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InnWater Article

#2 Water Challenges



INN WATER

Promoting social innovation to renew
multi-level and cross sector water governance



Context

Water is a critical resource that has been the cornerstone of human civilisation. As a critical resource, water faces several significant challenges related to its protection and preservation. **Climate Change** is one of the most pressing issues of our time. It is impacting water resources regarding availability, quality, and variability.

Water challenges are also intrinsically linked with **the resilience of the sector** that provides water supply and wastewater sanitation services to societies. As a strategic sector that deals with our most precious resource, the Water Supply and Sanitation (WSS) services sector has to ensure that water is delivered in a way that meets the needs of customers while also being environmentally and financially sustainable.

Defining water challenges

Water Quality: The increased frequency and severity of natural disasters, such as hurricanes and floods, can also lead to water pollution by washing pollutants and toxic substances into rivers, lakes, and groundwater aquifers. Pollution levels from rainfall events, stormwater overflows and urban runoffs represent a sizable remaining source of loads sent to the environment.

Variability: As temperatures rise and precipitation patterns change, water resources become increasingly unpredictable. These factors can make it difficult for water managers to decide on water allocation and distribution, as they must balance the needs of the environment and different water users such as farmers, industry and households. This unpredictability can also make it challenging to plan and implement water infrastructure projects, such as dams and reservoirs, which are critical to ensuring a reliable water supply.

Availability: The onset of climate change is leading to significant shifts in water availability. The diminishing water reserves, often a vital water source for entire countries, together with the growing demand, are causing increased water scarcity. In addition, unsustainable water use, such as over-extraction of groundwater, pollution of water sources and leakages, contributes to water scarcity worldwide.

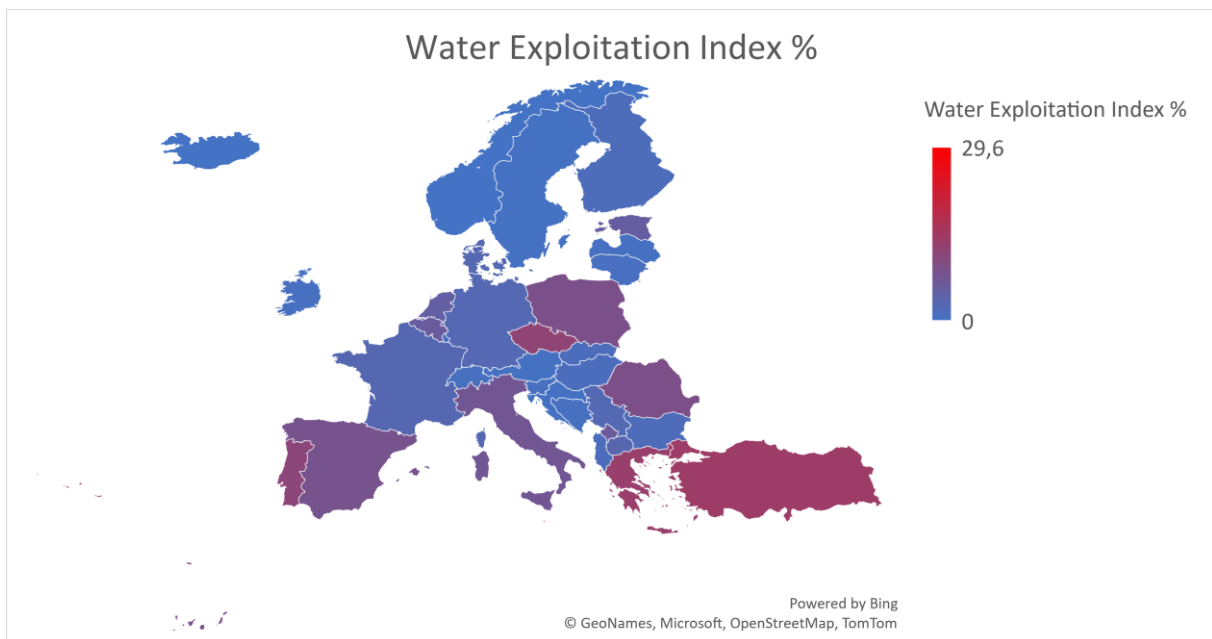


Figure 1: The 2019 Water Exploitation Index offers a vivid illustration of these challenges. This chart maps the varying degrees of water overconsumption across different European countries, reflecting the critical intersection between climate-induced water scarcity and unsustainable water usage. The disparities in water exploitation levels underscore the urgent need for specific strategies to mitigate overconsumption and ensure sustainable water management.

Data from [Eurostat](#), [European Environment Agency](#)

Sustainability of the sector: The WSS sector can be considered a natural monopoly. Water utilities, either public, private or mixed, don't have competition from other utilities for the same market. The sector needs to balance various economic, social and environmental interests. Universality, continuity, quality of service, equality of access, affordability, transparency and cost-efficiency are all goals to be pursued for a healthy and efficient WSS sector. Nonetheless, achieving such a wide variety of goals requires a consistent amount of investment in capital, technological resources and expertise.

Addressing these challenges

Such a task requires a **comprehensive, multi-faceted approach** that involves governments, industry, and citizens working together to develop and implement effective measures and strategies.

Adaptation focuses on adjusting existing systems and practices to minimise the adverse effects of climate change. For instance, involving the implementation of water-saving technologies, redesigning infrastructure to withstand extreme weather events, or altering water allocation policies to account for changing precipitation patterns.

Mitigation aims to reduce the severity of climate change itself. In the context of water management, mitigation strategies might include transitioning to energy-efficient water treatment plants, promoting sustainable agriculture that requires less water, replacing ageing infrastructure or protecting and restoring natural water systems like wetlands and forests that act as carbon sinks.

Economic regulation of industries, including the water sector, can play a crucial role in balancing the need for efficient resource utilisation with the need for environmental protection and preservation, balancing the economic and environmental sustainability in water resource management. Within water, it can mimic competition and safeguard consumers and the environment by instructing that WSS service providers are more efficient and innovative through penalties and incentives.

Link with InnWater

Water governance is crucial in defining the policies, regulations, and rules governing water resource allocation, distribution, and use. It helps to ensure that water resources are managed to meet the needs of multiple stakeholders, including households, businesses, and the environment.

Water governance can differ significantly across countries and regions due to political systems, cultural attitudes, economic development, and the availability of water resources. These differences can have important implications for **water management and resource allocation**, affecting the efficiency and effectiveness of water governance, as well as the allocation of resources.

InnWater aims to support the EU Green Deal transition by providing tailored, innovative cross-sector governance-related tools and methodologies that help authorities and stakeholders at the local, European, and international levels tackle water challenges while ensuring that WSS services remain environmentally and financially sustainable.

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