

Article

Investment Gap and Environmental Goals in Spain's Urban Water Cycle

César Sánchez-Pérez *, María-Inmaculada López-Ortiz and Patricia Fernández-Aracil 

Institute of Water and Environmental Sciences, University of Alicante, 03690 San Vicente del Raspeig, Alicante, Spain; iortiz@ua.es (M.-I.L.-O.); patricia@ua.es (P.F.-A.)

* Correspondence: csp9@alu.ua.es

Abstract

Spain is among the European countries facing the highest water stress, notably along the Mediterranean arc. Despite this, it possesses unique capabilities in water management; it leads Europe in water reuse and desalination technologies, and has the continent's highest number of dams per capita, securing most of its urban water supply. Nonetheless, the investment gap in the urban water cycle challenges Spain's ability to meet European Union environmental targets and ensure the sustainability of public health and economic activities. Therefore, this study analyzes the causes of Spain's urban water investment deficit, arguing that these challenges stem from institutional factors rather than a lack of resources or technological development. The research identifies three primary governance failures: the lack of a national governing body to harmonize water policies, a fragmented pricing system that drives the infrastructure gap, and a regulatory framework that restricts private sector involvement in managing non-conventional water resources. Consequently, this study highlights the urgent need for adaptive governance to deploy all available tools to respond to the specific needs of each territory in scenarios of uncertainty and climate change.

Keywords: water services; governance; pricing; investment gap; non-conventional resources; environment; Spain

1. Introduction

Today, societies face significant challenges related to water resource management. Water stress, exacerbated by climate change, and growing urban populations are factors that are having a significant impact on the environment, the economy, and people's well-being. The United Nations General Assembly [1] recognized the right to safe drinking water and sanitation as a human right essential for the full enjoyment of life and all human rights. Similarly, the World Economic Forum [2] identified the water crisis as the world's top risk.

For its part, the Water Framework Directive (WFD) [3] conceived water as a resource that must be protected, with its quality and quantity guaranteed for the population and the environment. To make this possible, this directive established the principle of cost recovery for water-related services as a safeguard.

Water is vital for food and energy production, public health, ecosystems, and socio-political stability. Despite its importance, 2.2 billion people still lack safe drinking water, and 3.5 billion lack safely managed sanitation [4]. Thus, water pollution imposes severe costs, including expensive treatment, lost economic competitiveness, increased public health risks, and social tensions in vulnerable areas [5].



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