

# Prevention of drought: Adaptation planning at the basin level, reuse and desalination

A case study from the island of Malta

EUROPE INBO 2018

16<sup>TH</sup> INTERNATIONAL CONFERENCE FOR THE IMPLEMENTATION OF THE  
EUROPEAN WATER DIRECTIVES

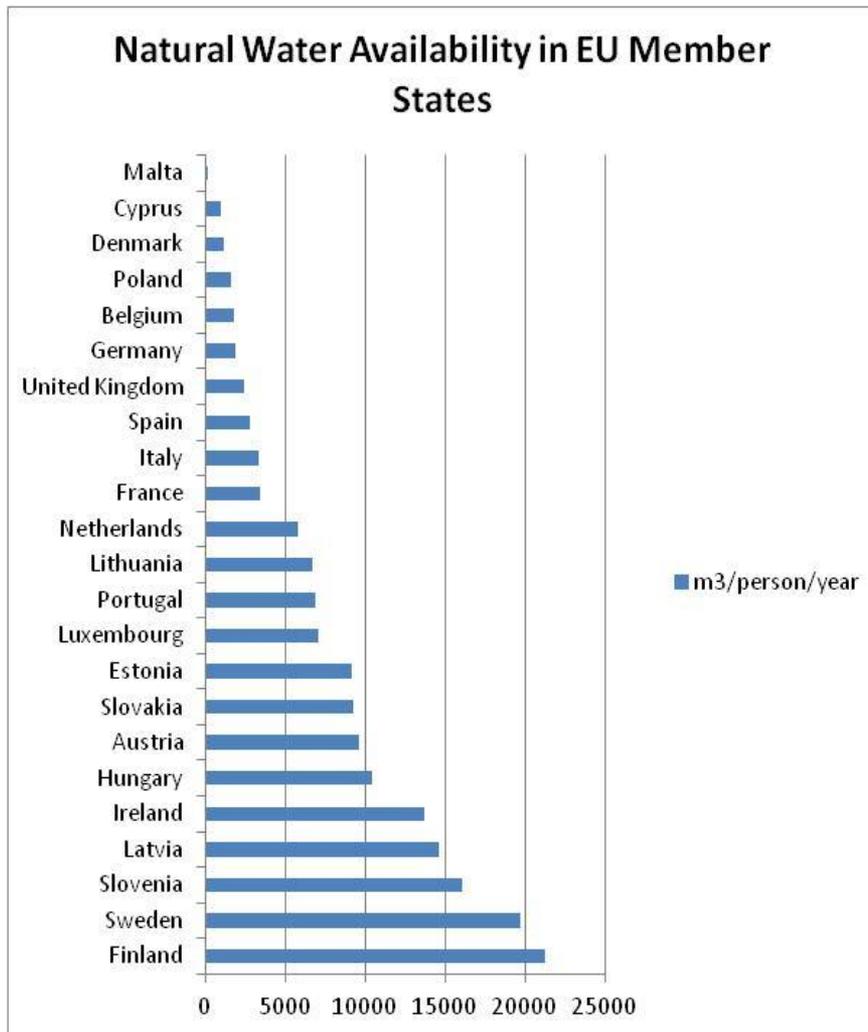
Sevilla (Spain)

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# Background

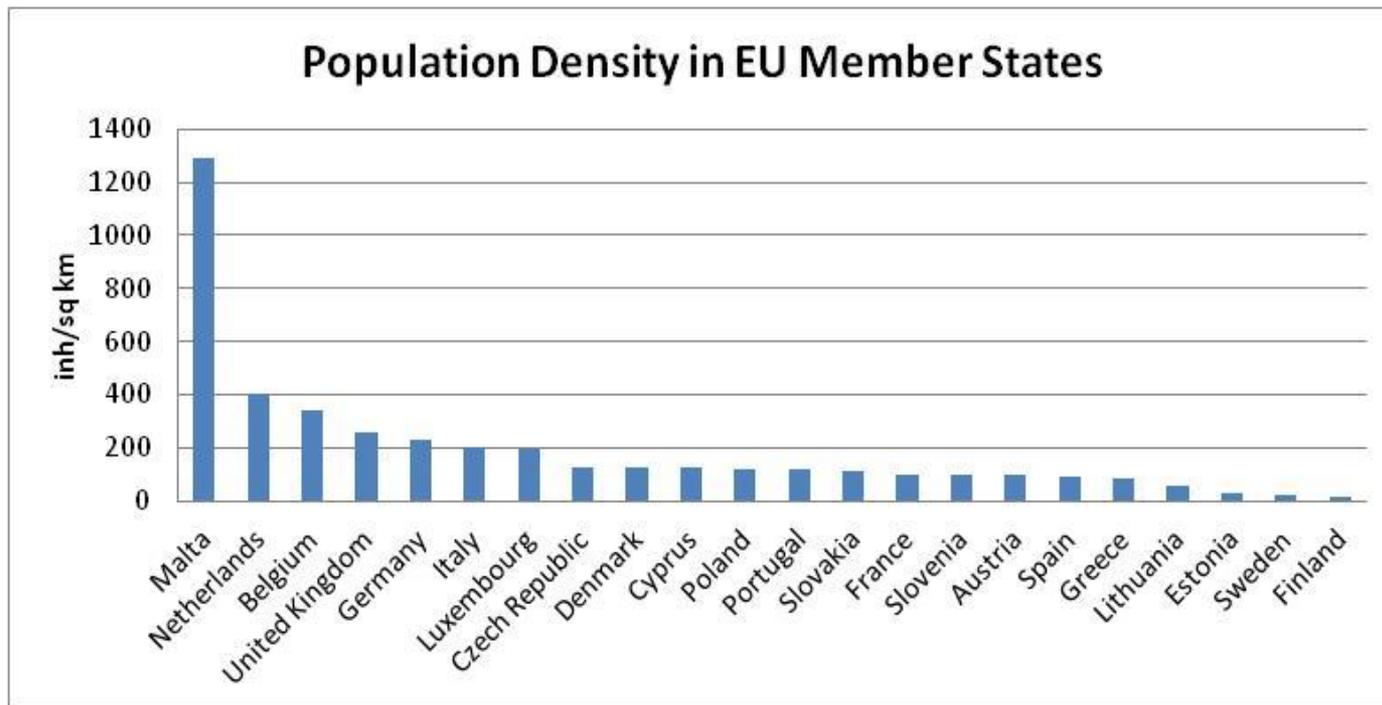


The size of the islands and the low mean annual rainfall precludes the formation of significant surface water bodies.

Natural water availability is well below the 500m<sup>3</sup>/capita UN threshold which defines extreme water scarcity.

# Background

This is also a direct consequence of the high population density of the islands, which at 1,300 inhabitants/km<sup>2</sup> is by far the highest in the EU.



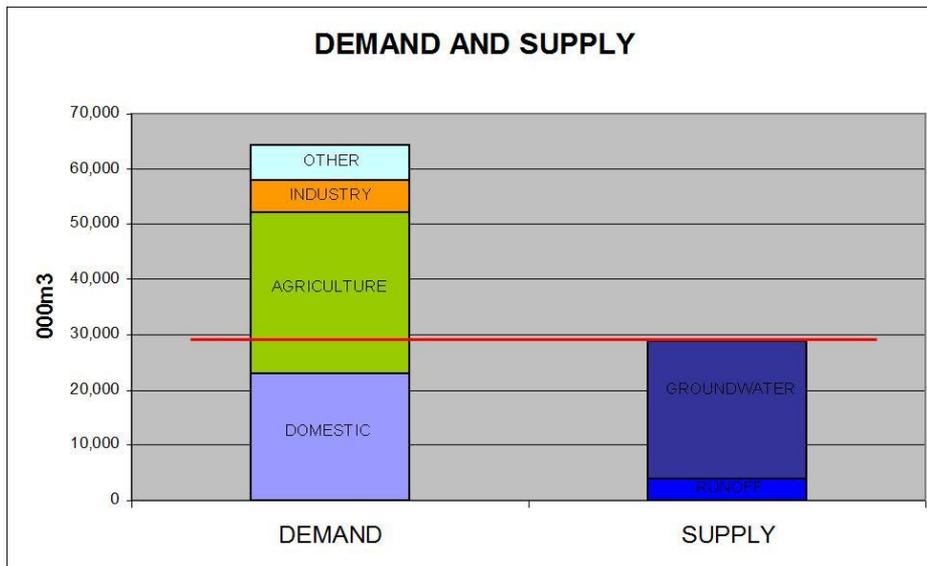
# National Water Demand

The available natural water resources are sufficient to meet around 50% of the national water demand.

There is simply no sufficient water resources to allocate to all the water users.

*So what to leave out?*

*And on which basis?*



# MALTA'S WATER MANAGEMENT STRATEGY

Malta's long term strategy in the water sector has thus been developed on two main principles:

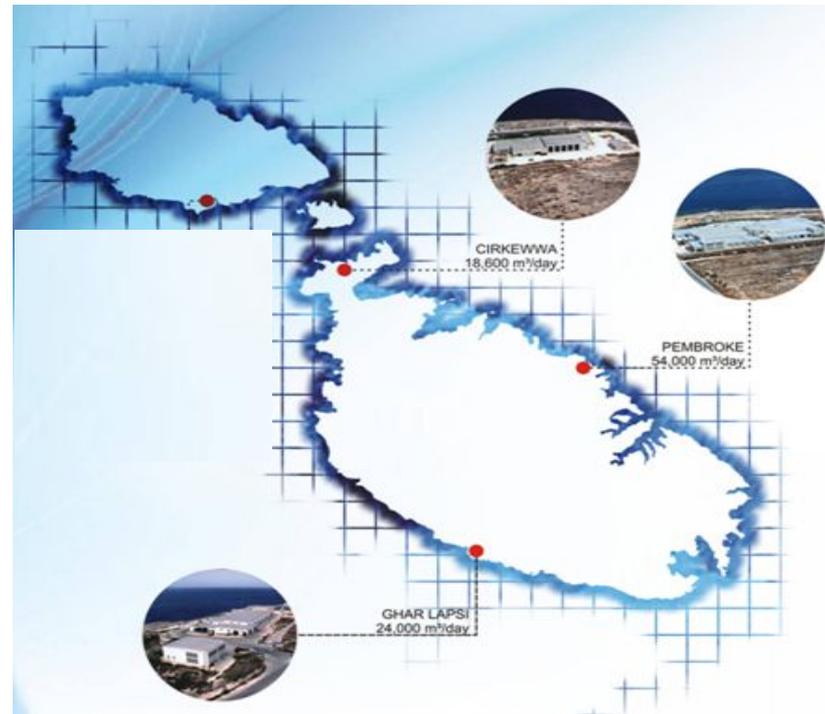
1. Optimising the efficient use of water resources,  
and
2. Widening the national water resource base to  
sustainably address water demand.

# Augmenting the Resource Base

Three desalination plants are currently operated by the Water Services Corporation in Malta:

Lapsi: 24,000 m<sup>3</sup>/day;  
Cirkewwa: 18,600 m<sup>3</sup>/day; and  
Pembroke: 54,000 m<sup>3</sup>/day.

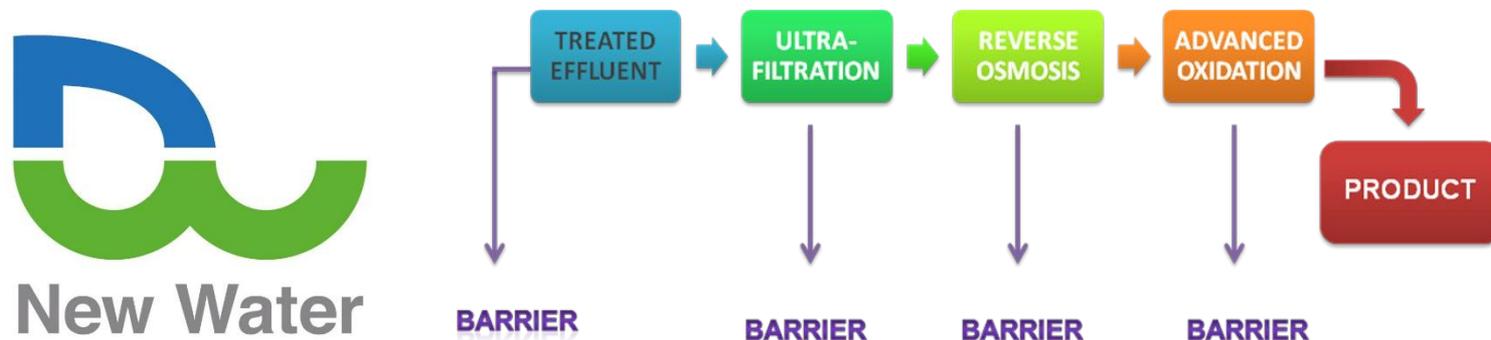
These plants produce  
58% of the water  
production in Malta.



The utility has made significant technological advancements in RO technology through the upgrading of pumping technology and the introduction of energy recovery systems.

# 2<sup>nd</sup> River Basin Management Plan

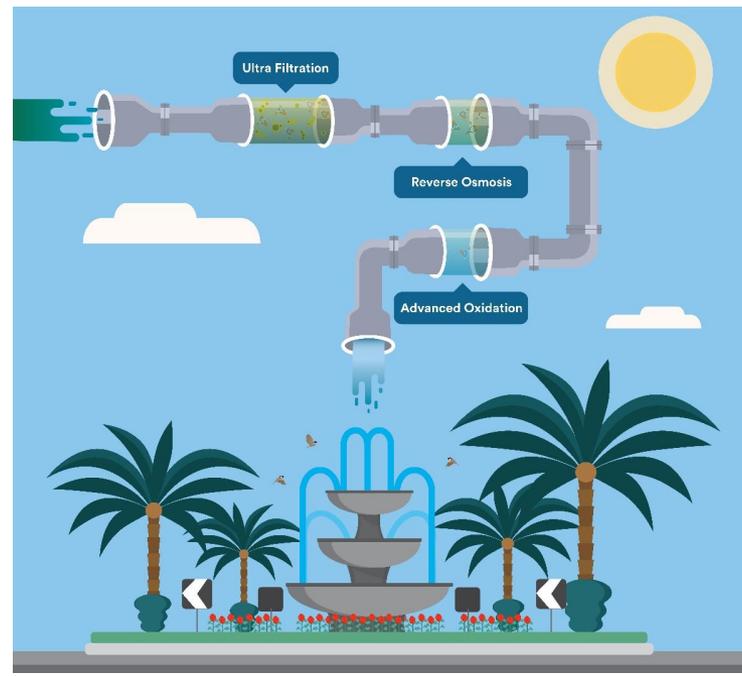
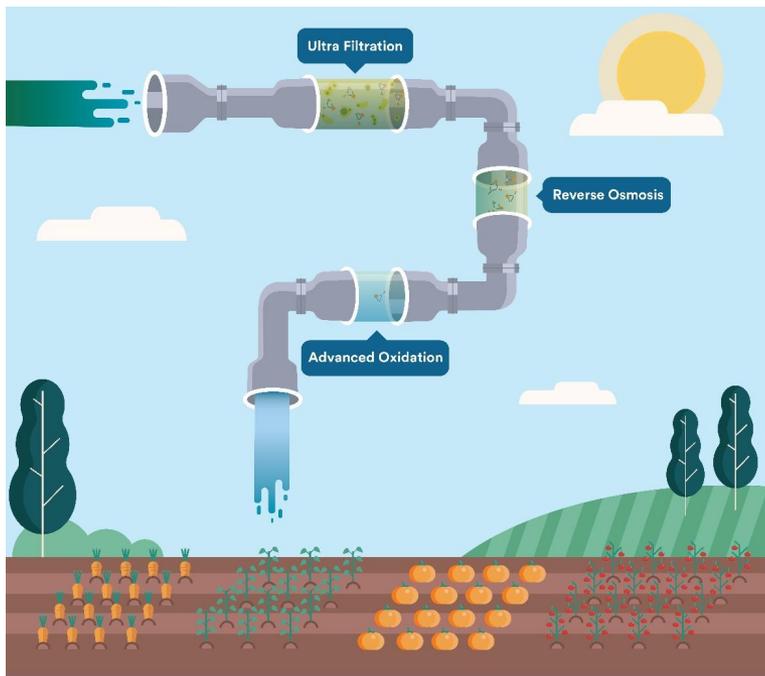
Malta's 2<sup>nd</sup> RBMP continues to build on this strategy, and seeks the conjunctive adoption of water demand management and water supply augmentation measures to achieve the good status objectives of the Water Framework Directive. Water reuse is key to this strategy, widening the water resource base available to address an efficient water demand. The New Water Program shall allow for the substitution of the existing water demand from the agricultural, landscaping and industrial sectors, from groundwater to reused water.



## 2<sup>nd</sup> RBMP

From a quantitative perspective, the **New Water programme** will potentially meet around 35% of the water demand of the agricultural sector in Malta.

During periods of low water demand, excess production will be strategically diverted to **managed aquifer recharge** installations (indirect recharge) to protect coastal regions of the aquifer from sea-water intrusion.



# Achievement of Environmental Objectives

Reuse can therefore support the achievement of the objectives of the **Water Framework Directive (WFD)**, particularly in water scarce countries/regions.

By lowering dependence on natural water resources, and therefore vulnerability to drought events, water reuse facilitates the achievement of WFD good quantitative status objectives.

The **WFD** encourages the inclusion of reuse in River Basin Management Plans to ensure the conjunctive use of reused water together with other available options.

# EU Approach

The **Circular Economy Package** highlights the need for a more comprehensive outlook to water reuse applications. Water reuse is not only effective in addressing water scarcity and droughts – but has an important potential for:

- Energy recovery
- Nutrient recovery

Advances in technology are required to effectively develop comprehensive and cost-effective solutions. Support to R&D activities for the development of marketable solutions is key to securing a role for Europe in the water reuse sector. Water reuse can be (is) an important pillar of Europe's **Green Economy**.

# Water Resources Management

This water management approach depends on the achievement of **high levels of efficiency** in water use by all water using sectors.

Hence tools to support this model include:

- Volumetric quotas
- Financial instruments
- Stakeholder engagement

Need to avoid the 'rebound effect' – increasing supply leading to an ever increasing demand.

# Conclusion

Innovation is key to the mitigation of water management problems associated with droughts.

## ***TECHNICAL FIELD***

Improving the performance of existing technology and/or developing new technology to better manage water resources

## ***SOCIAL FIELD***

Improving our interaction with our stakeholders

Thank you for your attention

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