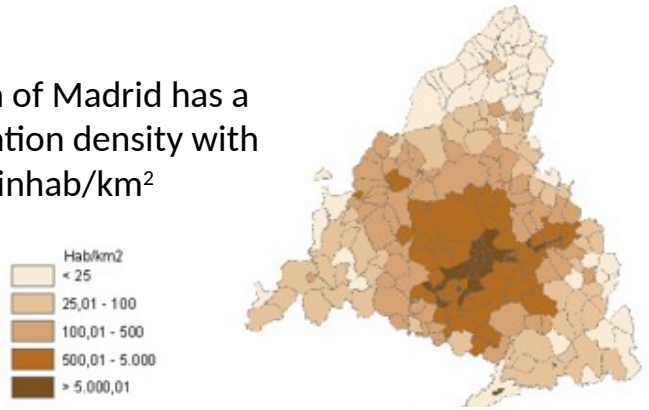
Region of Madrid

- 6,74 million inhabitants
- An area of 8000 km²
- 179 municipalities
- Madrid is the 2nd largest city in the European Union after Berlin. 5,472 inhab/km²

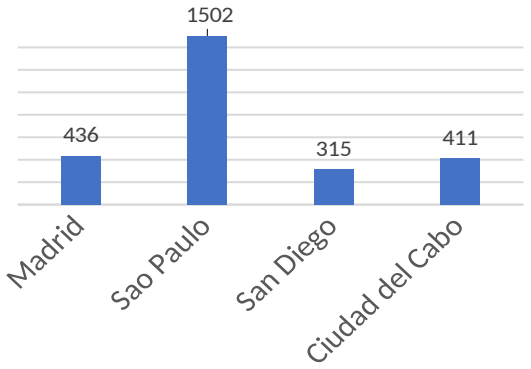
Supra-municipal management model:

Inter-municipal solidarity, economies of scale and operational synergies through the integral water cycle services

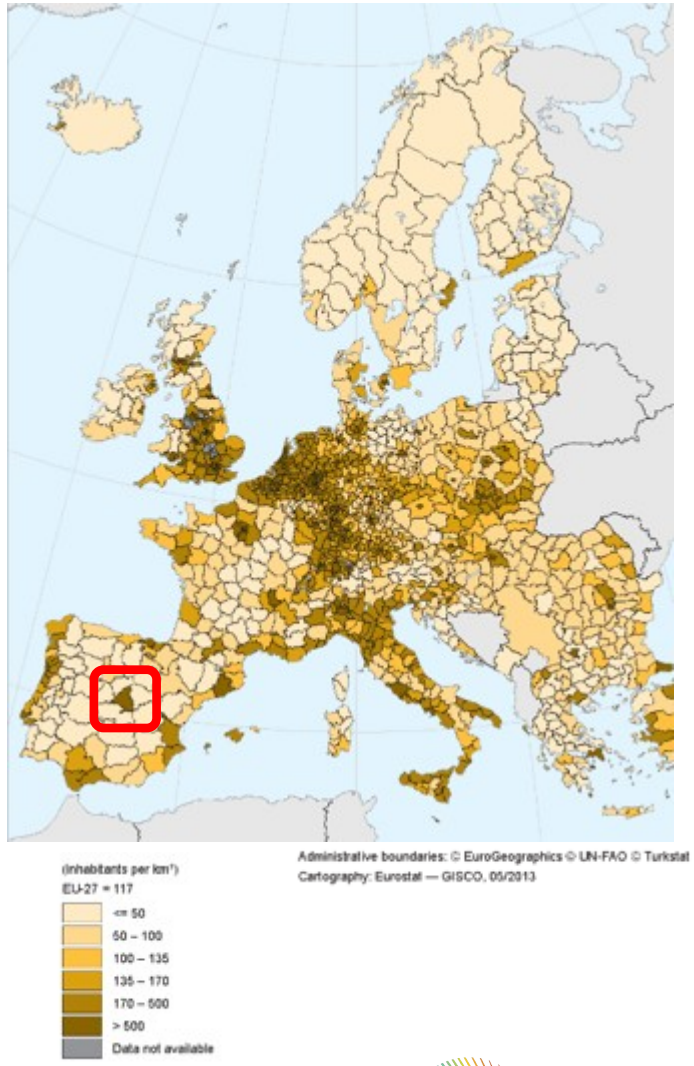
The Region of Madrid has a high population density with 810 inhab/km²



Madrid is the widest metropolitan area in Spain



Annual precipitation (mm/year)



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REGIONAL CHALLENGES

Scarcity and rainfall irregularity

jueves, 16 de septiembre de 2010 - 07:56 GMT

Paraguay faces a long and expensive drought.

Eduardo Arce
BBC Mundo, Paraguay

Unas 30.000 familias indígenas y rurales que habitan en el centro y el norte del Chaco Paraguayo se han visto afectados por la dura sequía que azota a la región occidental desde hace al menos cinco meses.

"La escasez de agua para consumo humano y la proliferación de aljibes y tajamares (represas) secos ha vuelto crítica la situación", le dijo a BBC Mundo la ministra de la Secretaría de Emergencia Nacional, Gladys Cardozo.

En el Chaco Central no hay agua dulce, salvo los pozos que se llenan con agua de lluvia y tienen corta vida.

The City of Cape Town has amended water restrictions to Level 5 effective from 1 October 2018 until further notice.

SUMMARY OF KEY CHANGES: LEVEL 6B to LEVEL 5

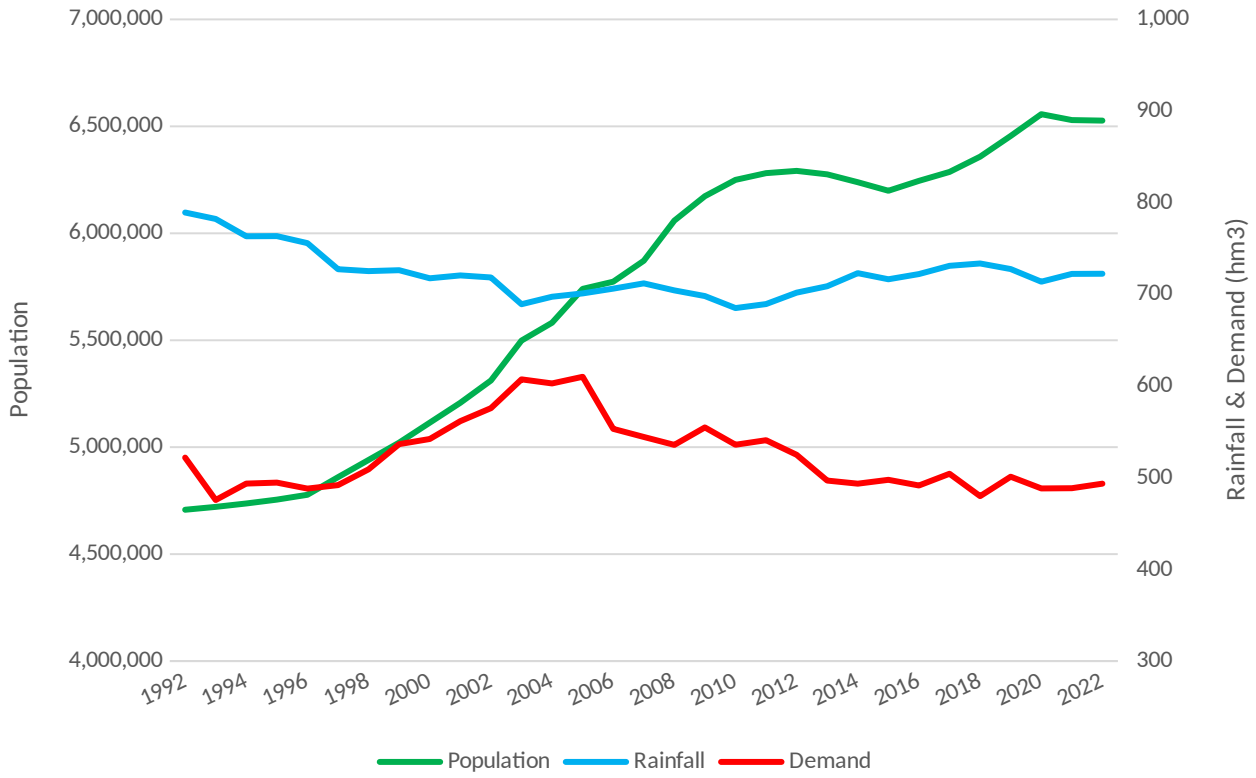
LEVEL 5 RESTRICTIONS

Restrictions applicable to all customers

- No watering/irrigation with municipal drinking water allowed. This includes watering/irrigation of gardens, vegetables, agricultural crops, sports fields, golf courses, nurseries, parks and other open spaces. Nurseries and customers involved in agricultural activities or with gardens of historical significance may apply for exemption. For more information, visit
- A lowering of tariffs to Level 5 water and sanitation tariffs.

CLIMATE RESILIENCE

Best way to save energy is to save water



Compared to the last 30 years, the contributions of rivers to our region's reservoirs have decreased almost 20% in 2022. At the same time, we've had a large population increase in the Region of Madrid.

In this complex circumstance, we have reduced per-capita consumption by 32% but… how are we going to maintain the present supply guarantee level in the foreseeable climate change scenarios?

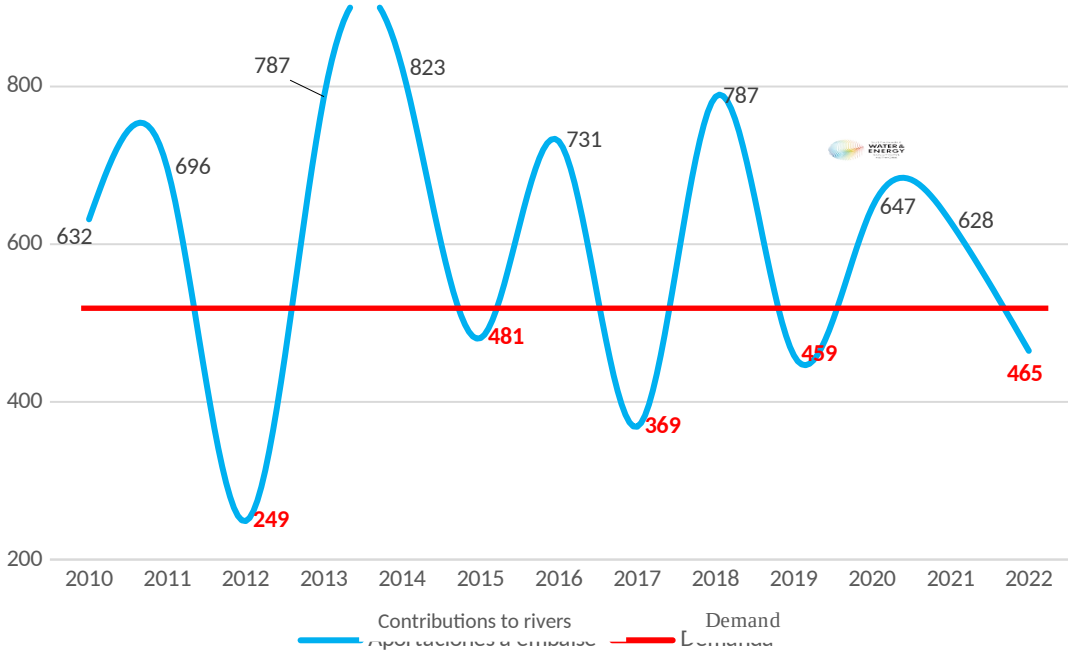
1. **Network Plan:** by 2030, we will have renewed more than 3,000 kilometers of pipelines, replacing obsolete materials with more technologically advanced ones and significantly reducing losses.

2. **Smart-Region Plan** for installing smart meters with the latest technology to enable remote reading and avoid under-registering problems. We will achieve 100% remotely read smart meters by 2026.

3. **Social awareness campaigns:** permanent media presence to make citizens aware of the efficient use of a scarce commodity such as water.

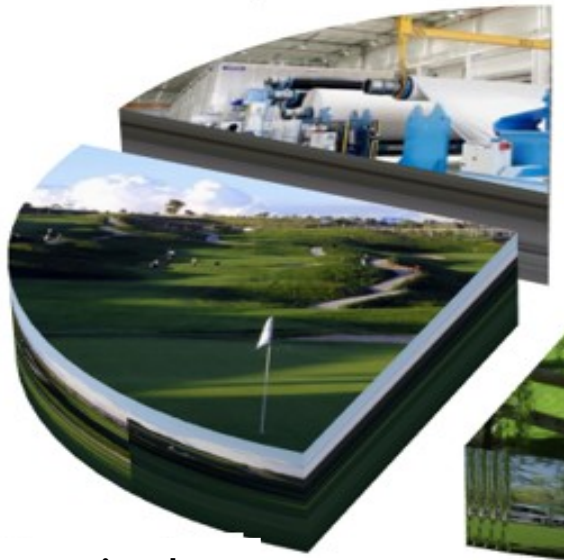
4. **SANEA Plan** works to achieve excellence in the sewerage system in the Region of Madrid being mainly focused on preventing the effects of heavy rain, runoff and floods.

Need for alternative resources
Supply-demand gap

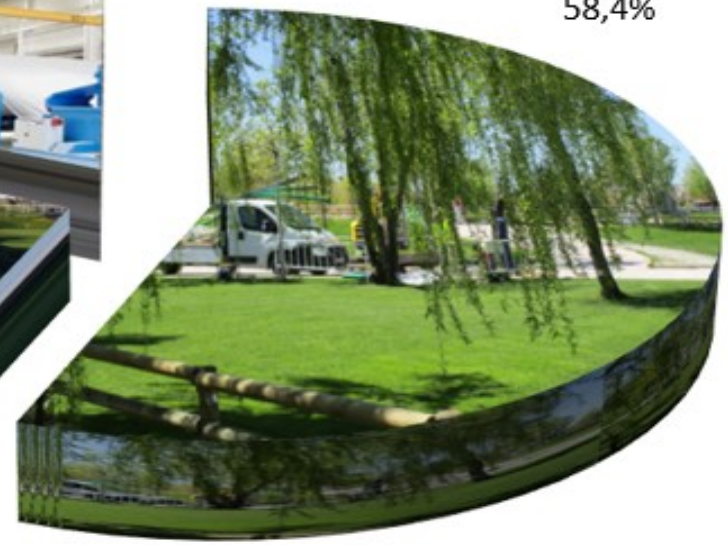


108 hm3 of reclaimed water production in 2022. Of this, 17.05 million m3 for reuse in the paper industry; irrigation of golf courses and municipal parks.

Industrial use
15,0%

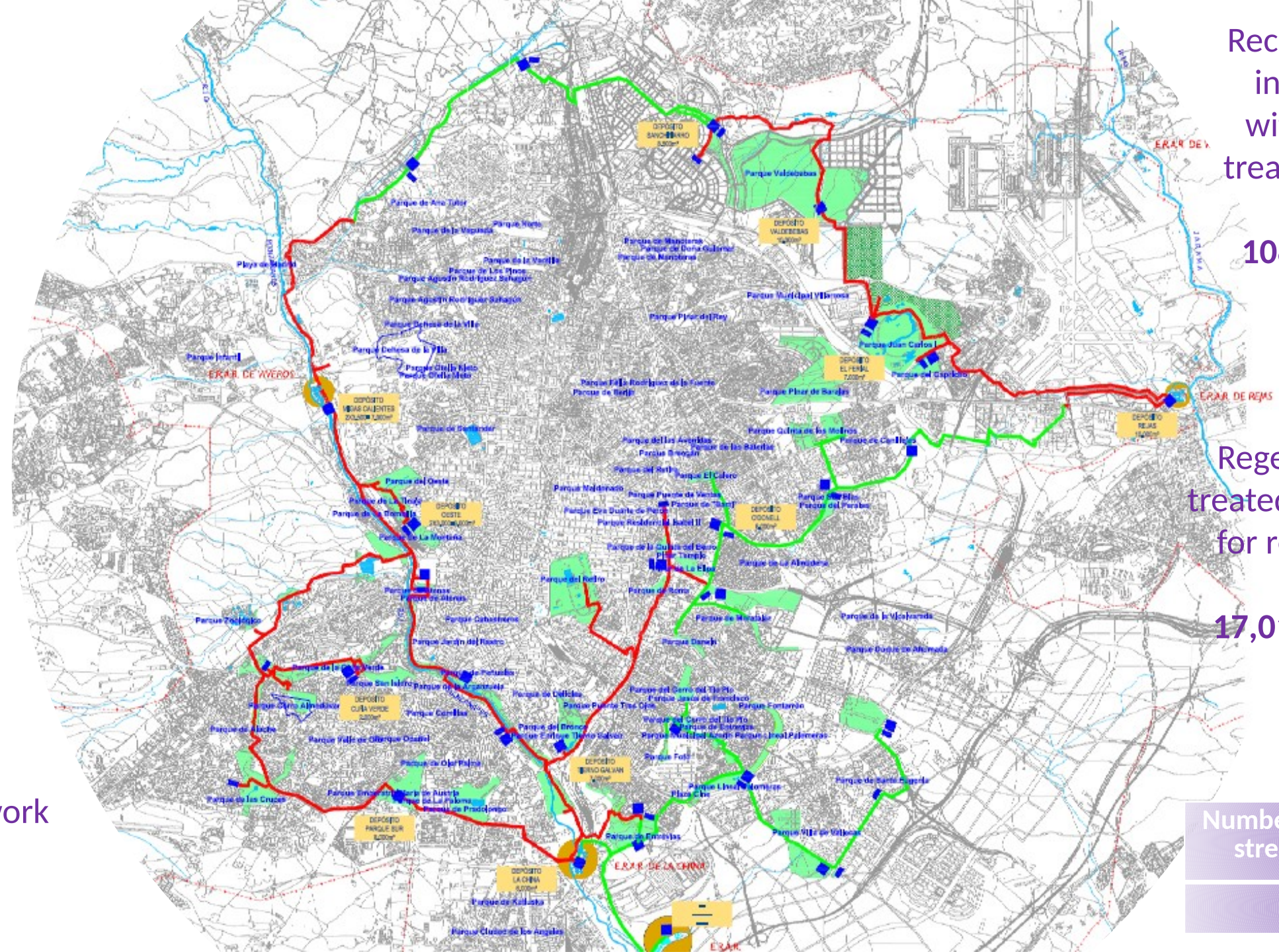


Urban use
58,4%



Recreational use
26,6%

Reclaimed water network in Madrid



Reclaimed water network surrounds Madrid

Reclaimed water into riverbed with a tertiary treatment (2022)

108 million m³

Regeneration of treated waste water for reuse (2022)

17,01 million m³

Number of tanks for street cleaning
9,617

Canal de Isabel II

WATER & ENERGY

Sustainability of environmental infrastructures

Decarbonization of processes and fossil fuels abandonmen[illegible] [illegible]production of renewable energy in treatment plants.

Convertible biogas gen
by upgrading into bi

Green hydrogen g
from reclaimed wate

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Treatment plants as biofactories

At Canal, waste has been transformed from a problem into an opportunity for new raw materials and energy sources:

- We use biogas to produce electricity and vehicle fuel. In 2022 we obtained almost 52 million cubic meters of biogas to generate 350 million thermal kWh.
- From the phosphorus contained in wastewater we produced 365 tons of struvite, a highly valued phosphate in agriculture.
- We apply advanced cleaning treatments to sludge resulting from purification process to obtain excellent quality fertilizers. This makes possible to convert them into fuel for its use in the cement plant, as it has a similar calorific value to lignite coal.

Canal de Isabel II

BIODIVERSITY

Care of our water masses

Sanitation management is vital to guarantee the
protec intena
water

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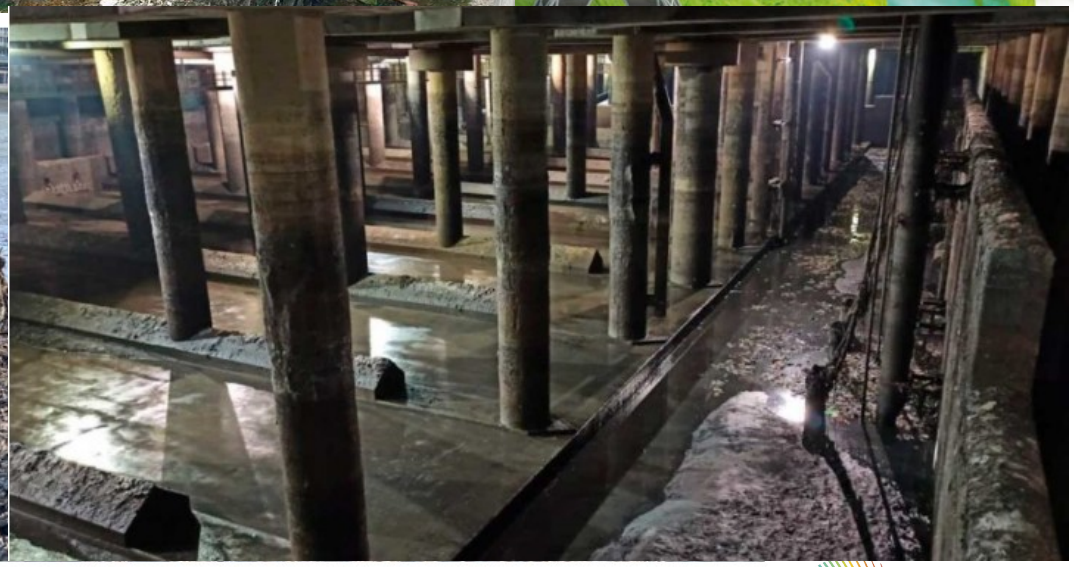
Wet wipe island has 'changed the course of the Thames' as government considers ban

27 June 2022, 08:36

Wet wipe island the size of two tennis courts has 'changed flow of River Thames'. *Picture: LBC*



a isla, compuesta por puras toallitas usadas y desechadas, a orillas del río Támesis - Twitter / @Thames21

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CONCLUSIONS

Self-sustainability of environmental infrastructures is viable

Canal de Isabel II has managed to guarantee water supply in quality and quantity thanks to ambitious policies of efficiency, resource increasing and sustained investment, by dedicating the water income to infrastructure investments.

Advancing in environmental self-sustainability, with up to 70% coverage in the expenses incurred, implies a firm commitment to the circular economy:

- For renewable gases of biological and non-biological origin
- Due to the urban deposits in fertilizers, combustibles and fuels offered by wastewater
- For a sustainable urban drainage to avoid cities waterproofing.

Canal de Isabel II

Thank you for your attention

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