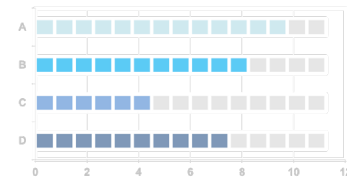
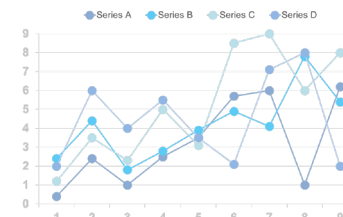
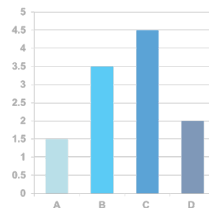
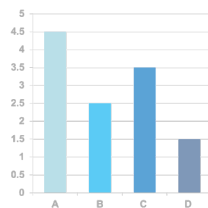
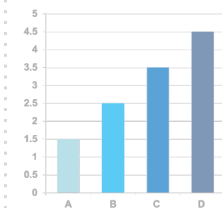


## INSIGHT REPORT

### Europe Municipal Wastewater Reuse: *Market Trends and Forecasts, 2023–2030*

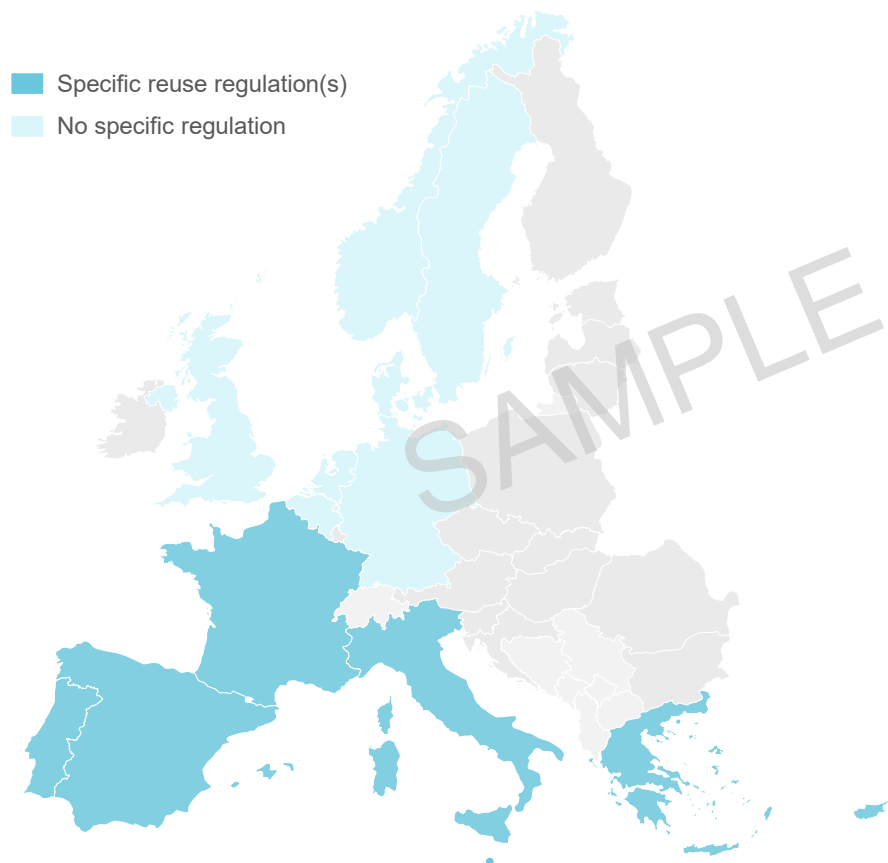
July 2023



## National Regulations – Varying Approaches

European countries illustrate different approaches to reuse regulations, with some requiring specific framework, while others consider reuse as a mean and approach it with existing rules.

### Regulatory Status of Municipal Reuse, 2023



#### Analysis

**While the use of reuse-specific regulation tends to facilitate project take-off, it can also hamper innovation.**

- In general, having a dedicated regulatory framework provides guidance for projects, paving the way for the application and permit granting process, quality parameters to achieve, the preferred technology, etc. It can also diffuse company responsibility in case of reuse involving ultimate human consumption (e.g., agriculture, manufacturing).
- However, the existence of a regulatory framework for certain reuse applications can act as an obstacle for other more innovative projects. This has been the case in France, where the precautionary principle has been strongly enforced during the last decades. As a result, some regional permit-granting bodies currently refuse to examine applications falling out of the scope of what is currently regulated.

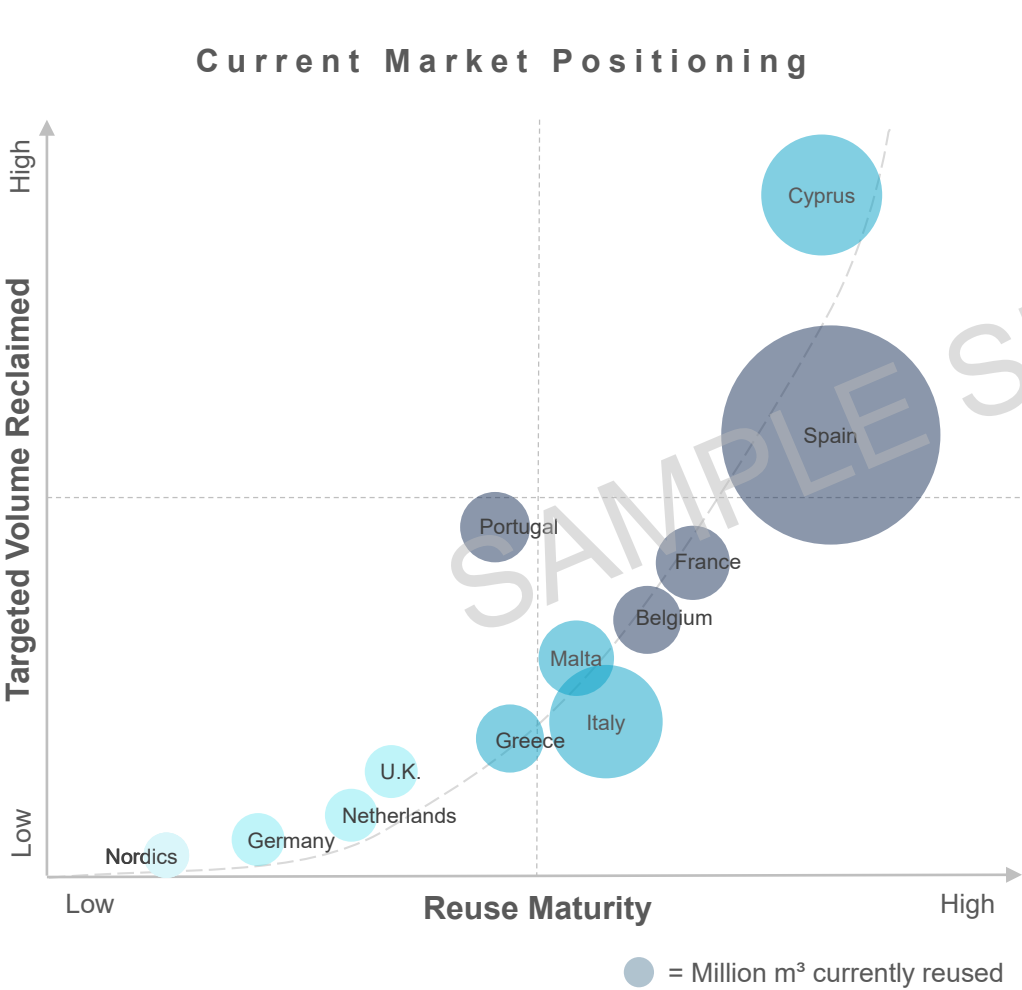
**Perception of reuse as a means, not an end, leads to different approaches to regulations.**

- While the example of France illustrates how existing regulations have created wariness for reuse that is not regulated, other countries don't rely on reuse-specific rules.
- This is the case of Northern European countries—the U.K., Germany, Netherlands, and the Nordics—which rely on existing regulations for distinct elements of a reuse project. For instance, in the U.K., indirect potable reuse schemes must logically comply with wastewater discharge permits, drinking water requirements, environmental law, etc.

Source: Bluefield Research

# Market Positioning – Country Maturity Curve

Mediterranean countries are at the forefront of the EU municipal reuse market, with Spain, France, Portugal, and Greece poised for substantial growth in the near future, given their national targets.



## Analysis

**Without surprise, highly water-stressed countries are driving the municipal reuse market.**

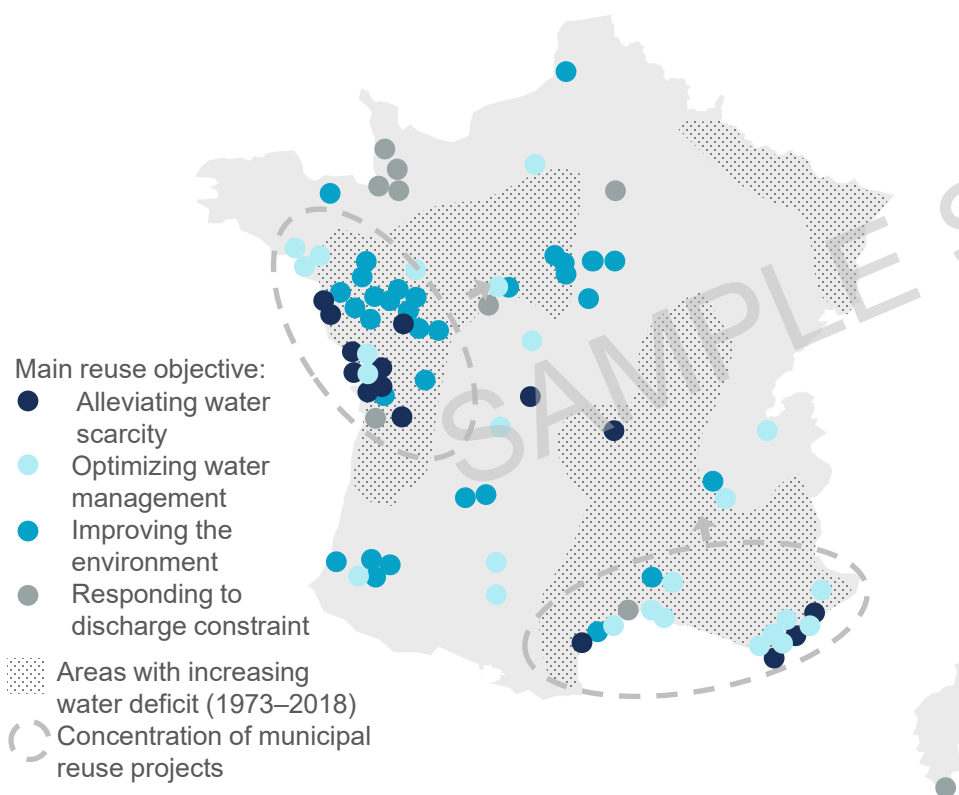
- The municipal reuse market is in rapid expansion in highly water-stressed countries. Spain is currently the country that recycles the larger volumes of wastewater, with some regions achieving extreme reuse rates, such as Murcia, which recycles 98% of wastewater and targets 100% in the coming years.
- Smaller Mediterranean islands like Cyprus and Malta are also at the forefront of reuse, with impressive rates and targets—respectively 96% and 100% for Cyprus—although their size and that of their asset base make them smaller markets than bigger countries having lesser share of reuse.
- Moderately low water-stressed countries (e.g., Germany, the U.K., Netherlands, and the Nordics in general) have limited experience with municipal reuse. Drivers are circular economy and pollution control (Nordics), as well as to increase potable resources (U.K.).
- In general, countries are faced with similar hurdles when developing reuse projects. In many instances, the primary barrier stems from the lack or rigidity of regulatory framework. While this is being alleviated for agricultural irrigation thanks to the new EU regulation, it remains an issue for some in other domains of applications. Moreover, water-stressed countries like Portugal and Greece often face challenges as their national or regional budgets are strained by ongoing compulsory infrastructure investments.

Source: Bluefield Research

## France – Project Locations and Objectives

Reuse projects have been shifting from coastal water scarcity responses to broader regional water resources management optimization solutions—still, only 0.6% of effluent is reclaimed.

### Selected Reuse Projects (Operating and Planned), 2023



Source: Arvalis, Cerema, Bluefield Research

### Analysis

#### Coastal areas concentrate on municipal reuse projects.

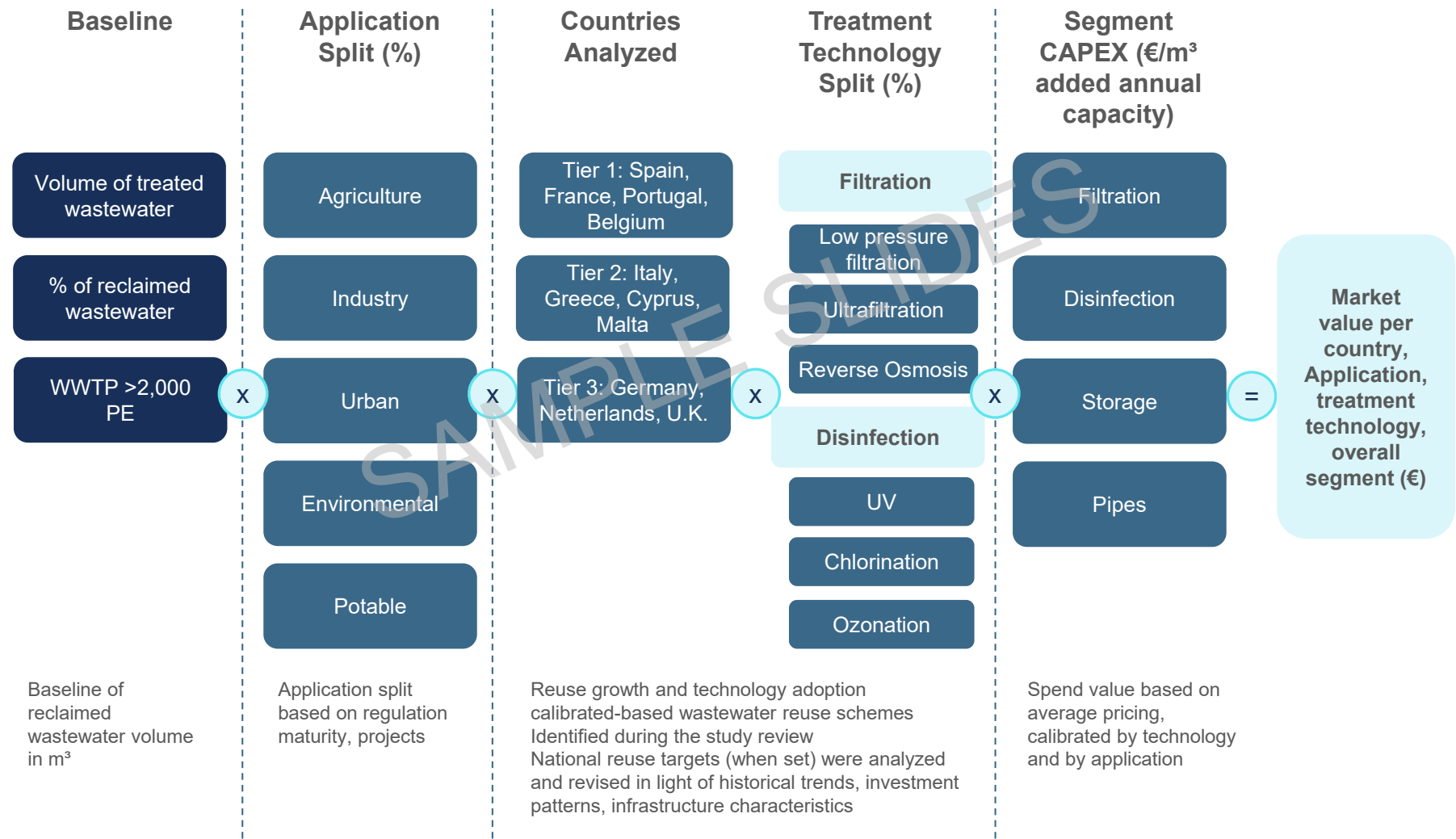
- The Atlantic coast (west) and the Mediterranean coast (south) are hotspot areas for reuse projects. Historically, the first reuse projects in France were developed as a response to water scarcity in those areas and nearby islands.
- Adoption trends led to the extension and development of reuse projects in neighboring continental areas. Few reuse projects are found in landlocked areas, except in the periphery of large urban centers. The northeast region is void of projects.

#### Project objectives are targeting broader optimization of water management.

- The first reuse projects developed at the end of the 1980s and during the 1990s were direct responses to water scarcity, whether annual or seasonal. Those projects are mostly used for irrigation purposes, whether agricultural or commercial (e.g., golf courses).
- While scarcity remains a short- and long-term concern, an increasing number of projects have been targeting a broader optimization of water management practices—including using reclaimed water instead of drinking water when permitted even in the absence of direct scarcity pressure.
- Improving environmental quality can also be supported by reducing the discharge of treated wastewater, particularly during low water periods as well as in sensitive coastal environments. Lack of drainage at discharge is also a rationale for implementing a reuse scheme.

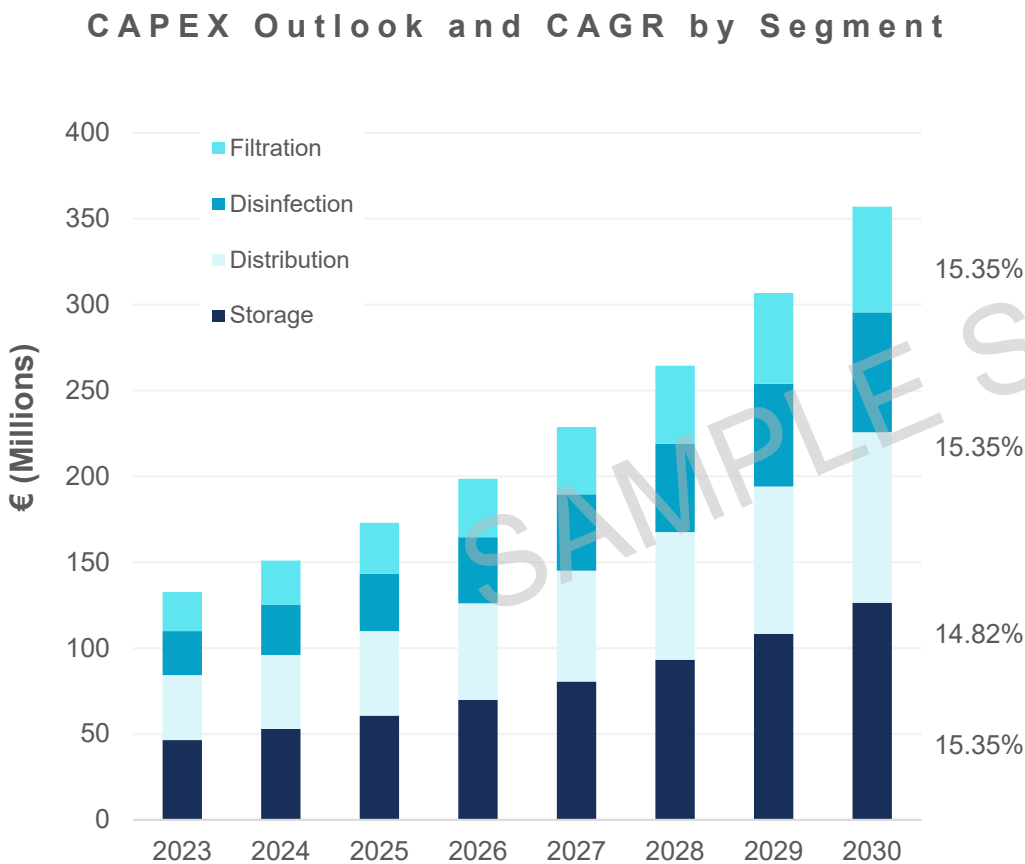
# Methodology – Calculation Overview

Bluefield implemented a layered approach to the market sizing and forecast that includes calibration of growth rates, procured technologies, reuse applications, and associated CAPEX costs.



# Reuse CAPEX Forecast – By Segment

While disinfection and filtration consist of the actual reclamation technologies, the storage and distribution of the reclaimed water require larger capital investments.



## Analysis

- The distribution pipes and storage infrastructure collectively dominate the market, holding the largest market shares with an average of 35% and 28.5% respectively.
- The reclamation process includes adding and/or improving the tertiary and quaternary treatment stages, as well as disinfection. This reclamation treatment train is highlighted as the indicative technology target by the new EU reuse regulation.
  - The reclaimed water is then distributed to off-takers, with usually the implementation of a storage system. The latter is particularly relevant for reuse applications that are unevenly distributed throughout the year—mainly irrigation, whether for agricultural applications or urban ones.
  - A common reclamation treatment train is a low-pressure filtration (e.g., gravity filtration, sand filtration), followed by a disinfection stage that includes a UV unit as well as a chlorination unit.

Source: Bluefield Research



Global companies across the value chain are developing strategies to capitalize on greenfield opportunities in water – new build, new business models, and private investment. Bluefield Research supports a growing roster of companies across key technology segments and industry verticals addressing risks and opportunities in the new water landscape.

Companies are turning to Bluefield for in-depth, actionable intelligence into the water sector and the sector's impacts on key industries. The insights draw on primary research from the water, energy, power, mining, agriculture, financial sectors and their respective supply chains.

Bluefield works with key decision makers at utilities, project development companies, independent water and power providers, EPC companies, technology suppliers, manufacturers, and investment firms, giving them tools to define and execute strategies.

### Contact Bluefield Research

Boston  
Barcelona  
Chicago  
Paris  
San Francisco

**NORTH AMERICA:** +1 (617) 910 2540

**EUROPE:** +34 617 464 999

[waterexperts@bluefieldresearch.com](mailto:waterexperts@bluefieldresearch.com)

[www.bluefieldresearch.com](http://www.bluefieldresearch.com)