Global Compact Network Italy

TEHA

Building a Water Smart Economy in the Euro-Mediterranean Area: The Role of Business

September 2026

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Project objective and components

PROJECT BACKGROUND AND OBJECTIVES

The steady deterioration in water availability, the effects of climate change and companies' growing exposure to water risks are making water an increasingly strategic factor for competitiveness and resilience.

For this reason, UNGCNI and TEHA Group launched the study "***Building a Water Smart Economy in the Euro-Mediterranean Area: The Role of Business***", with the aim to analyze the role of business in the transition to a Water Smart economy and define recommendations to accelerate the adoption of tools that enable the transition.

The study findings will be presented at:

ONEWATER
EUROMEDITERRANEAN WATER FORUM

SEP 29 – OCT 2
ROME, ITALY

STUDY COMPONENTS

Survey
to capture the current state of play and trends

Benchmark
to examine the practices adopted in depth

Best practices
to showcase and scale up experiences

3 Workshops
to interpret the findings and define recommendations for companies and policymakers

#1 Italian Water Smart Economy providers

#2 Italian water-intensive and water-dependent companies

#3 The perspective of Euro-Mediterranean companies

Note: The Study's quantitative evidence (94 companies in total across benchmark and survey) refers to the Italian context, for consistency and comparability of the data; the Euro-Mediterranean dimension is ensured by the participation of 22 companies from France, Greece, Portugal, Turkey and Egypt in the workshops and in the collection of best practices.

Foreword by Minister Pichetto Fratin (1/2)

The availability of water and its sustainable management are among the great environmental, economic and social challenges of our time. The growing pressure on water systems, worsened by climate change, which is profoundly altering the water cycle, increasing the frequency and intensity of extreme events and making periods of drought and scarcity ever more frequent, requires us to rethink how we use and protect a resource that is essential for our communities, for ecosystems and for productive activities.

The Mediterranean is among the areas most exposed to these phenomena: rising temperatures and the progressive alteration of rainfall patterns are putting growing pressure on water availability, with repercussions for local areas and economic systems. Italy must strengthen its capacity for prevention, adaptation and management. The country is making major investments to strengthen the security of supply, modernize infrastructure, reduce leakage and increase the resilience of water systems to the effects of climate change.

To this end, in recent years the Ministero dell'Ambiente e della Sicurezza Energetica (Ministry of the Environment and Energy Security) has launched and consolidated a set of planning and investment tools. With the approval of the Piano Nazionale di Adattamento ai Cambiamenti Climatici (National Climate Change Adaptation Plan, PNACC) in December 2023, the country adopted a national framework for addressing the impacts of the climate crisis, in which sustainable water management, drought prevention and strengthening infrastructure resilience are priority areas for action. Among other things, the PNACC includes measures on drought management plans, the efficiency and connectivity of water infrastructure and increasing storage capacity.

This is complemented by the investments of the PNRR (Piano Nazionale di Ripresa e Resilienza, National Recovery and Resilience Plan) dedicated to the water cycle. In particular, €600 million has been allocated to sewerage and wastewater treatment projects, with the aim of making wastewater treatment more effective and, where possible, encouraging the reuse of treated water for irrigation and industrial purposes.

At the same time, the Ministry is strengthening water management planning ahead of the new cycle of River Basin District Management Plans, recognizing that data availability, planning and the ability to anticipate crises are essential conditions for moving beyond a purely emergency-driven approach. The 2026 dialogue on "Risorse idriche e resilienza. Verso il quarto ciclo di gestione delle acque" (Water resources and resilience: Toward the fourth water management cycle) is also part of this effort.

The cross-border nature of water challenges, however, makes it essential to strengthen cooperation between countries, particularly in the Mediterranean area. Sharing knowledge, technologies, experience and solutions can help build more effective responses and strengthen the resilience of the whole area. Italy has helped put water back at the center of the international agenda, promoting the creation of the G7 Water Coalition during the Italian G7 Presidency, with the aim of strengthening coordination between countries, identifying shared strategies and raising the political profile of water security in multilateral forums.

Foreword by Minister Pichetto Fratin (2/2)

Italy's commitment to consolidating partnerships with African countries through the Piano Mattei (Mattei Plan) is part of the same effort; its priority areas include cooperation on water, as well as strategic interventions to improve climate change adaptation strategies.

These challenges also directly involve the private sector. Water is an essential condition for many economic and productive activities, and growing exposure to water stress makes its management increasingly relevant to the business continuity, resilience and competitiveness of companies, which are the foundation of our economy. At the same time, we must move beyond a view focused solely on emergency management. Water security must become an integral part of development strategies and investment policies, fostering greater integration between environmental protection, land-use planning and the competitiveness of the production system.

This is the context for the research promoted by UN Global Compact Network Italia, in collaboration with The European House – Ambrosetti and the Global Compact Country Networks of France, Portugal, Greece, Turkey and Egypt. The initiative helps raise awareness in the private sector and highlights the contribution companies can make to building more resilient and sustainable production systems in the Mediterranean area. The approach is consistent with the path the MASE is pursuing, nationally and internationally, to make water security a structural component of adaptation and development policies. Recognizing the priority of the issue and the importance of involving the private sector, the MASE contributed to designing the research framework, adding relevant input to the questionnaire.

The challenge is ambitious, but it is also an opportunity to innovate our model of development and growth. Institutions and businesses are called on to do their part, through investment, innovation and shared responsibility, to build a more resilient Italy, able to face climate transformations and protect over the long term a resource that is essential for our future.

Gilberto Pichetto Fratin
Minister of the Environment and Energy Security of Italy

The international launch event is held under the patronage of:

MINISTERO DELL'AMBIENTE
E DELLA SICUREZZA ENERGETICA

UNGCNI Foreword (1/2)

For a long time, economic and production systems regarded water as a relatively stable resource, available at low cost. This view helped keep its real value largely outside companies' decision-making processes.

Today this balance is steadily eroding. Climate change is increasing the frequency and intensity of droughts, floods and other extreme events, while growing demand and competition between civil, agricultural, industrial and energy uses make it harder to guarantee the resource's availability and quality over time. Water is therefore taking on a relevance that goes well beyond the environmental sphere, becoming a matter of **security, resilience and economic competitiveness**. This shift in perspective is also recognized by the European Union, which, with its Water Resilience Strategy, has made security of supply one of the priorities of its *preparedness* and development agenda.

In the Mediterranean this transformation is especially evident. The combination of structural water stress, climate change, demographic dynamics and a concentration of economic activities that depend heavily on the resource makes the area one of the most exposed regions in the world. The challenge is therefore not only a progressive reduction in water availability, but above all the ability of companies and communities to operate in a context where the resource will be **more variable, less predictable and increasingly contested among different uses**.

In this scenario, the role of business becomes central. Companies depend on water directly in their own processes or indirectly through suppliers, infrastructure, local areas and ecosystems; at the same time, they have the capital, technologies, skills and capacity for innovation that can make a decisive contribution to strengthening the system's resilience. Water management therefore cannot be seen only in terms of consumption or compliance: it must progressively become part of risk assessment, investment planning and strategic decisions.

This is the perspective **behind "Building a Water Smart Economy in the Euro-Mediterranean Area: The Role of Business"**, promoted by UN Global Compact Network Italia, developed with the involvement of the Country Networks of **Egypt, France, Greece, Portugal and Turkey** and with TEHA Group as Knowledge Partner. The Study combines benchmarking, a survey, workshops and a collection of best practices, with the aim of understanding how companies manage water today and what conditions can accelerate the transition to a Water Smart Economy.

The evidence gathered shows a system in motion, but one still marked by a gap between **risk exposure and the ability to incorporate it into business decisions**. Environmental management structures are already widespread, while dedicated water oversight, top management involvement, value chain monitoring, target setting and the ability to translate risks and dependencies into investments are less established. The business case also remains mainly focused on protecting business continuity and mitigating risks, rather than on generating new growth opportunities.

At the same time, the experiences collected show that many of the levers needed for the transition are already available. Reuse and circularity, digitalization and predictive management, resilient infrastructure, risk assessment tools and regenerative solutions show that it is possible to reduce **impacts and dependencies** at the same time, while increasing efficiency and strengthening adaptive capacity.

UNGCNI Foreword (2/2)

The most mature practices also show that water resilience can hardly be built by a single company in isolation: the local nature of the resource means action is also needed along the supply chain and in local areas, through collaboration between companies, utilities, institutions and communities that share the same basin.

Building a Water Smart Economy therefore requires a change in how the value of water is understood and incorporated into decisions. **Not only a resource to be consumed more efficiently, but a strategic dependency to be understood and managed; not only an operating cost, but a factor to consider in investment choices; not only an environmental responsibility, but a condition for long-term resilience and competitiveness**.

This shift will determine the contribution of business to water security and to the future development of the Euro-Mediterranean area.

Filippo Bettini, President

Daniela Bernacchi, Executive Director

Introduction by the UNGC Country Networks (1/2)

The Mediterranean is a region marked by deep environmental, economic and social interconnections, where challenges affecting one country can have effects well beyond its borders. Among these, water security is becoming increasingly important. The availability and quality of water are under ever greater pressure from climate change, prolonged droughts, changing rainfall patterns and growing demand. These phenomena are changing the conditions in which communities, local areas and economies operate, making water resilience an increasingly important component of sustainable development.

Addressing these challenges requires a shared perspective and responses that go beyond individual national contexts. Strengthening cooperation among Mediterranean countries, fostering the sharing of knowledge and technologies and developing common approaches and solutions are therefore essential to strengthening the region's resilience and supporting sustainable development pathways.

This perspective is fully consistent with the vision of the **2030 Agenda for Sustainable Development**. Achieving **Sustainable Development Goal 6 (SDG 6)**, on clean water and sanitation, is closely linked to climate action (**SDG 13**), the promotion of sustainable production and consumption patterns (**SDG 12**), food security and the building of resilient communities. The interconnected nature of these challenges also makes it essential to strengthen partnerships, in line with SDG 17, through ever closer collaboration between governments, businesses, civil society and other stakeholders.

On this path, the private sector has an important role to play. Water is fundamental to a wide range of economic activities, and growing water risks can affect companies' business continuity, supply chains, investments and competitiveness. At the same time, companies can help build more resilient water systems through greater efficiency, innovation, the adoption of circular approaches, responsible management of their value chains and stakeholder engagement at river basin level.

As the United Nations platform dedicated to promoting responsible business conduct, the **UN Global Compact** is committed to helping companies translate sustainability goals into concrete action. Through initiatives such as the **CEO Water Mandate**, the UN Global Compact helps mobilize private sector leadership and promote responsible water stewardship, encouraging companies to understand their water-related impacts, dependencies and risks and to develop forms of collective action.

Introduction by the UNGC Country Networks (2/2)

It is in this spirit that the **UN Global Compact Networks of Egypt, France, Greece, Italy, Portugal and Turkey** joined forces to carry out this research. Bringing together perspectives from different parts of the Mediterranean is an opportunity to deepen understanding of common challenges, identify new areas of cooperation and highlight the contribution companies can make to building more resilient water systems.

We would like to thank all the companies that contributed to this research by sharing their experiences and perspectives. Their involvement is essential to keep the discussion on water resilience grounded in the real needs and realities of the productive sector.

We hope this research will help strengthen dialogue and cooperation in the Mediterranean and accelerate the shift from awareness to action. Through closer collaboration between institutions, businesses and stakeholders, we can help make water resilience an integral part of a more sustainable, innovative and competitive Mediterranean economy.

Daniela Bernacchi, Executive Director, UN Global Compact Network Italy

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The United Nations Global Compact operates in Italy through **UN Global Compact Network Italia (UNGCNI)***, an organization established as a Foundation in June 2013 after ten years of activity as an informal group. UNGCNI promotes the Ten Principles of the UN Global Compact at national level and is also committed to advancing the global Sustainable Development Goals (SDGs) to eradicate extreme poverty, spread peace and promote prosperity and human development by 2030.

It works through in-depth programs, cultural and institutional dialogue and support for member companies on sustainability, with projects on human rights, labor, the environment, anti-corruption, reporting and supply chains. It brings together more than 700 organizations, including businesses and non-profits, with more than 100 Founding Members: a diverse community that facilitates multi-stakeholder partnerships and collective action. At its core is the sharing of participants' experiences, as they actively contribute to the Network's success.

TEHA

For almost 60 years, **TEHA Group** has worked alongside Italian companies to support their competitiveness, serving more than 1,500 clients every year through strategic analysis and advocacy platforms on key topics such as the circular economy, the energy transition, the competitiveness of strategic supply chains for Made in Italy and sustainability, in synergy with a network of leading international experts.

Thanks to TEHA's know-how and proprietary technology, the Group organizes high-level workshops, seminars and digital and in-person events, as well as training programs for professionals and business leaders. With more than 850 events organized, TEHA Group is recognized as the No. 1 private think tank in Italy, No. 4 in the European Union, and one of the most respected and independent institutions in more than 100 countries worldwide. TEHA currently employs 330 professionals, 61% of whom are women. Over the years it has grown substantially, thanks in part to its collaboration with more than 3,500 experts and numerous partners who have contributed to developing activities in 18 countries.

This study was prepared with the support of the **TEHA Sustainability team**, which specializes in strategic consulting on sustainability, an area in which it has more than thirty years of experience.

(*) Referred to as «UNGC» ain this document for brevity

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Special thanks go to the Global Compact Networks of Egypt, France, Greece, Portugal and Turkey for their contribution to the Study.

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TEHA

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We thank the *Ministero dell'Ambiente e della Sicurezza Energetica (MASE, Ministry of the Environment and Energy Security)* for its contribution to designing the questionnaire.

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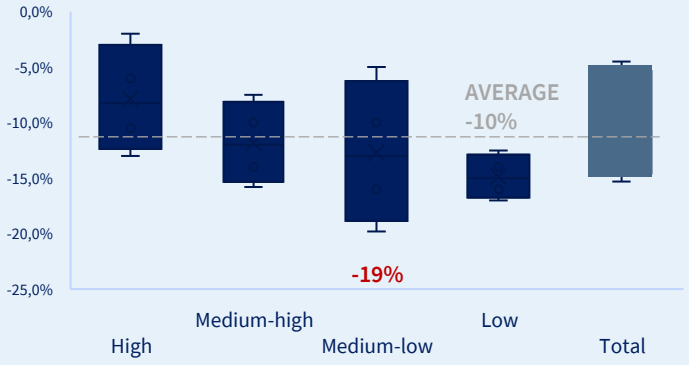
The cost of water is rising faster than the price paid for it

1 Water risk is already an economic variable: up to 19% of GDP at risk by 2050 and rising tensions

The deterioration of the hydrological cycle is no longer only an environmental issue, but a direct risk to economic growth and stability. By 2050, the estimated average loss could reach 10% of global GDP and up to 19% in the most vulnerable countries. The Mediterranean is among the most exposed areas: 220 million people already live in water scarcity (42% of the area's population), in a basin that is warming 20% faster than the global average. Scarcity is accompanied by growing competition for the resource: water-related conflicts rose from 24 in 2000 to 420 in 2024, showing that water risk is taking on an increasingly economic, social and geopolitical dimension.

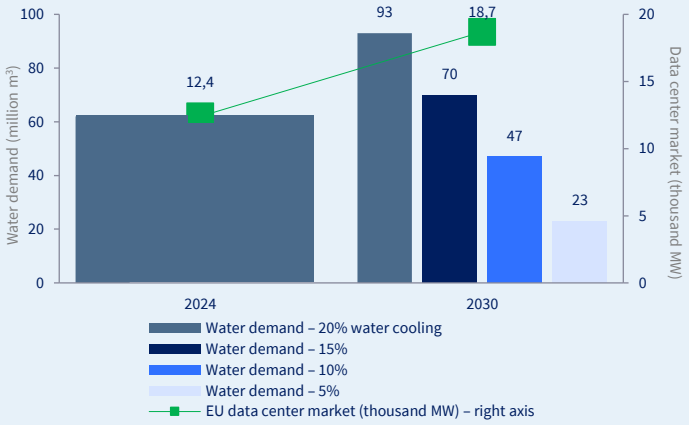
IMPACT ON GDP BY 2050 BY COUNTRY INCOME GROUP



2 A scarcer resource must meet increasingly diverse needs

Pressure on water is growing because of competition between agriculture, energy, industry and civil uses. In the EU, power plant cooling accounts for 33% of withdrawals and agriculture for 31%, while manufacturing accounts for 14%. In the Mediterranean the concentration is even sharper: agriculture reaches 87% of withdrawals in Turkey, 80% in Greece and 79% in Egypt. On top of this demand come new needs linked to the digital and energy transitions: semiconductors, data centers, renewable hydrogen and batteries could push water demand up to 2.6 times current levels by 2030. For companies, resilience will therefore increasingly depend on the choices made in the areas where they operate.

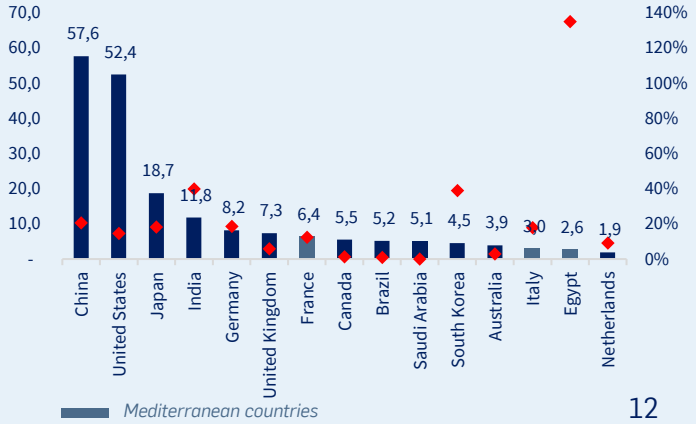
INCREASE IN WATER DEMAND BY DATA CENTER COOLING INTENSITY



3 The cost of inaction is already evident, but the price of water does not yet reflect it

In 2024, companies reporting to CDP estimated $339 billion in potential financial impacts from water risks, against $58.7 billion needed to mitigate them: a ratio of almost 6 to 1. The problem is that the resource's price does not yet convey this business case effectively. In Italy the average tariff is €2.10/m³, against €10.36/m³ in Denmark, and when water accounts for less than 1% of business costs it tends to stay out of decision-making models. Investment reflects this gap too: Italy invests just 0.13% of GDP in the water cycle, showing that rising risk has not yet fully translated into economic priority.

TOP 15 COUNTRIES WORLDWIDE BY CAPEX IN INTEGRATED WATER CYCLE TECHNOLOGIES AND WATER STRESS LEVEL



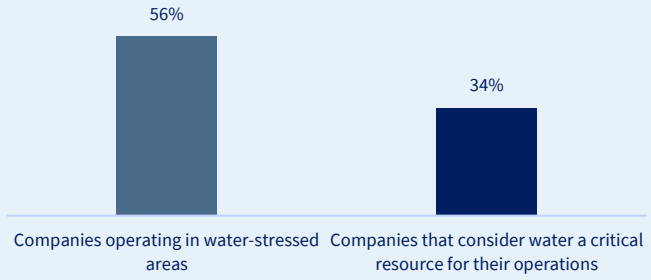
Water risk is increasing, but it is not yet driving decision-making

1 Exposure is already high, but water risk still struggles to show up in company accounts

Italian companies already show significant exposure to physical risk: 56.4% operate in areas with high or critical water stress. This exposure, however, does not yet translate into an equally strong perception of business risk: only 34% consider water highly or extremely critical to business continuity.

Part of the explanation is economic. For 52.3% of companies, supply, treatment and discharge account for less than 1% of operating costs. Even in the most exposed areas, the risk therefore does not yet produce a sufficiently visible economic signal. This does not reduce future vulnerability, and it keeps the topic off investment priorities.

Water risk exposure and perception



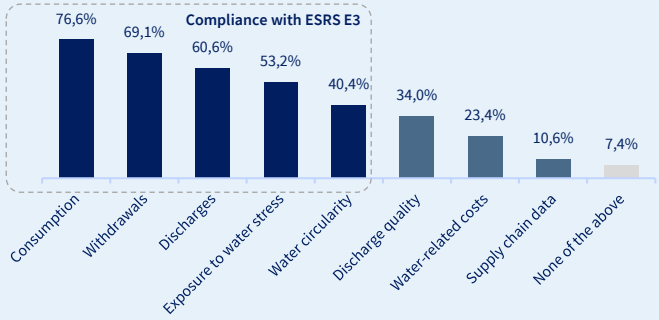
> «As long as water remains an operational commodity, it never reaches the top of the priority list»
> *TEHA–UNGC Workshop, July 2026*

2 Management foundations are solid, but supply chain oversight remains limited

Companies start from an environmental infrastructure that is already relatively mature: 86% are ISO 14001 certified and 92.5% use reporting standards (ESRS/GRI). Only 9.6% have a dedicated policy, just 8.5% provide for direct oversight by top management or the Board and 4.3% have targets aligned with international frameworks.

The gap is even more evident along the value chain: only 10.6% monitor supply chain water data and 21% engage suppliers on the topic. The challenge, therefore, is not to build management systems from scratch, but to tailor existing tools and governance to water.

Water management metrics monitored



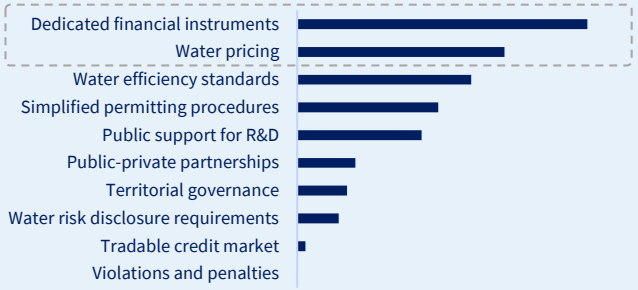
> «The problem is not management maturity, it is specialization»
> *TEHA–UNGC Workshop, July 2026*

3 Companies ask for financial support, but the available tools are still underused

Water investments remain mainly focused on protecting the business rather than on growth or creating new opportunities. 29.5% of companies do not invest, 15.9% cannot quantify their investments and, looking at the next three years, only 5% expect a substantial increase.

At the same time, economic and financial levers are among the most requested to accelerate action: tax incentives and subsidized credit rank first, followed by pricing that better reflects the real cost of the resource. However, 72% are unaware of the available incentives, 6.8% have no access to them and just 11.5% have benefited from them.

Enabling levers



> «The calculation that convinces is not how much the investment returns, but how much it costs not to make it»
> *TEHA–UNGC Workshop, July 2026*

Global Compact Network Italy

TEHA

1. The water scenario: scarcity, growth and competitiveness

Overview of Section Key Messages

1.1. EXPOSURE - The water crisis is no longer only an environmental issue: it can undermine growth and stability, with GDP impacts of up to 19% in the most exposed countries and repercussions that affect not only companies but, above all, society. In the Mediterranean, water stress is already more than 12 times the global average.

1.2. COMPETITION - Competition for the resource is set to increase: the needs of the energy and digital transitions add to traditional demand. By 2030, water demand could reach up to 2.6 times current levels.

1.3. VALUE AND INVESTMENT - Companies estimate potential risks at 6 times the cost needed to mitigate them. Yet the value of water remains poorly integrated into decisions: Italy invests about €51 per inhabitant per year, against €82 on average in the EU.

1.1. EXPOSURE

The water crisis is no longer only an environmental issue: it can undermine growth and stability, with GDP impacts of up to 19% in the most exposed countries and repercussions that affect not only companies but, above all, society. In the Mediterranean, water stress is already more than 12 times the global average.

The water and climate crisis could erode up to 19% of GDP in the most exposed countries and 10% on average by 2050

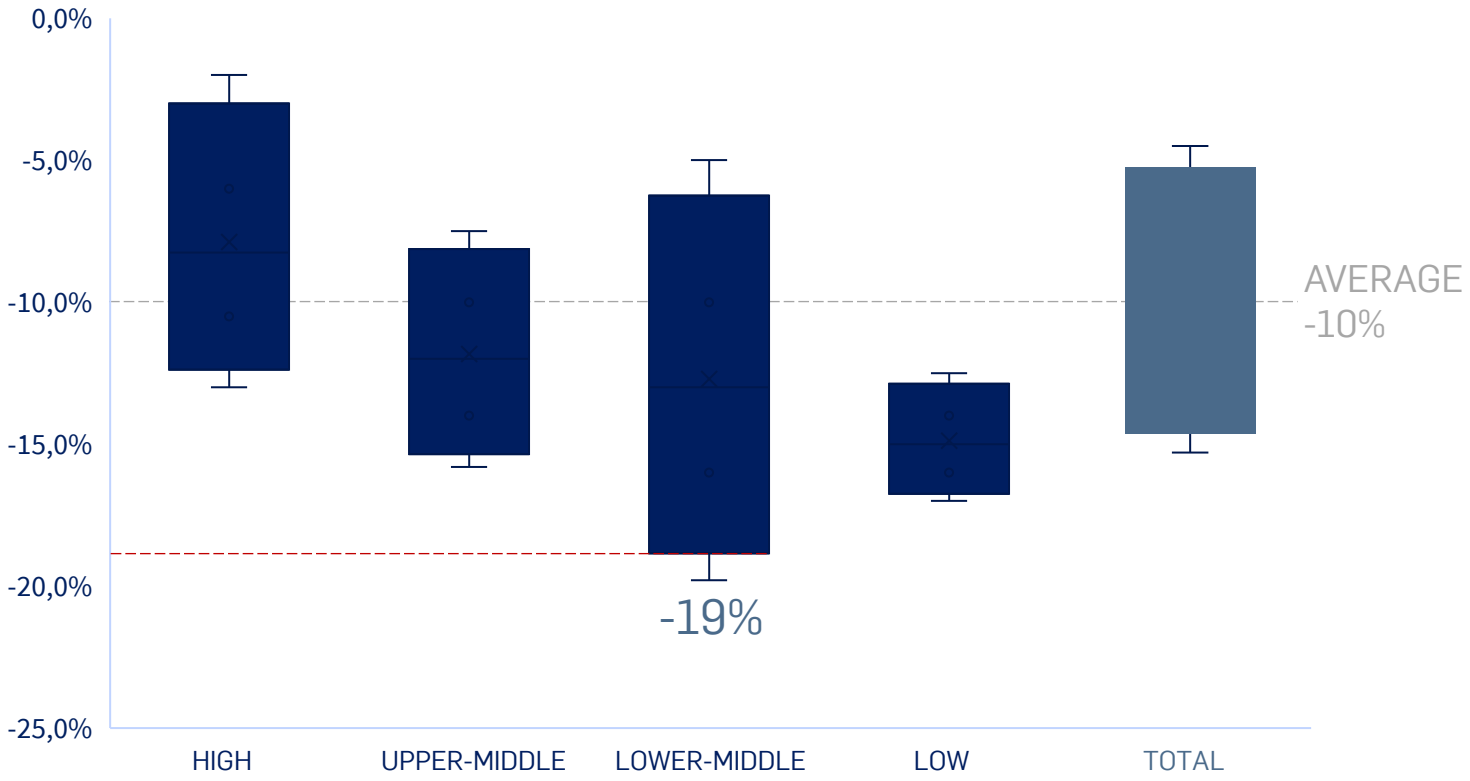
The deterioration of the hydrological cycle, also driven by the climate crisis, could cause an average loss of 10% of global GDP by 2050, with impacts of up to 19% in lower-middle-income countries[1].

In Italy, the water crisis has an impact of €13.4 billion a year (€227 per inhabitant), equivalent to 2.5 days of shutdown of the entire economy[4].

Economic exposure is also set to grow: GDP generated in areas of high water stress could rise from about $15 trillion in 2010 to $70 trillion in 2050, reaching about 31% of global GDP[2]. Europe is also significantly vulnerable: every year, water scarcity conditions affect about 30% of the EU's territory and 33% of its population[3].

The growing economic relevance of water is also reflected in policymakers' priorities: the number of countries ranking water scarcity among their Top 5 short-term national risks rose from 7 in 2024 to 27 in 2025[4].

Combined impact of climate change and changes in water storage on GDP, by country income group (% reduction)[1]



Source: (1) Global Commission on the Economics of Water, «The Economics of Water: Valuing the Hydrological Cycle as a Global Common Good», October 2024. Note: the combined impact comes from a general equilibrium model (165 countries, 14 sectors) that integrates three factors (changes in temperature, precipitation and total water storage) under the moderate climate scenario (IPCC RCP4.5) projected to 2050; (2) World Resources Institute, Aqueduct 4.0 – «Updated Decision-Relevant Global Water Risk Indicators»; summarized in «25 Countries, Housing One-Quarter of the Population, Face Extremely High Water Stress» (2025 update); (3) European Environment Agency, «Water scarcity conditions in Europe (Water exploitation index plus)»; (4) World Economic Forum, Global Risks Report 2025 (January 2025); (4) TEHA Community Valore Acqua, White Paper 2026, 7th edition, 2026

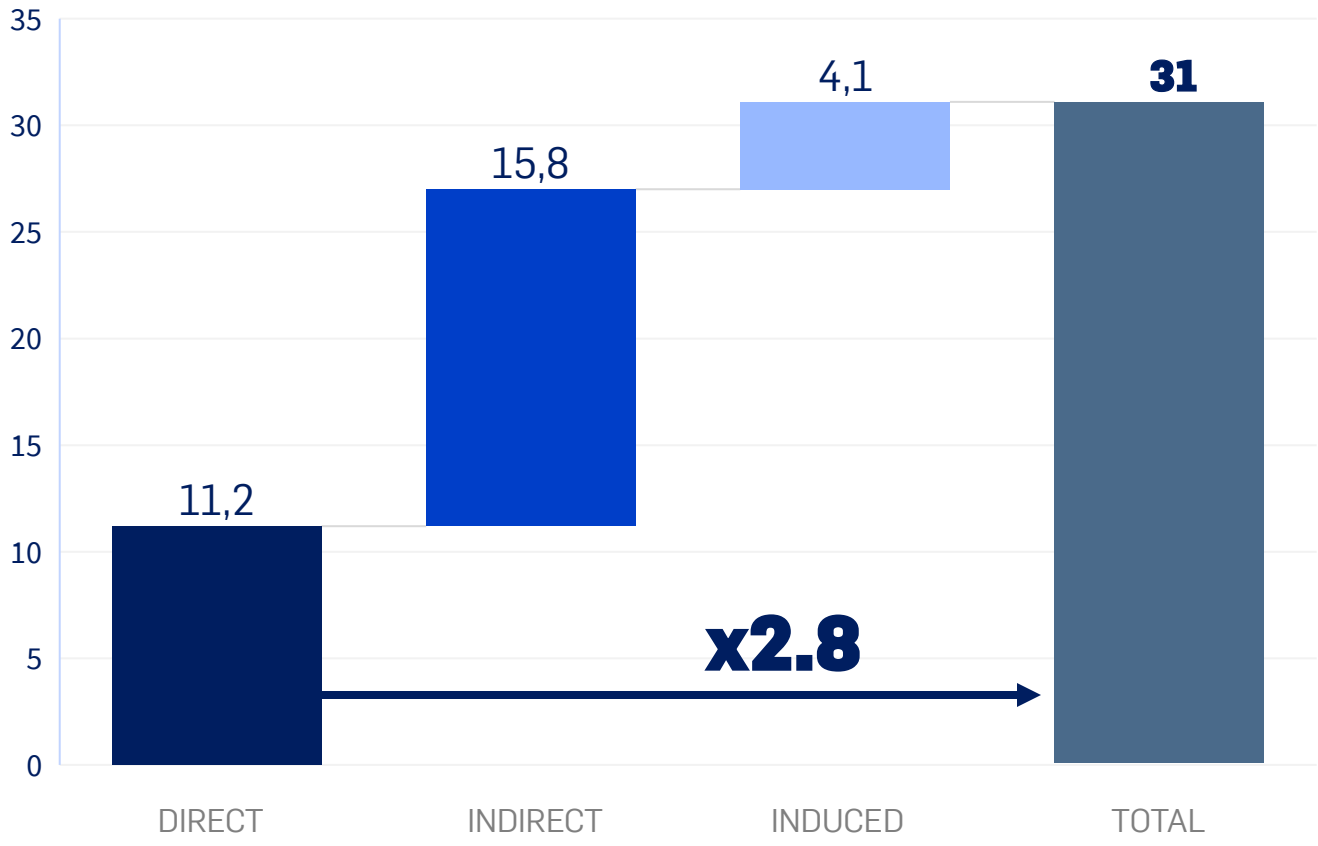
In Italy, every euro of direct water cycle Value Added generates 2.8 euros in total

In Italy, water management supports an industrial and service supply chain of high strategic value. The extended water cycle, which includes Integrated Water Service operators, land reclamation and irrigation consortia and their technology and plant suppliers, directly generates €11.2 billion in Value Added.

By activating supply and sub-supply chains, the total impact reaches €31 billion, with an economic multiplier of 2.8: for every euro of Value Added generated directly by the water cycle, a further €1.8 is activated in the rest of the Italian economy.

The economic value of water, however, extends well beyond the supply chain that manages it: the resource is an essential production input for agriculture, manufacturing and the energy sector. Including these sectors, the total Value Added enabled by water availability in Italy reaches €384 billion, about one fifth of national Value Added*: without water, an equivalent share of the country's wealth could not be generated.

Value Added generated by the Water Cycle in Italy (€ billion)



Source: TEHA, Community Valore Acqua per l'Italia, White Paper 2026, 7th edition (2024 data). *The €31 billion is the Value Added activated by the integrated water cycle: the €11.2 billion produced directly plus the indirect and induced effects along its supply chains, for a multiplier of 2.8. The €384 billion is the Value Added enabled by water availability: it also includes sectors that use water as a production input (agriculture, water-intensive industry, energy, data centers). The first figure measures how much economic activity the water service drives; the second how much economic activity depends on the resource and includes the first.

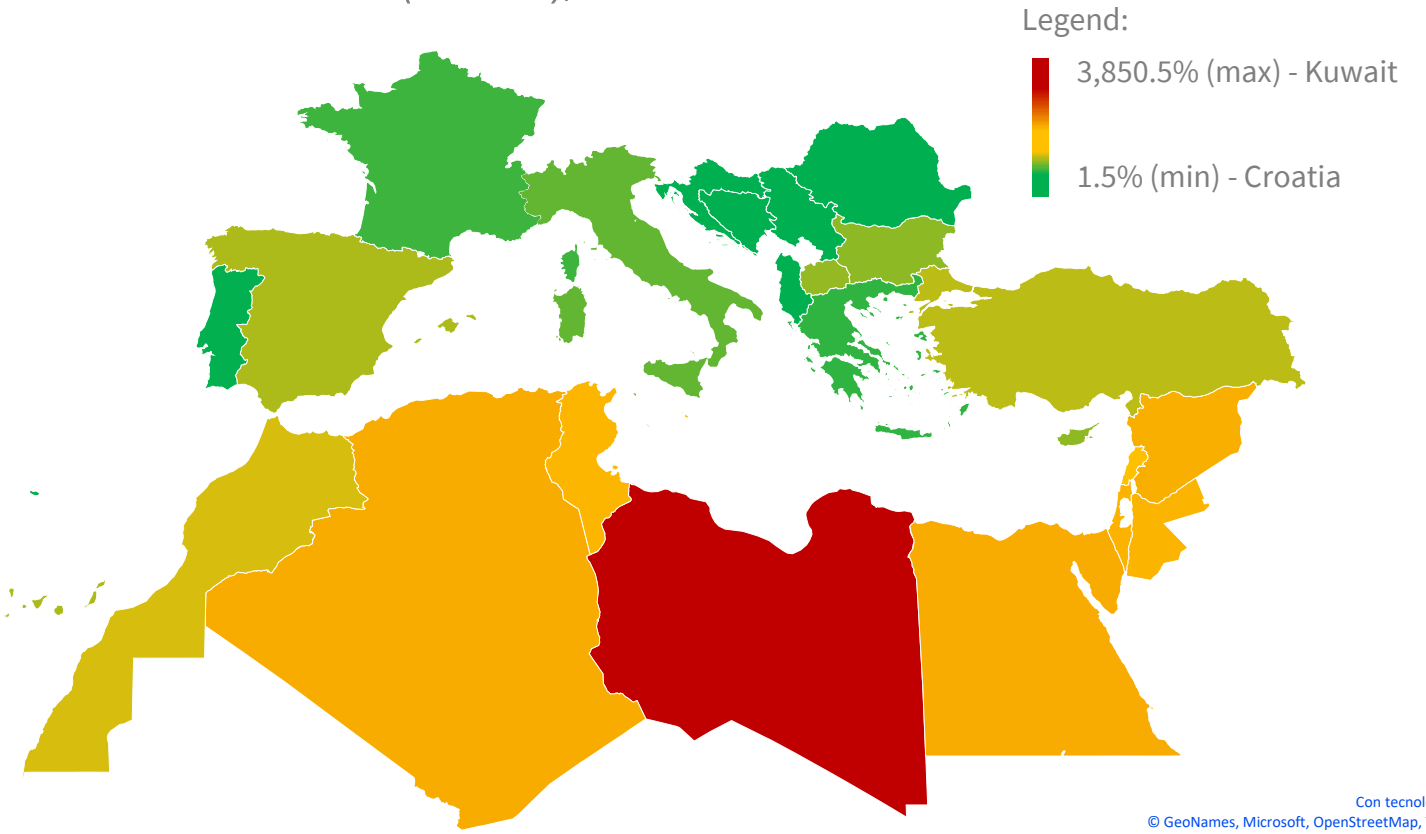
The Mediterranean is a global epicenter of the water crisis: stress on the resource is more than 12 times the global average

The Mediterranean basin is already one of the areas most exposed to water scarcity: about 220 million people, 42% of the area's population, live in water scarcity, 180 million of them on the southern and eastern shores. Overall, the basin is home to about 60% of the world's population classified as "water-poor"[1].

This vulnerability is set to increase due to the combined effect of climate change and demographic trends. The Mediterranean is warming about 20% faster than the global average, while the population with less than 1,000 m^3 of water per capita per year could rise from about 180 million to over 250 million in the next twenty years[1,2].

Pressure on the resource is therefore becoming increasingly structural, albeit with sharp differences between the shores of the basin, with growing implications for local areas, production systems and economic activities that depend heavily on water availability.

Water stress in Mediterranean countries (% values), 2020[4]



Con tecnologia Bing
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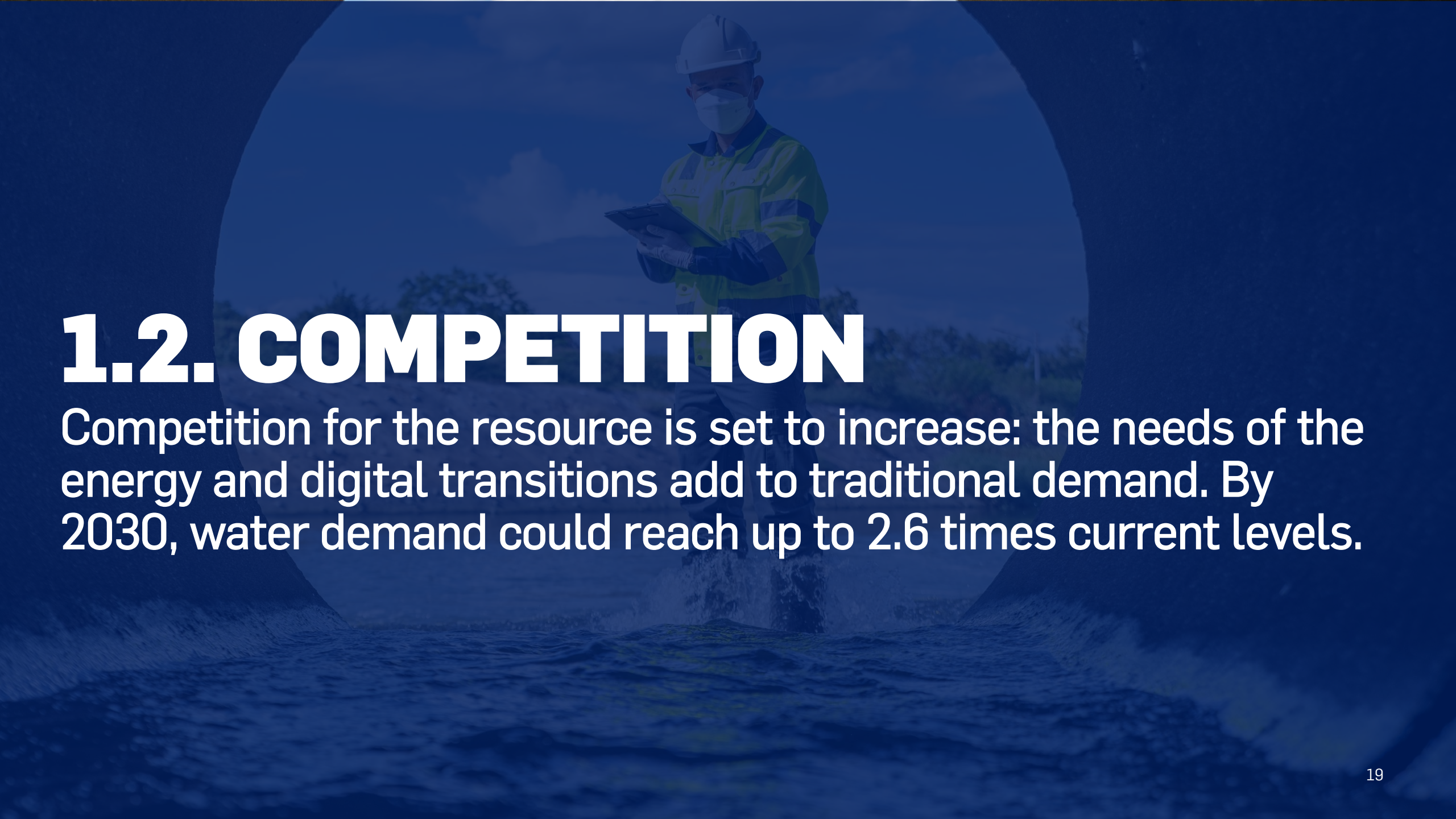
Source: (1) Plan Bleu, «MED 2050 – The Mediterranean by 2050», 2025, p. 37; and Plan Bleu, «Water» thematic sheet; (2) MedECC, «Climate and Environmental Coastal Risks in the Mediterranean» and «Climate-WEFE Nexus» report, 2024; projection of the «water-poor» Mediterranean population (less than 1,000 m^3/inhabitant/year); (3) Water Europe, «Socio-economic study on the value of the EU investing in water», October 2024; (4) Source: TEHA Group analysis of FAO Aquastat data, 2024



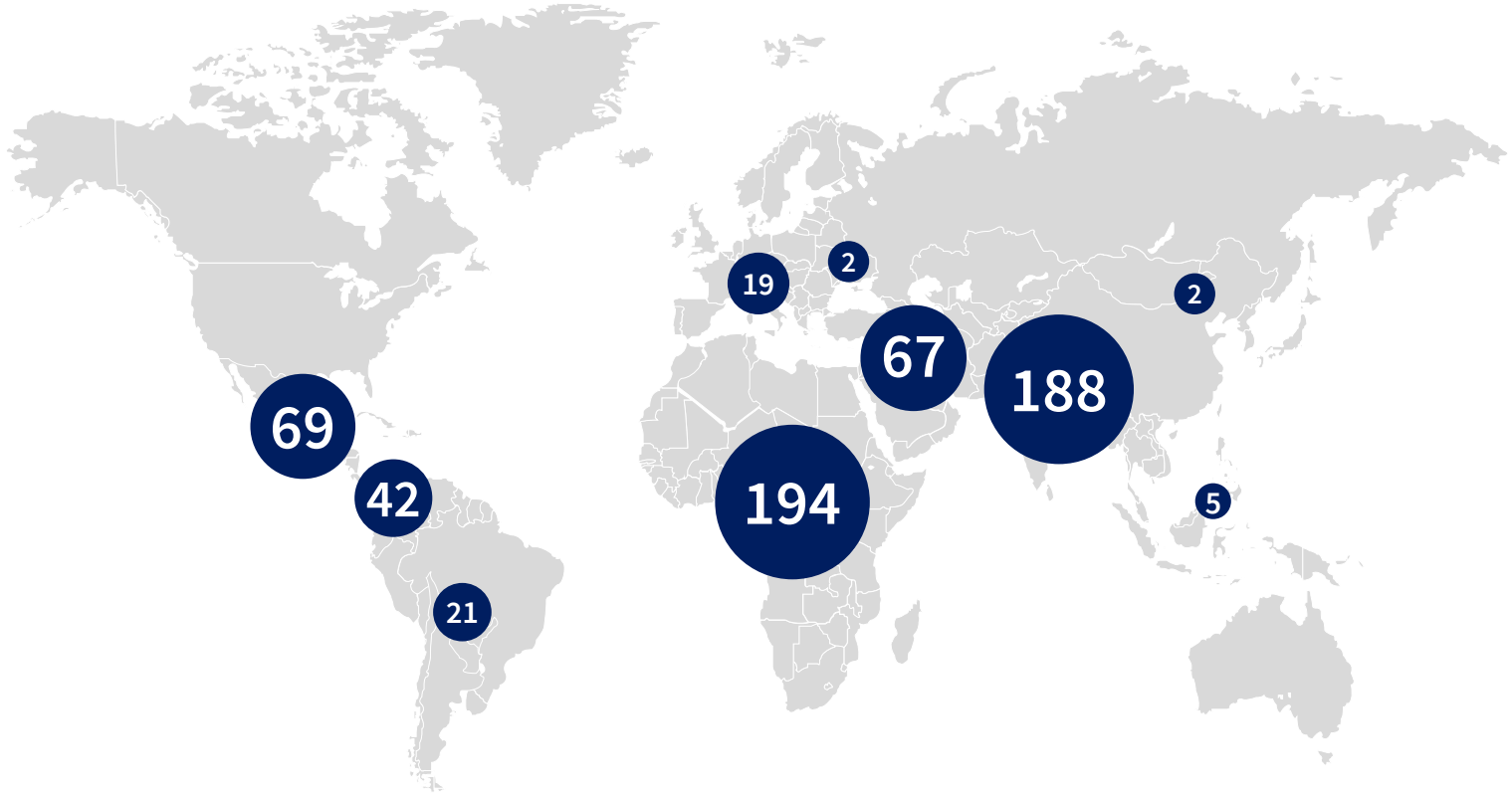
1.2. COMPETITION

Competition for the resource is set to increase: the needs of the energy and digital transitions add to traditional demand. By 2030, water demand could reach up to 2.6 times current levels.

As the resource becomes scarce, competition for its use grows: water-related conflicts have increased 17-fold since 2000

Map of international water-related conflicts, 2020–present

Trigger: water, its control or its scarcity is a cause or contributing cause of a tension or dispute.



611 conflicts caused by water management from 2020 to date

- Water-related conflict events have increased more than 17-fold since 2000, from 24 to 420 cases in 2024;
- **2024 set a new all-time record, with 420 events recorded (counting cases where water is a trigger, a weapon or a casualty of the conflict), about 20% more than in 2023;**
- Growing competition for an increasingly scarce resource can amplify vulnerabilities and social tensions, especially in areas already exposed to the effects of climate change and to economic and geopolitical fragility

Source: TEHA Group analysis of Pacific Institute data, 2026. Note: the term «conflict» includes local disputes between users over access to or use of the resource (e.g., between farmers, without serious consequences), protests and demonstrations against dams, diversions or water tariffs, tensions between communities or states over control of basins and infrastructure, up to armed attacks, sabotage and the use of water as a weapon in wars. France accounts for 8 episodes, many linked to the "megabassines"; other conflicts concern urban supply, pollution, tourism and control of infrastructure.

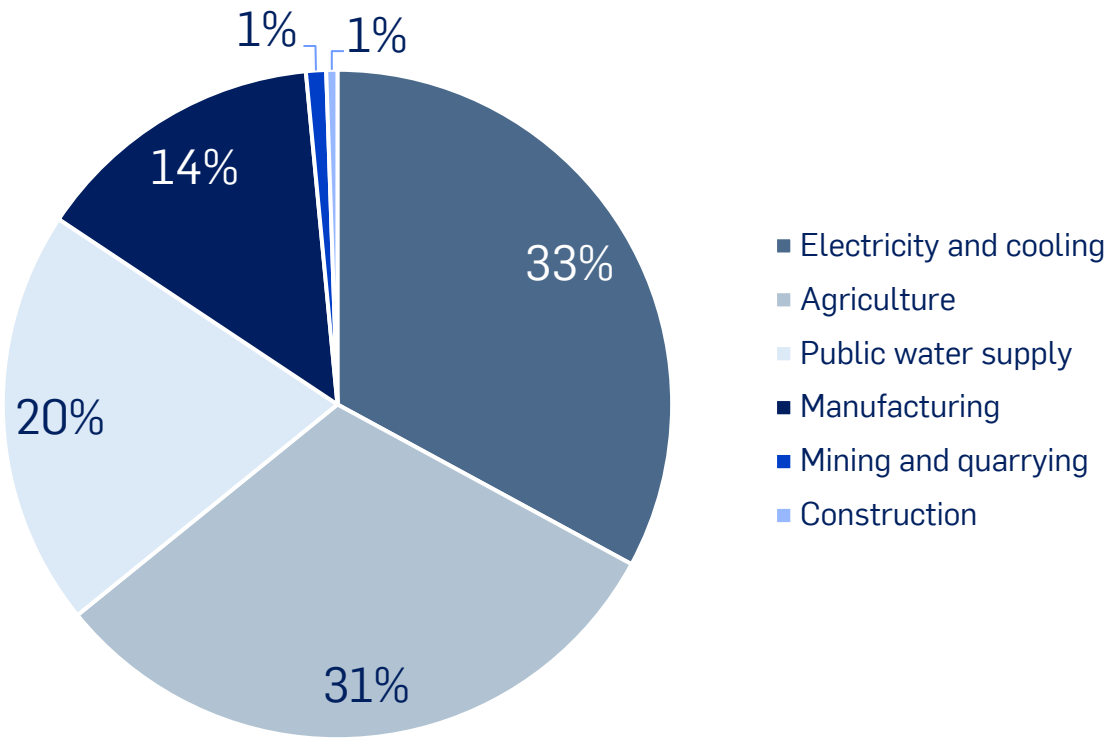
Electricity and agriculture are the most water-intensive sectors: together they account for 64% of water withdrawals in the EU

Water management involves three main groups of actors: the public sector sets the rules for access and allocation; water cycle operators manage infrastructure, networks and treatment; user companies withdraw and consume water.

In the EU, cooling for power generation accounts for about 33% of withdrawals, agriculture for 31%, public water supply for 20% and manufacturing for 14%[1].

In the Mediterranean, competition between uses is even sharper, especially because of the weight of agriculture: the sector accounts for 87% of withdrawals in Turkey, 80% in Greece, 79% in Egypt and about 50% in Italy[2]. At EU level, agriculture also accounts for 51% of net consumption, while 81% of total consumption comes from direct self-abstraction at the source, outside public networks[3].

Total water withdrawals by economic sector in the EU-27 (2020–2023 average, % of m^3)[1]



Source: (1) European Environment Agency, «Water abstraction by source and economic sector in Europe», 2025 update (2020–2023 data); (2) FAO, AQUASTAT, 2022; (3) European Commission, COM(2025) 280 final, «European Water Resilience Strategy», June 4, 2025. Note: EEA data refer to abstraction, COM(2025) 280 data to consumption.

New needs add to traditional demand: the energy and digital transitions increase water intensity

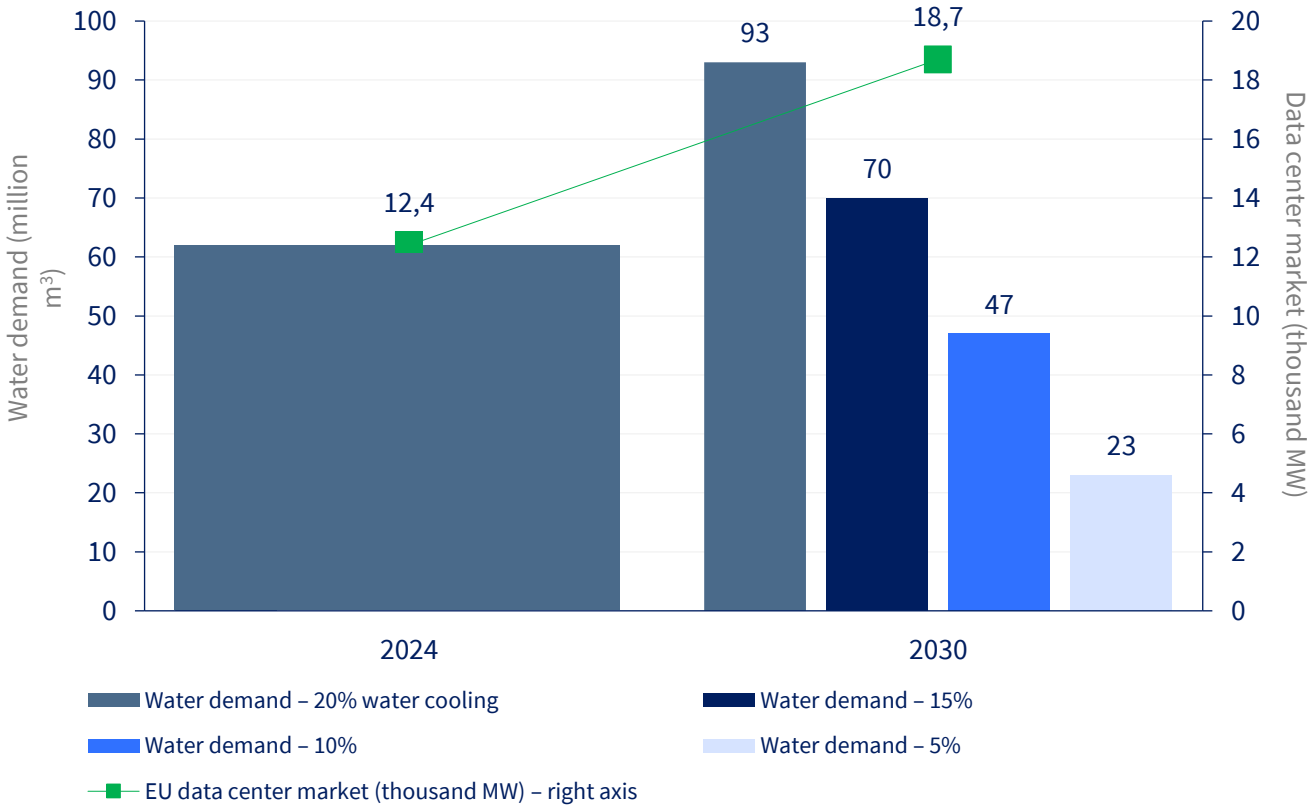
Semiconductors, data centers, renewable hydrogen and batteries are strategic sectors for Europe's competitiveness and industrial transition, but they have significant and growing water needs. Their economic value could rise from about €192 billion to almost €1 trillion by 2030; the associated water demand could reach up to 2.6 times current levels.

In Europe, installed capacity is expected to grow by about 50% over the same period, from 12.4 to 18.7 GW: with the same cooling technology, the sector's water demand would rise from about 62 to 93 million cubic meters[1].

Closed loops with direct-to-chip cooling, air-based free cooling, hybrid adiabatic systems and the use of treated wastewater are already the main technological levers for containing this demand.

The European Water Resilience Strategy calls for integrating the water needs of new infrastructure into industrial planning, while common reporting obligations on water consumption already apply to data centers[3,4].

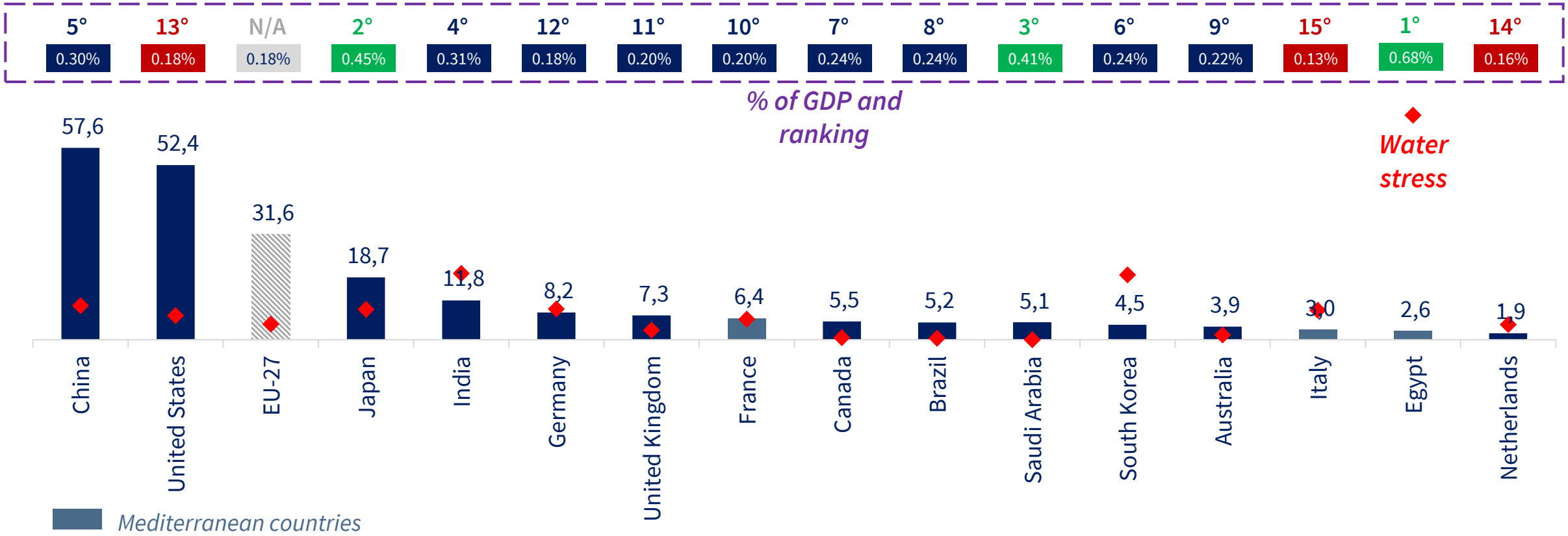
EU data center market and water demand by data center cooling intensity, 2024–2030[1]



Source: (1) Water Europe, «Socio-economic study on the value of the EU investing in water», October 2024, section on the four strategic sectors and Appendices 1–4 (sector factsheets); (3) European Commission, COM(2025) 280 final, «European Water Resilience Strategy», June 4, 2025; (4) Commission Delegated Regulation (EU) 2024/1364, establishing a common Union rating scheme for data centers, including reporting obligations on water use. Note: "strategic sectors" means economic activities of particular relevance to Europe's competitiveness, security and industrial transitions that also depend significantly on water and/or have water demand set to grow.

Pressure on water translates into a growing investment challenge: three Mediterranean countries are in the global top 15

Top 15 countries worldwide by investment (CapEx) in integrated water cycle technologies ($ billion)[1] by share of GDP invested (%)[2] and water stress level[3], 2026



Source: (1) TEHA Group analysis of Global Water Intelligence data, 2024; (2) IMF/Eurostat, 2024 estimates (EU-27: converted from Eurostat euro data); (3) FAO AQUASTAT/UN SDG Database, SDG indicator 6.4.2, 2020 data (EU-27: own analysis of AQUASTAT data for the 27 Member States). Note: water stress is calculated as the ratio between a country's total freshwater withdrawals (gross figure, including withdrawals from non-renewable fossil aquifers) and its total renewable water resources (long-term average of precipitation and groundwater recharge). The figure is an annual national average: it does not subtract the volumes of water returned to the environment after use (so-called "return flows") and does not reflect seasonal or regional variability within each country.

1.3. VALUE AND INVESTMENT

Companies estimate potential risks at 6 times the cost needed to mitigate them. Yet the value of water remains poorly incorporated into decisions: Italy invests about €51 per inhabitant per year, against €82 on average in the EU.

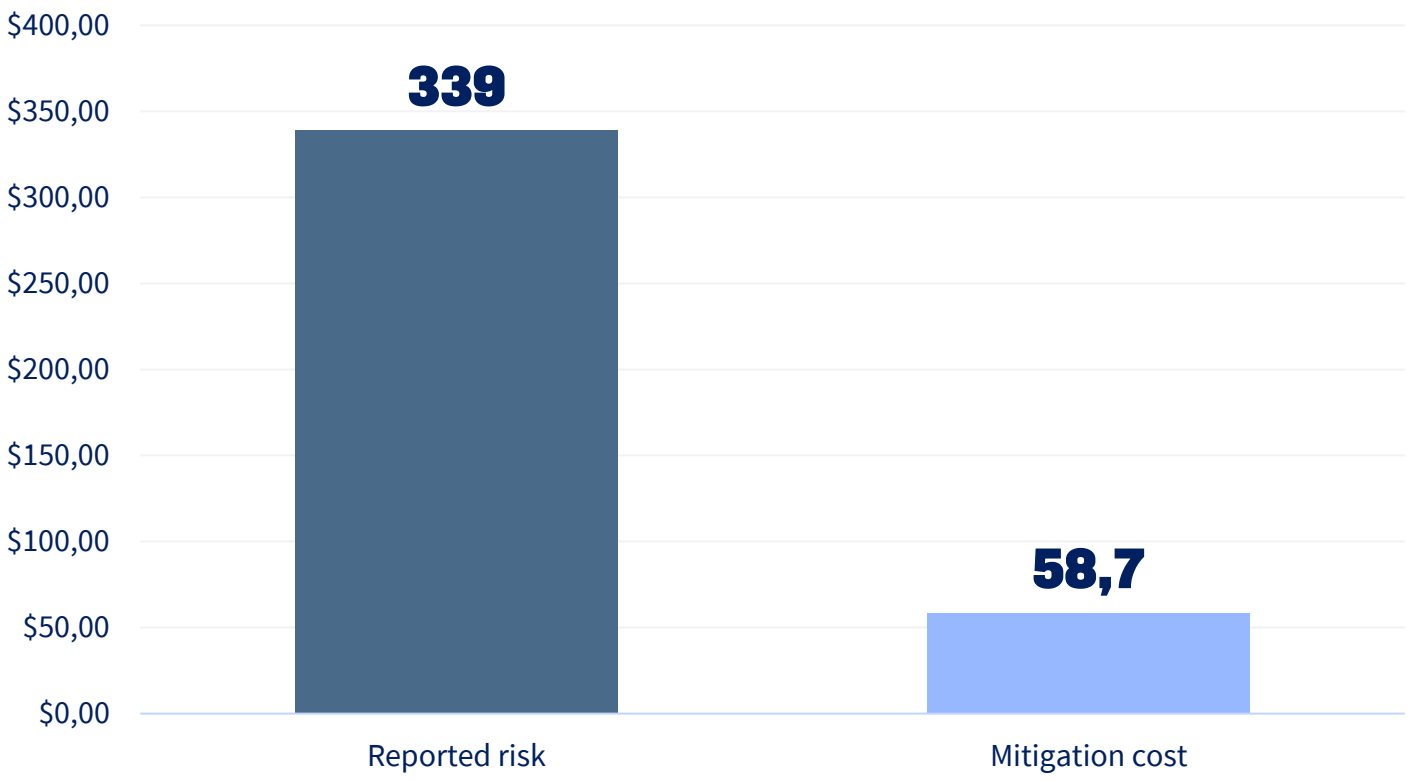
Companies are starting to see the water business case: reported risks are worth almost 6 times the cost of mitigation

The cost of inaction already far exceeds the cost of intervention. In 2024, companies reporting to CDP (Carbon Disclosure Project) reported $339 billion in potential financial impacts from water risks, against about $58.7 billion needed to mitigate them: a ratio of almost 6 to 1[1].

Water management is also a lever for creating value, not only protecting it. Companies identified about $1.4 trillion in opportunities linked to new products and markets, greater process efficiency and stronger competitive resilience[2].

Exposure remains significant along supply chains, however, where measurement and oversight capabilities are generally weaker: CDP puts the water risk reported in the supply chains of 623 companies at $77 billion[3].

Water risks, mitigation costs and economic opportunities identified by companies ($ billion, 2024)



Source: (1) CDP (Carbon Disclosure Project), «Internal Water Pricing Unlocks Resilience and Long-term Growth», 2025 (2024 reporting data); (2) CDP, ibid.; (3) CDP, «Water now a major risk for world's supply chains», March 2024

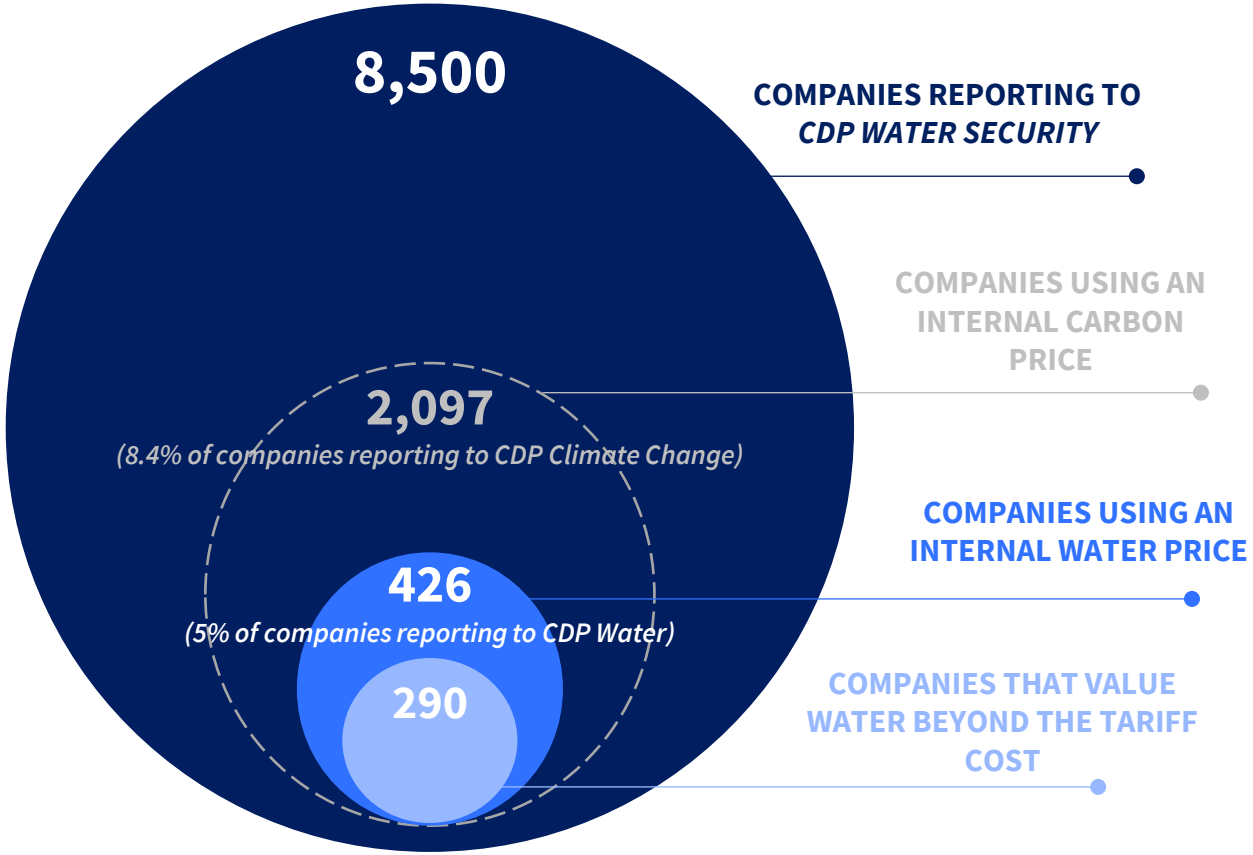
However, the economic value of water remains largely outside business decisions

In 2024, more than 8,500 companies reported to CDP Water Security, but only 426 (about 5%) say they use an internal water price; of these, just 290 also incorporate factors beyond the tariff, such as scarcity and water risk[1].

The comparison with carbon highlights the gap: 8.4% of companies responding to CDP Climate Change already use an internal carbon price, a sign that carbon pricing is more mature in decision-making and capital allocation processes[2].

The gap also reflects an economic signal that is still weak: when the price paid for water has only a marginal effect on business costs, assigning a higher internal value to the resource requires a voluntary choice. The question therefore becomes how far the price of water can actually steer behavior and investment.

Adoption of internal water and carbon pricing among companies reporting to CDP (no. of companies, 2024)



Source: (1) CDP, «Only 5% of companies put a financial value on water, despite billion-dollar risks», November 5, 2025 (2024 reporting data, more than 8,500 companies); (2) CDP, «Internal Water Pricing Unlocks Resilience and Long-term Growth», 2025.

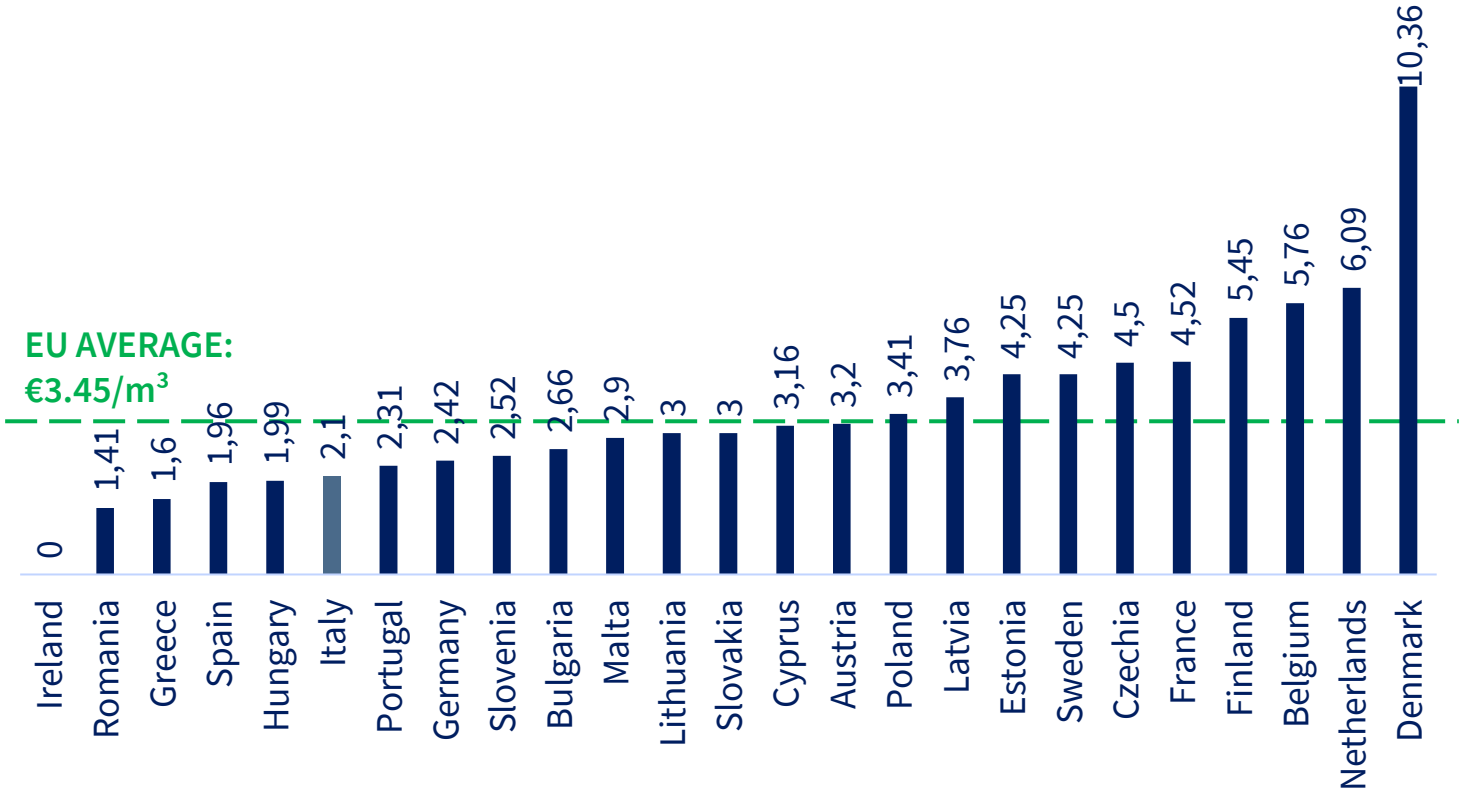
The price of water remains too low to truly steer decisions and encourage investment

Companies respond to the price of water when it becomes economically relevant. The literature estimates that a 10% price increase can reduce industrial withdrawals by 5–6%, with stronger effects in water-intensive sectors. The response emerges mainly in the medium term, through investment in more efficient technologies and processes[1].

Raising the price is therefore not enough: the cost of water must weigh enough to change business decisions. In the Netherlands, for example, a tax of up to €0.20/m³ had no measurable effect on industrial consumption, partly because water accounted for just 0.3% of companies' total costs[2].

In Europe the tariff signal remains very uneven. Household tariffs range from €1.41/m³ in Romania to €10.36/m³ in Denmark; Italy, at €2.10/m³, has the fifth-lowest tariff in the EU[3].

Integrated Water Service tariff in the EU (including wastewater collection and treatment, €/m³ incl. VAT)[3]



Source: (1) Gracia-de-Rentería P., Barberán R., «Economic Determinants of Industrial Water Demand: A Review of the Applied Research Literature», Water, 13(12), 1684, 2021; (2) Schuerhoff M., Weikard H.P., Zetland D., «The Life and Death of the Dutch Groundwater Tax», Water Policy, 15(6), 2013; (3) EurEau, «Europe's Water in Figures – 2026 Edition», 2026, Fig. 13, p. 19 (2022–2024 data; household tariff, including water supply, sewerage and treatment). Note: data for Croatia and Luxembourg are not available. Ireland does not apply an ordinary household water tariff; the service is funded through general taxation, with a charge only for consumption above a threshold; (4) Global Water Intelligence, «Global Water Tariff Survey 2025», 2025

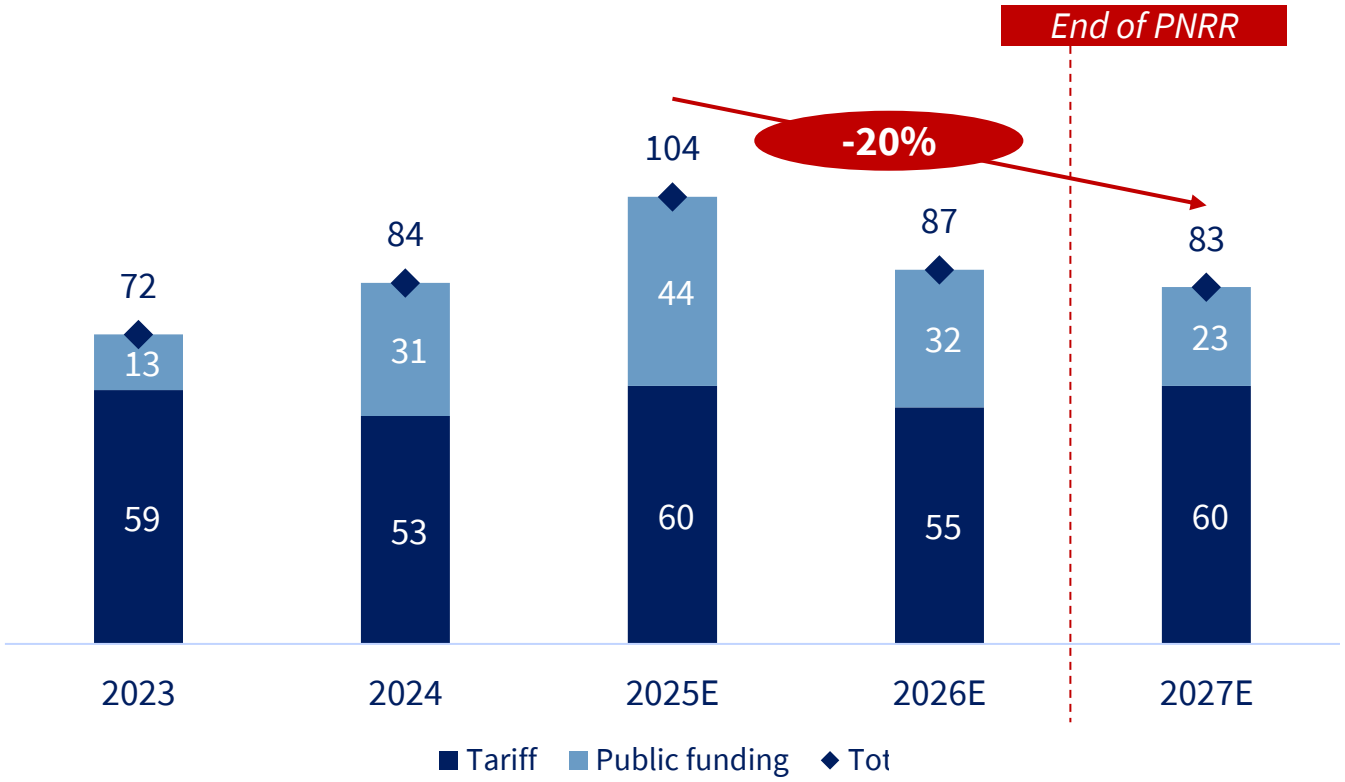
With the end of the PNRR, operators' investments are expected to fall by 20% in 2027 compared with 2025

In Italy, as the PNRR winds down, per capita investment is expected to fall to €83 per inhabitant in 2027, down 20% from the 2025 peak. The funding mix reverses: tariffs return to covering 72% of the total, against 58% in 2025, while public funding falls to 28%.

This rebalancing is only apparent, however, because in absolute terms the tariff component remains unchanged at €60 per inhabitant: the change in the mix is driven entirely by the contraction of public resources, not by greater self-financing capacity in the sector.

Maintaining current investment levels will therefore require additional sources of funding, above all private capital, at a time when infrastructure needs remain high and climate pressures on the resource are set to increase.

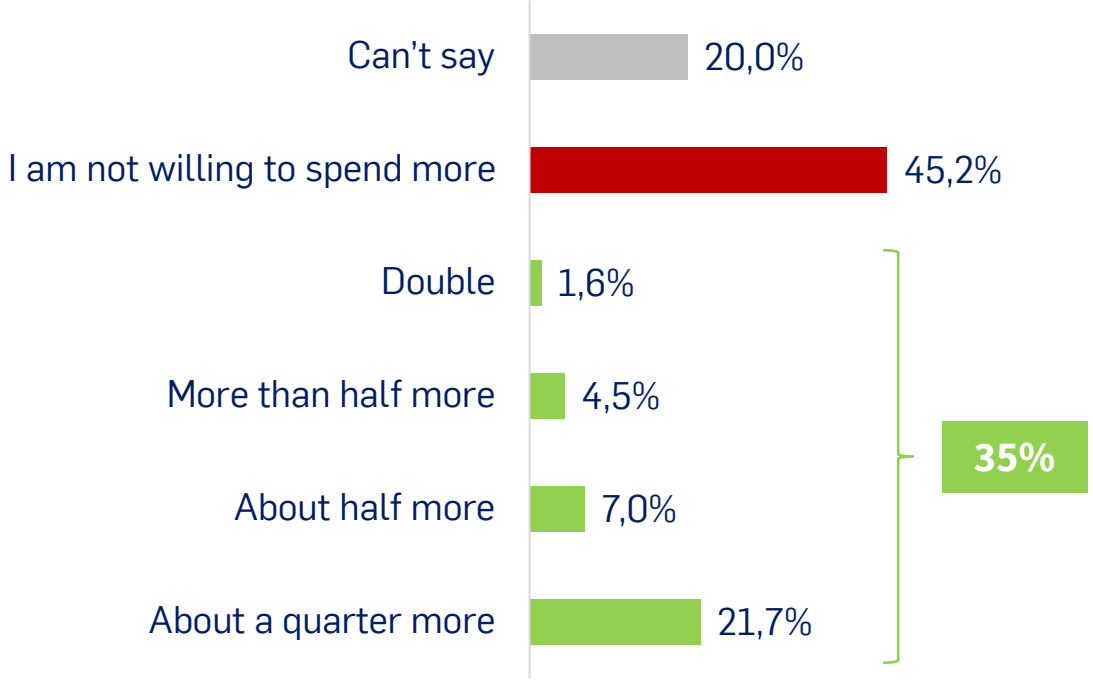
Per capita investment in the water sector in Italy by industrial operators (€ per inhabitant), 2023–2027E



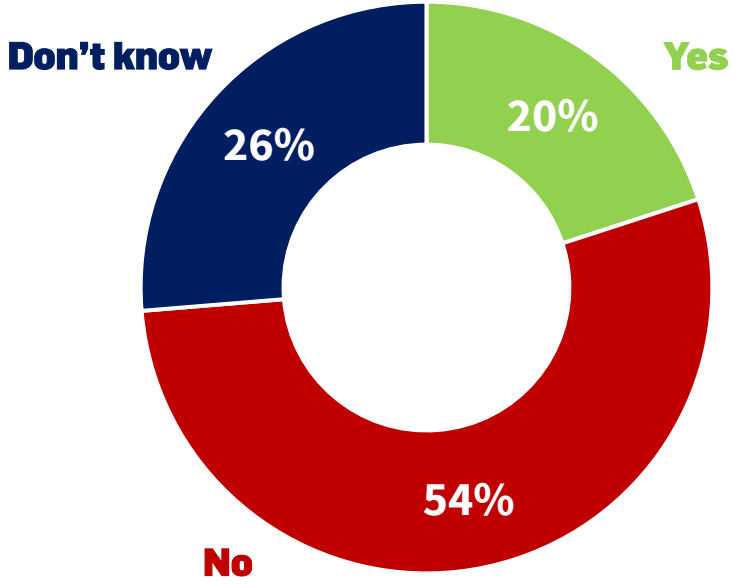
Source: TEHA Group analysis of EurEau, Fondazione Utilitatis and Ref Ricerche data, 2026. (*) CAGR: Compound annual growth rate.

If tariffs are revised, 35% of citizens are willing to contribute through higher bills

Responses to the question
«How much more would you be willing to pay on your bill to help fight and adapt to climate change?»
(% of total), 2025



Responses to the question
«Would you be willing to pay more for water at times of the year when it is less available and less in rainier periods?»
(% of total), 2025



Source: Community Valore Acqua per l'Italia survey of Italian citizens, September 2025

In Europe, the Water Resilience Strategy introduces no new rules, but tightens the implementation of existing ones

Adopted by the European Commission in June 2025, the Water Resilience Strategy coordinates and strengthens the implementation of the Directives already in force (Water Framework, Urban Wastewater, Drinking Water, Floods) through about thirty actions, accompanied by Recommendation (EU) 2025/1179 on the «Water Efficiency First» principle.

The Strategy is built on three pillars:

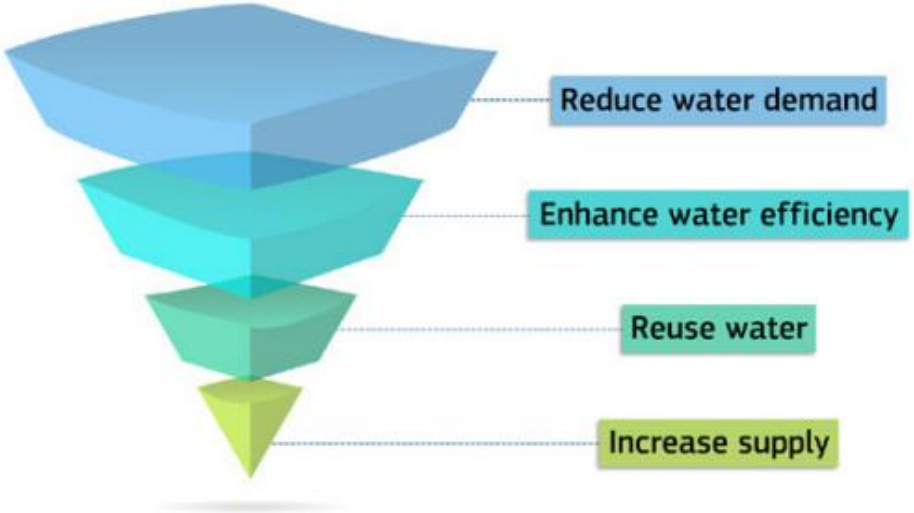
1. restore and protect the water cycle;
2. build a water-smart economy based on efficiency, innovation and competitiveness;
3. ensure clean and affordable water for all citizens.

These are complemented by the goal of improving water efficiency by at least 10% by 2030* and a clear hierarchy of action: reduce demand, improve efficiency, reuse water and, only as a last resort, increase supply.

For companies the implications are mostly indirect, but relevant: greater selectivity in withdrawal permits, tariff systems evolving toward price signals consistent with scarcity, reuse extending beyond agriculture, and water footprints entering product requirements and rating systems. At the same time, dedicated resources are growing (more than €15 billion from the EIB water program for 2025–2027) against an estimated investment need of about €23 billion a year at European level.

Water Resilience Strategy
(June 2025)

The «Water efficiency first principle» followed by the EU Commission



Source: TEHA Group analysis of European Commission data, 2026. (*) The 10% target is proposed as a non-binding strategic objective at EU level. Its implementation will depend on national methodologies, infrastructure, investment and national/regional governance

Egypt strengthens water security by expanding the supply of strategic technologies and infrastructure

The regulatory framework

Adopted through the National Water Resources Plan 2017–2037 and the Water Resources Development and Management Strategy 2050, Egypt's water policy treats water security as a national priority and focuses action on strengthening supply, in a context marked by heavy dependence on the Nile, growing demand and increasing climate pressure.

Implications for companies

For companies the impacts are currently mostly indirect, but relevant: growing demand for treatment, reuse and desalination technologies, greater attention to resource efficiency and progressive integration of digital tools for managing water systems.

At the same time, the country is mobilizing major public and multilateral investment in treatment, reuse and desalination infrastructure, creating opportunities for industrial, technology and financial operators active along the water value chain.

The strategy is built on 4 pillars

Develop additional water resources, through desalination, wastewater reuse, sustainable use of groundwater, rainwater harvesting and the use of available non-conventional resources.

Increase efficiency in resource use, by promoting the modernization of irrigation, reducing leakage and optimizing consumption in the agricultural, urban and industrial sectors.

Improve water quality and reduce pollution by upgrading treatment systems, reusing wastewater and strengthening discharge control measures.

Strengthen governance and integrated water resources management, leveraging digitalization, monitoring, long-term planning and coordination among the actors involved in managing the resource.

Source: TEHA Group analysis of the National Water Resources Plan 2017–2037 and the Strategy for the Development and Management of Water Resources until 2050, Ministry of Water Resources and Irrigation of Egypt.

Turkey focuses on water efficiency, reducing demand through management and regulatory tools

The regulatory framework

Through the Water Efficiency Strategy and Action Plan 2023–2033, the Water Efficiency Regulation and the new National Water Plan 2026–2035, Turkey has adopted a demand-management approach, with the aim of reducing consumption, leakage and waste in the urban, agricultural and industrial sectors.

Implications for companies

The legislation introduces water efficiency management systems, improvement plans, monitoring and certification mechanisms and growing attention to resource-use performance. At the same time, it promotes investment in technologies for water recovery, reuse and digital monitoring, through national programs dedicated to efficiency and climate adaptation, also supported by public resources and international funding.

The strategy is built on 4 pillars

Increase water efficiency in the urban, agricultural and industrial sectors, by reducing consumption, modernizing irrigation systems and spreading water-efficient practices and technologies across the economy.

Reduce losses in networks and distribution systems, through infrastructure upgrades, network digitalization and advanced monitoring systems to limit waste and leakage.

Promote water recovery and reuse, through the reuse of treated wastewater, the use of greywater and rainwater harvesting across different end uses.

Strengthen monitoring, reporting and water management systems, through water efficiency plans, certification mechanisms, reporting tools and management increasingly based on data and digital technologies.

Source: TEHA Group analysis of the National Water Plan of Türkiye 2026–2035, the Water Efficiency Strategy and Action Plan 2023–2033 and the Water Efficiency Regulation, Ministry of Agriculture and Forestry of the Republic of Türkiye

SO WHAT - The challenge is turning growing relevance into decisions

Water is now a strategic variable for growth, competitiveness and resilience, but none of the external signals (price, public resources, public support, regulation) is currently enough to translate this relevance into investment.

The question is therefore how well-equipped companies are to incorporate the value of water into their decisions, in governance, measurement and concrete action. The benchmark and survey offer a first measure of this shift and of the main gaps to close on the way to a Water Smart Economy.

Global Compact Network Italy

TEHA

2. From perception to action: how companies address water risk today

Overview of Section Key Messages

2.1. PERCEPTIONS - Exposure to water stress is widespread, but its relevance to business varies widely across sectors: 56.4% of companies operate in water-stressed areas, while about 1 in 3 considers water critical to business continuity. The water intensity of operations, together with the low weight of water costs and limited financial impacts, explains this difference in risk perception.

2.2. GOVERNANCE - The management foundation exists, but dedicated, strategic oversight of water is missing: Environmental Management Systems (EMS) are widespread (86% of companies hold ISO 14001 certification), while top management oversight, dedicated policies, targets and value chain monitoring remain limited.

2.3. INVESTMENTS - Companies are acting, but investment and innovation remain limited: just over half allocate resources to water management and only a small share invest substantially. External collaborations already involve 43% of companies, but only 7% have structured them on an ongoing basis.

2.4. BARRIERS - The challenge is turning available solutions into investments that can actually be made: high costs, uncertain returns and regulatory complexity add to internal gaps in priorities and skills. Incentives are the top request, but almost 8 in 10 companies don't know them or can't access them.

How we worked: 94 companies analyzed

Benchmark of 50 large Italian companies

The Benchmark analyzed how 50 Italian companies subject to sustainability reporting requirements for FY25, excluding the financial sector (banks and insurers), manage and oversee water-related issues. The analysis was based exclusively on public data from Sustainability Reports and Annual Reports available online as of July 1, 2026. No subsequent updates were made and no proprietary or confidential sources were used[1].

Survey of 44 Italian companies

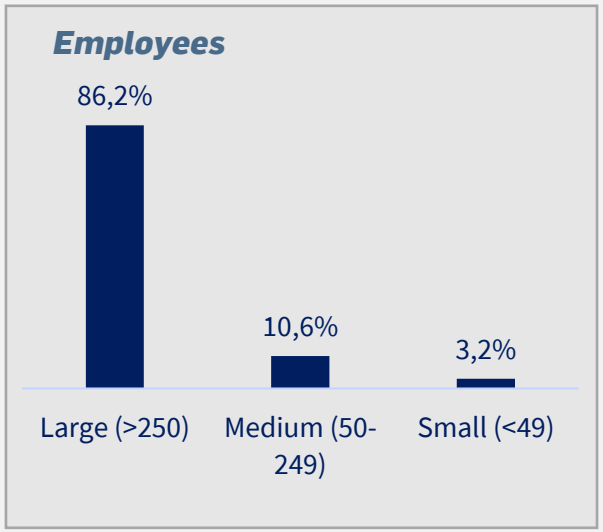
The survey was conducted on the *Microsoft Forms* platform in June 2026. Before taking part, participants were informed of the subject and purpose of the water management survey. It is important to note that the companies that chose to respond are presumably those most prepared and confident on the topic. If the results were extended to the whole Italian business landscape, it would be prudent to revise them downward. In addition, some companies may have been more cautious in their answers. Some of the data collected underwent quantitative reprocessing and comparative calculations, for analytical purposes only; these operations did not affect the overall validity and reliability of the results[1].

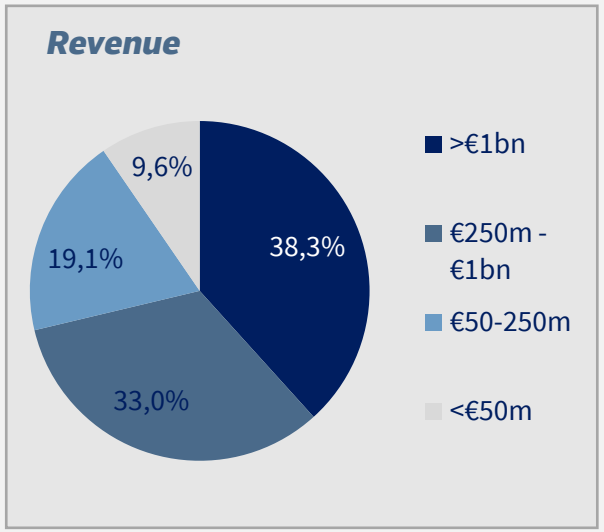
(1) Note that the topics investigated in the benchmark and in the survey overlap. The survey, however, makes it possible to explore the topics in greater detail and to add less tangible elements (e.g., opinions); when this information is presented, benchmark companies are not represented. (2) The 94 companies are counted net of double counting of those included in both the benchmark and the survey, giving precedence to the answers provided directly by companies in the survey.

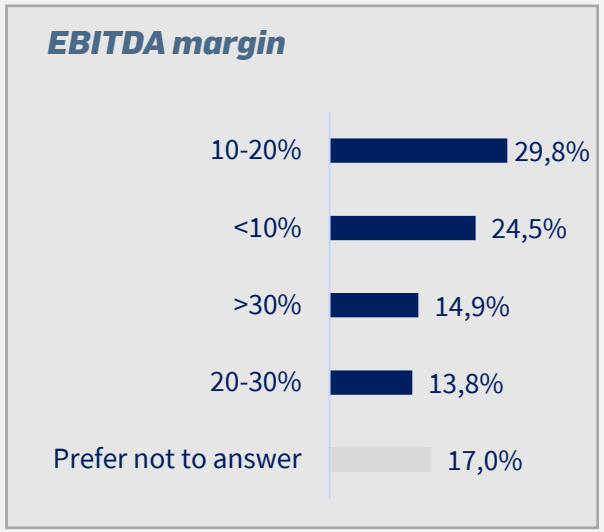
Benchmark and survey sample profile

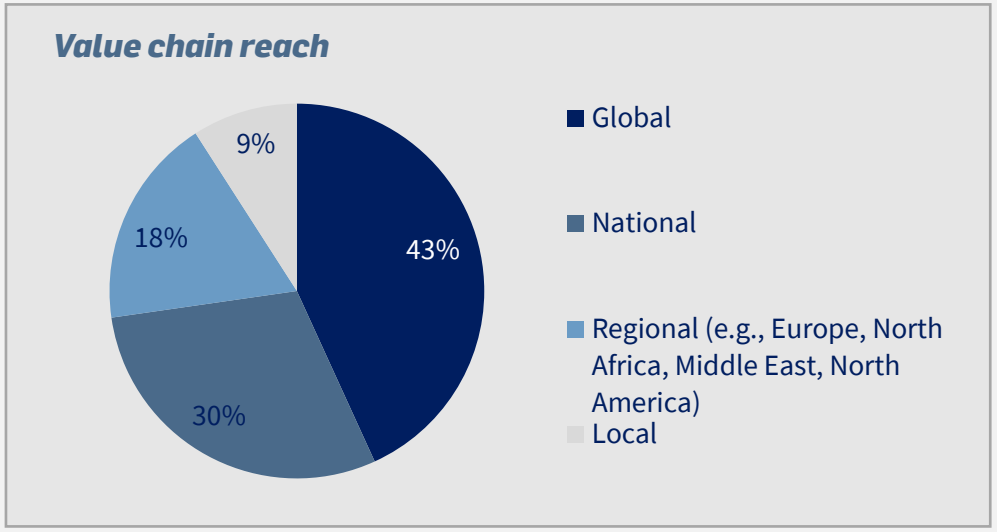
Sector breakdown of the 94 companies analyzed

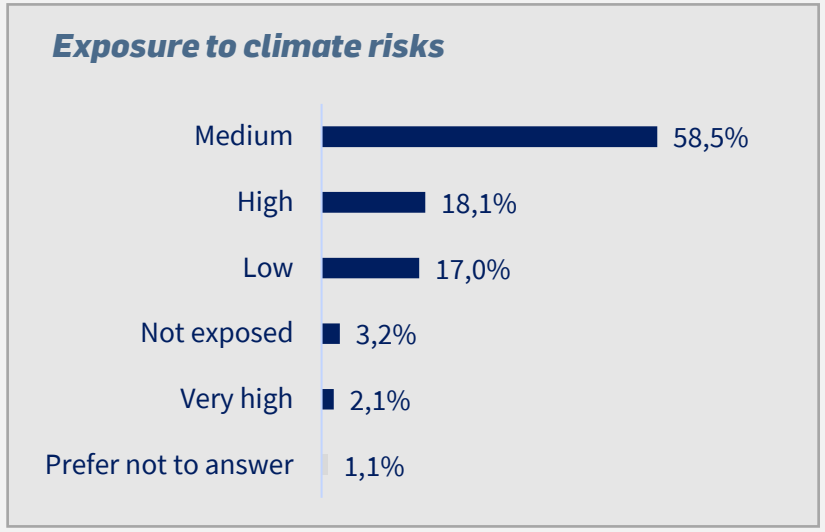
Sector	No.	%
Energy, utilities and water services	19	20.2%
Fashion, luxury and textiles	16	17.0%
Infrastructure, transport and construction	11	11.7%
Pharma, chemicals and materials	9	9.6%
Food and beverage	7	7.4%
Manufacturing and components	6	6.4%
Packaging, paper and design	6	6.4%
Telecommunications and media	6	6.4%
Logistics and retail	3	3.2%
Metals and steel	3	3.2%
Services, consulting and holdings	3	3.2%
HVAC and refrigeration	2	2.1%
Environmental and safety technologies	2	2.1%
Automotive	1	1.1%
Total companies	94	-











Communication on Progress: respondent profile

To complement the sample presented above, the analysis was extended to data available in the Communication on Progress (CoP), with the aim of broadening the information base and supplementing the survey evidence with data publicly reported by UN Global Compact participants. The CoP is the UN Global Compact's main reporting tool and a mandatory annual requirement for participating companies: through it, companies publicly report their progress in integrating the Global Compact's Ten Principles and contributing to the SDGs.

Sample breakdown by country and company size

Sector	*Resp.*	*% of total*	*Companies*	*% in country*	*SMEs*	*% in country*	*1st Sector*	*2nd Sector*	*3rd Sector*
France	1,370	62.8%	603	44%	767	56%	Professional Business Support Service: *14%*	Computer Services: *12%*	Software: *5%*
Italy	340	15.6%	150	44.1%	190	55.9%	Professional Business Support Service: *10%*	Construction: *7%*	Computer Services: *5%*
Turkey	256	11.7%	172	67.2%	84	32.8%	Diversified Industrials: *8%*	Textile Products: *5%*	Professional Business Support Service: *5%*
Portugal	101	4.6%	42	41.6%	59	58.4%	Professional Business Support Service: *11%*	Water: *10%*	Computer Services: *7%*
Greece	71	3.3%	37	52.1%	34	47.9%	Professional Business Support Service: *10%*	Food Products: *8%*	Hotels and Motels / Marine Transportation: *7%*
Egypt	42	1.9%	23	54.8%	19	45.2%	Food Products: *10%*	Professional Business Support Services: *7%*	Real Estate Holding and Development: *7%*
TOTAL	2,180	100%	1,027	47.1%	1,153	52.9%	-	-	-

3 multi-stakeholder workshops with 33 companies from key water sectors in 6 countries

The workshops, held behind closed doors on July 21 and 22, involved 33 companies and institutions active in Italy and in the countries of the UN Global Compact Country Networks that joined the project: France, Portugal, Greece, Egypt and Turkey. Participants come from across the water value chain: from Italian water service operators to industrial companies that "use" water in their production processes, to financial institutions active in the Euro-Mediterranean area.

Countries and companies involved

Egypt France Greece Italy Portugal Turkey

- A2A
- Acea
- Acea Ato 2
- Águas e Energia do Porto
- Anadolu Efes
- Antipollution S.A.
- AQP
- Aquanexa
- Arkema
- Bariq
- Bolton Group
- Coca-Cola İçecek
- DBS Egypt
- Decathlon
- Edison
- Egytrans
- EPAL
- Gruppo CAP
- Gruppo Mastrotto
- Haladjian
- Hassan Allam Holding
- Hellenic Environmental Center
- Holding Moda
- Industrial Development Bank of Türkiye
- Iren
- Irritec
- Kering
- Pirelli
- PPC
- Sanofi
- SAUR
- Séché Environnement
- Società Metropolitana Acque Torino S.p.A.

Discussion areas

- During the workshops, companies discussed the main **risks and opportunities** linked to water management, the **most effective solutions and investments**, the **governance models** and the **skills** needed to strengthen water resilience in their countries and business areas.
- The organizations also shared **experiences and concrete cases**, contributing to the **definition of best practices and recommendations** to speed up the spread of approaches and solutions that can support the transition to a **Water Smart Economy**.

Note: The following slides summarize the main points of convergence that emerged during the workshops. For consistency and thematic relevance, this evidence is then integrated into the slides analyzing the results of the benchmark and survey on the Italian sample, under the heading “The perspective of Euro-Mediterranean companies”.

Points of convergence (1/2): Water is a strategic priority for business resilience and continuity

1. Increasingly a business continuity issue

The main driver of action is not the price of the resource, but the risk of operational disruption, lower productivity, supply problems and greater exposure to extreme weather events. Water is therefore increasingly seen as a critical factor for business resilience and continuity.

2. Measuring is the first step to acting

Reliable data, shared KPIs and monitoring systems across the supply chain are a prerequisite for understanding risks, inefficiencies and opportunities for action. Consumption, uses and dependencies must be mapped before setting targets and investments, especially in upstream supply chains.

3. The technology exists; adoption lags

From reducing leakage to reusing wastewater, from advanced treatment solutions to efficient irrigation systems, the technologies are already available and mature. Technological innovation exists; what is lacking is the ability to create the economic, organizational and regulatory conditions for their large-scale adoption.

4. Digitalization is an enabler

Sensors, real-time monitoring, modeling, decision-support tools, AI and digital platforms are cross-cutting levers for improving efficiency, risk management and investment planning. The value lies not in any single technology, but in the ability to integrate data and processes into a systemic view.

Points of convergence (2/2): The challenge is speeding up adoption, not new technology

5. Leadership and governance determine success

Top management commitment is the decisive factor in putting water among company priorities. Integrating water targets into decision-making, risk management and governance mechanisms appears essential to accelerate investment and ensure the continuity of initiatives.

6. Prevention replaces reaction

Companies need to move beyond emergency-driven management to an ex-ante planning approach, supported by data, risk assessments and long-term climate scenarios. Water resilience is increasingly associated with the ability to anticipate problems rather than react once they arise.

7. Collaboration is essential

Water management is seen as a challenge that goes beyond the boundaries of any single company. Partnerships between companies, supply chains, utilities, agriculture, institutions, local communities and financial players are considered essential to address shared risks and develop effective solutions at local and basin level.

8. The price of water does not reflect its value

The low cost of water makes it hard to build convincing business cases for investment in efficiency and resilience. Interventions are therefore justified mainly in terms of risk management, business continuity and long-term sustainability, rather than direct economic return.

2.1. PERCEPTIONS

Exposure to water stress is widespread, but its relevance to business varies widely across sectors: 56.4% of companies operate in water-stressed areas, while about 1 in 3 considers water critical to business continuity. The water intensity of operations, together with the low weight of water costs and limited financial impacts, explains this difference in risk perception.

Only 1 in 3 companies considers water a critical resource for the continuity of its operations

Overall, water is still perceived as not very critical for business. Only one company in three (34%) considers it highly or extremely critical to the continuity of its core activities, a figure at odds with companies' growing physical exposure to water stress and scarcity, which are increasingly frequent in the Mediterranean basin too.

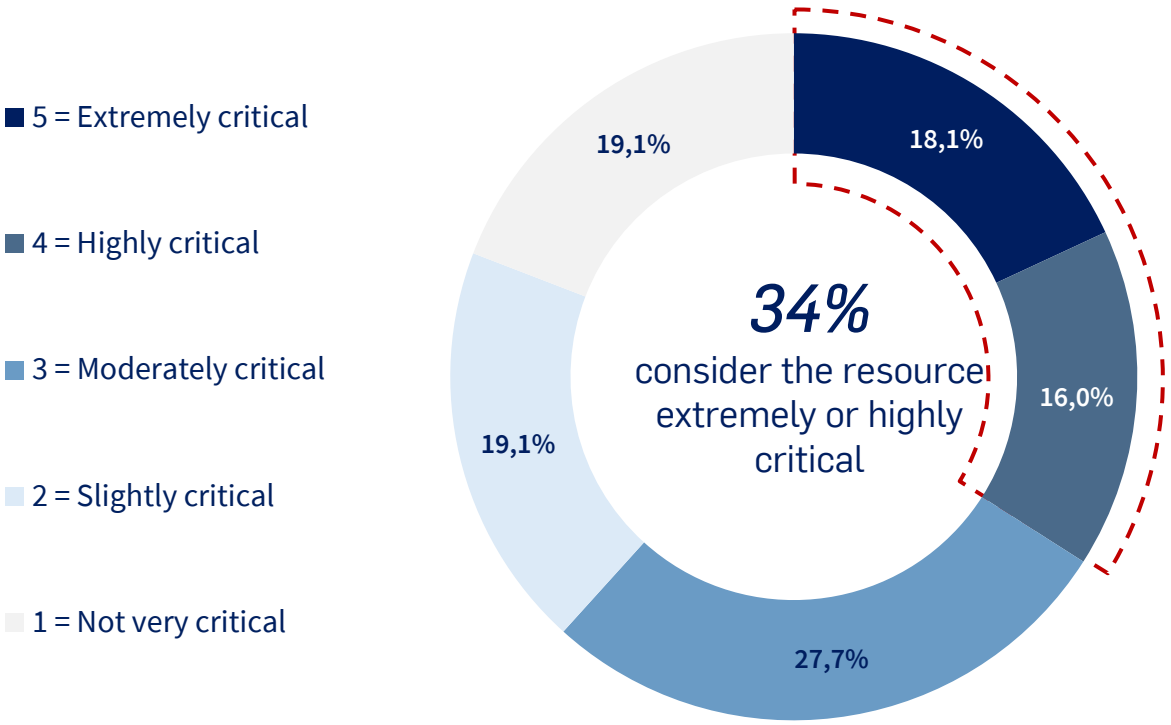
Looking at the distribution of responses, the perception of higher criticality is concentrated in the sectors most directly exposed to water: 65.6% of the companies that consider water "highly" or "extremely" critical belong to Energy, utilities and water services (46.9%) and Food and beverage (18.8%).

The perspective of Euro-Mediterranean companies

«As long as water remains an operational commodity, it never reaches the top of the priority list. It becomes a board-level issue only when the company stops asking how much it consumes and starts asking what it depends on»

Criticality of water

*(«How critical is water availability to the continuity of your core activities?»)**



*TEHA analysis of a sample of 94 Italian companies

Across the Euro-Mediterranean area, relevance rises: up to 6 in 10 companies identify water as a material topic

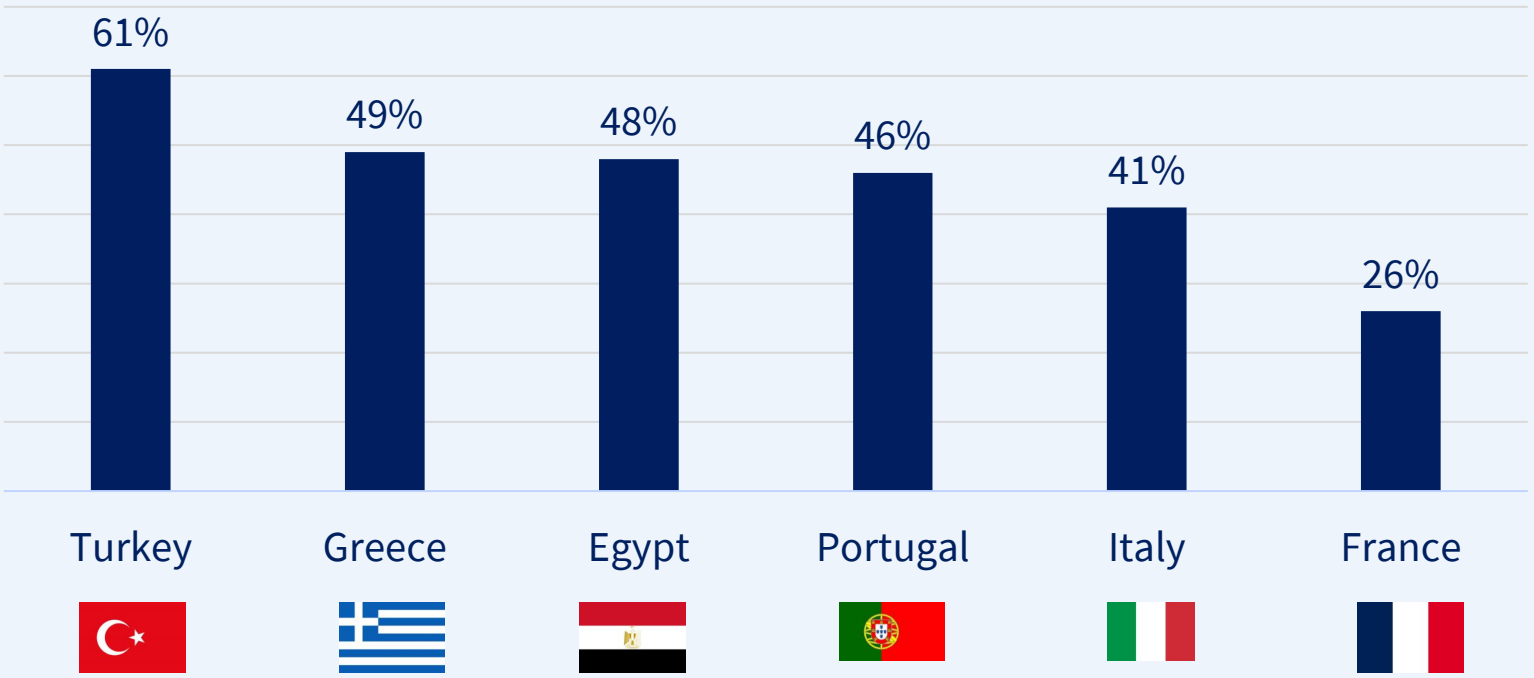
UN Global Compact Communication on Progress data confirm that the relevance of water to companies is not uniform across the Euro-Mediterranean area.

The share of companies that identify water protection topics as material ranges from 26% in France to 61% in Turkey, with Greece, Egypt and Portugal close to or above 46%.

Italy stands at 41%, showing that a significant share of companies already recognizes the topic as material, even though, as the survey shows, water availability is still less often perceived as a critical factor for business continuity.

Materiality of water

(«Which of the following water protection topics has the company identified as material within its operations and/or along its value chain?»)



Source: data extracted from the «Environment» section of the 2025 Digital Questionnaire for Italy, France, Greece, Portugal, Turkey and Egypt.

Identifying impacts, risks and opportunities is not enough: strategic integration varies widely across sectors

Identifying impacts, risks and opportunities does not automatically translate into greater strategic integration of the topic.

Energy, utilities and water services is the sector most directly linked to the resource: 89% of companies identify impacts, risks or opportunities and, in 88% of these cases, water management is strategically relevant.

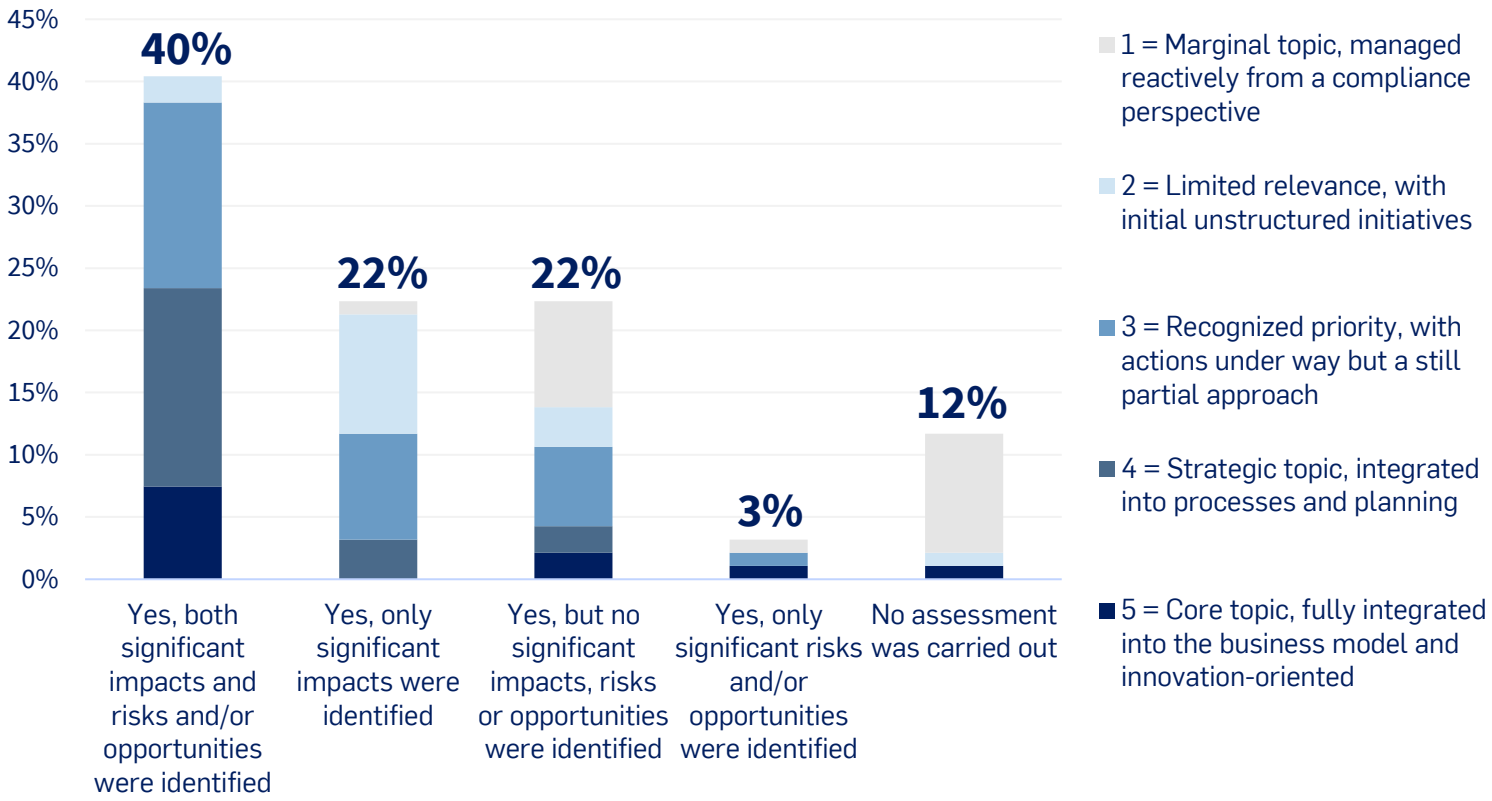
The picture is further weakened by limited oversight of the value chain: 43.6% of companies have not yet assessed their suppliers' exposure to water stress and only 10.6% monitor supply chain water data.

The perspective of Euro-Mediterranean companies

«The most significant exposure is not inside the plant, it is upstream. Those who analyzed their supply chain found a higher dependency than they expected. The absence of an economic impact today does not prove the risk is not there: often it only proves that it is not yet being measured»

Assessment of water impacts, risks and opportunities by level of strategic attention

*(«How strategic and integrated is water management in the company?» / «Have you assessed water-related impacts, risks and opportunities?»)**



*TEHA analysis of a sample of 94 Italian companies

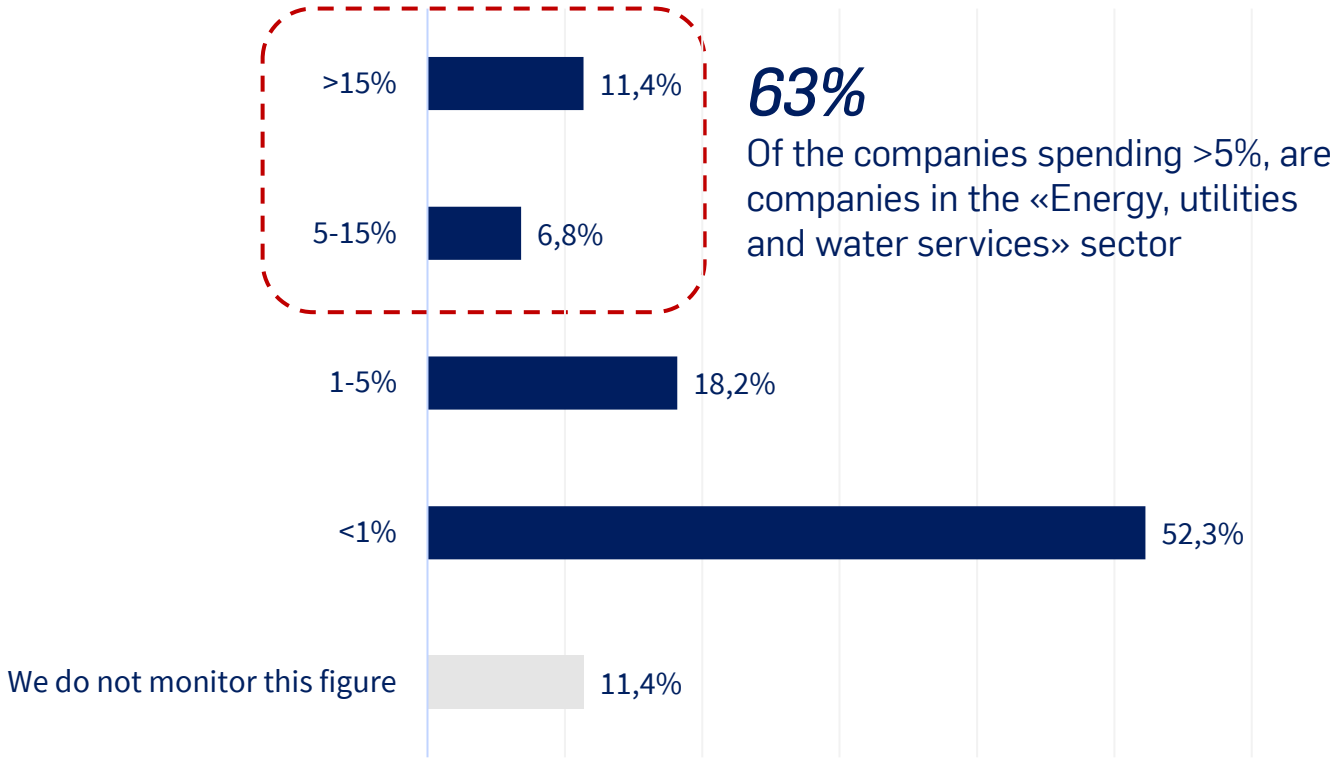
The low economic weight of water dampens the risk signal: for 52% it accounts for less than 1% of OpEx

For most companies water is still a marginal cost item: 52.3% say supply, treatment and discharge account for less than 1% of total operating costs, and only for 11.4% does it exceed 15% of OpEx.

Among cost components, treatment (33.3%) and supply/withdrawal (23.8%) weigh most; energy and water heating (11.9%), consumption and use (9.5%), monitoring and controls (4.8%) and maintenance of plants and infrastructure (2.4%) are more marginal.

Over the last 3 years this share has remained broadly stable for 54.4% of companies, with only 15.9% reporting an increase. Read together with exposure to variability and availability risks, this suggests a possible underestimation of risk: the current low weight of water costs does not imply lower future vulnerability, especially for companies that do not yet have monitoring systems (11.4% say they do not track this figure).

Water costs *(«What share of total operating costs is attributable to water supply, treatment and discharge?»)**



The perspective of Euro-Mediterranean companies

«The cost of water is too low to generate a quick return»

*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

Exposure to water stress has not yet translated into significant financial impacts in the sample

Comparing location in water-stressed areas with the financial impacts actually suffered shows no linear correlation. Among companies operating mainly in areas of high or critical water stress, none reports a significant financial impact; 9.1% report a manageable impact, while the rest report none[1].

Geographic exposure alone therefore does not seem enough to explain how financial risk materializes: the relationship between water stress and impacts also depends on the sector, the water intensity of operations and the company's ability to absorb or mitigate the effects.

Correlation between water-stressed areas and financial impacts from water issues

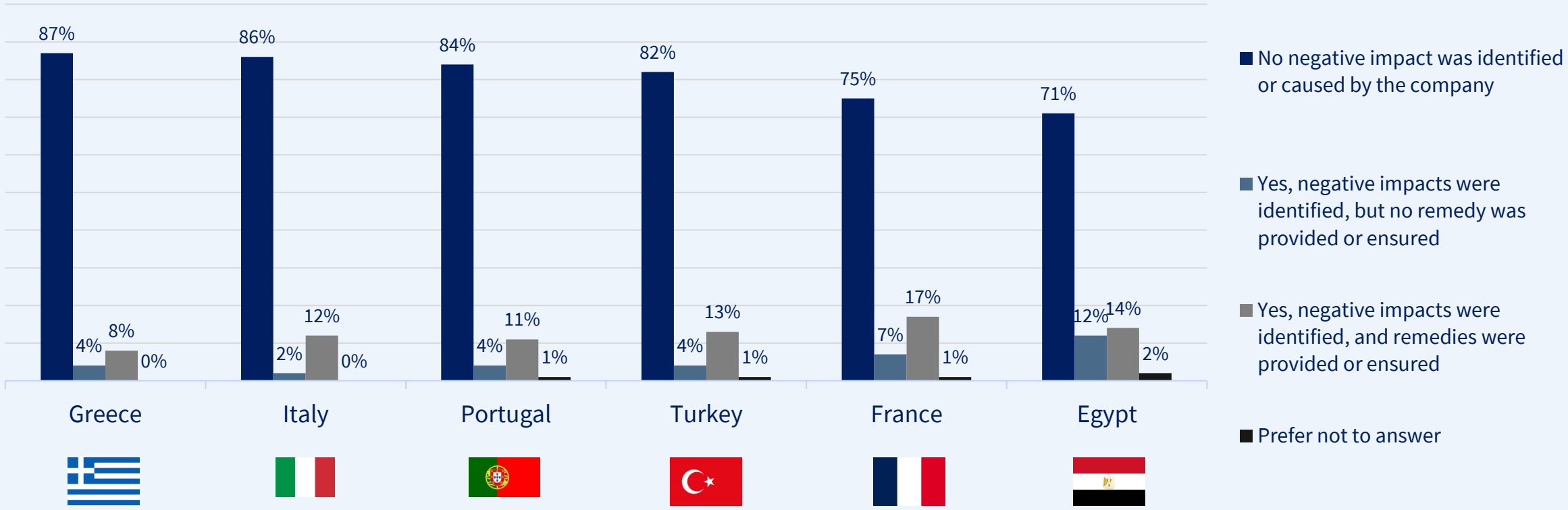
	*In the last 5 years, have you suffered significant operational or financial impacts from water issues?**			
*Do you have direct operations in areas of high or critical water stress?**	*Yes, with significant impact*	*Yes, with manageable impact*	*No*	*Total*
Yes, mainly	0.0%	100.0%	0.0%	100%
Yes, partly	7.1%	42.9%	50.0%	100%
No	0.0%	21.7%	78.3%	100%
Don't know	0.0%	0.0%	100.0%	100%
We have not assessed it	0.0%	50.0%	50.0%	100%

*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy. (1) Note: the 9.1% figure in the text is calculated on the total sample, while the percentages in the table are calculated on the total responses in each row.

In the Euro-Mediterranean context, most companies report no negative water impacts

Impact mitigation

(«During the reporting period, did the company provide, or ensure access to, remedy where it caused or contributed to negative water-related impacts?»)



Source: data extracted from the «Environment» section of the 2025 Digital Questionnaire for Italy, France, Greece, Portugal, Turkey and Egypt.

2.2. GOVERNANCE

The management foundation exists, but dedicated, strategic oversight of water is missing: Environmental Management Systems (EMS) are widespread (86% of companies hold ISO 14001 certification), while top management oversight, dedicated policies, targets and value chain monitoring remain limited.

Water management rarely involves top management: direct oversight in only 8.5% of cases

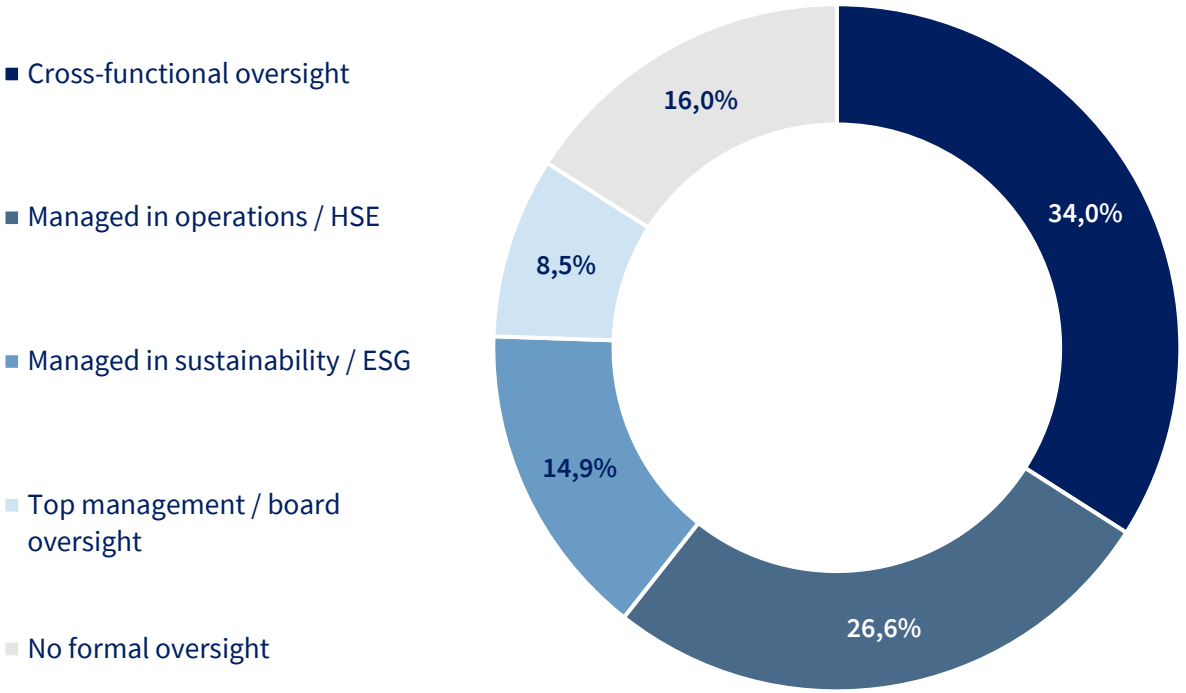
Internal oversight of water management currently rests mainly with operational functions: only 14.9% place it in the sustainability/ESG function, and just 8.5% provide for direct oversight by top management or the board (Energy, utilities and water services for 62.5% and Food and beverage for 25.0%).

Consistently, the frequency with which the topic reaches top management or the board also reflects an approach that is not yet structured: in 36.4% of cases the review is annual, and in an identical share (36.4%) it happens only as needed, on an ad hoc basis. Only 15% of companies review it quarterly and 4.5% every six months[1].

The perspective of Euro-Mediterranean companies

«Economic incentives change behavior, but it is top management engagement that makes investments with eight- or nine-year payback possible. And those who made the leap did not create a water function: they distributed responsibility across business, operations and sustainability, down to the individual plant»

Organizational oversight of water management *(«How is water management overseen internally?»)**



*TEHA analysis of a sample of 94 Italian companies; (1) TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

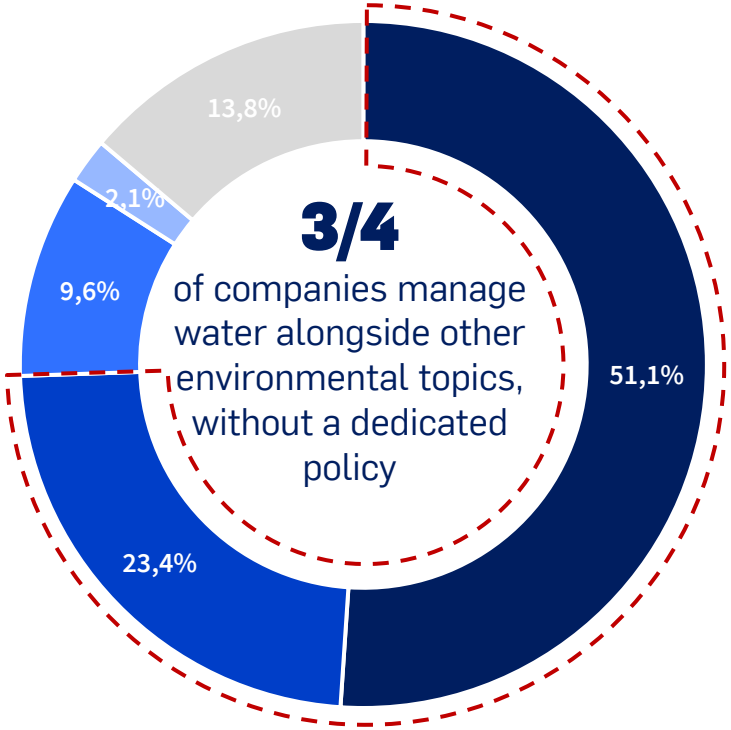
Water management is formalized mainly through broader environmental policies, rarely through dedicated policies

In company policies, too, water struggles to carve out its own space. For 90.4% of companies water management is included in broader environmental policies (e.g., HSE), while 13.8% have no specific policies on the subject.

23.4% integrate it into several company policies (ESG, operations, risk management) and just 9.6% have a policy dedicated exclusively to water. A residual share (2.1%) treats it informally or in an unstructured way.

This is consistent with the findings on organizational oversight: the rare oversight by top management is reflected in mostly generic, cross-cutting policies, largely linked to other environmental reporting obligations, rather than in tools designed specifically to govern water-related risks and opportunities.

Water management policies *(«To what extent are water management, protection and monitoring formalized in company policies?»)**

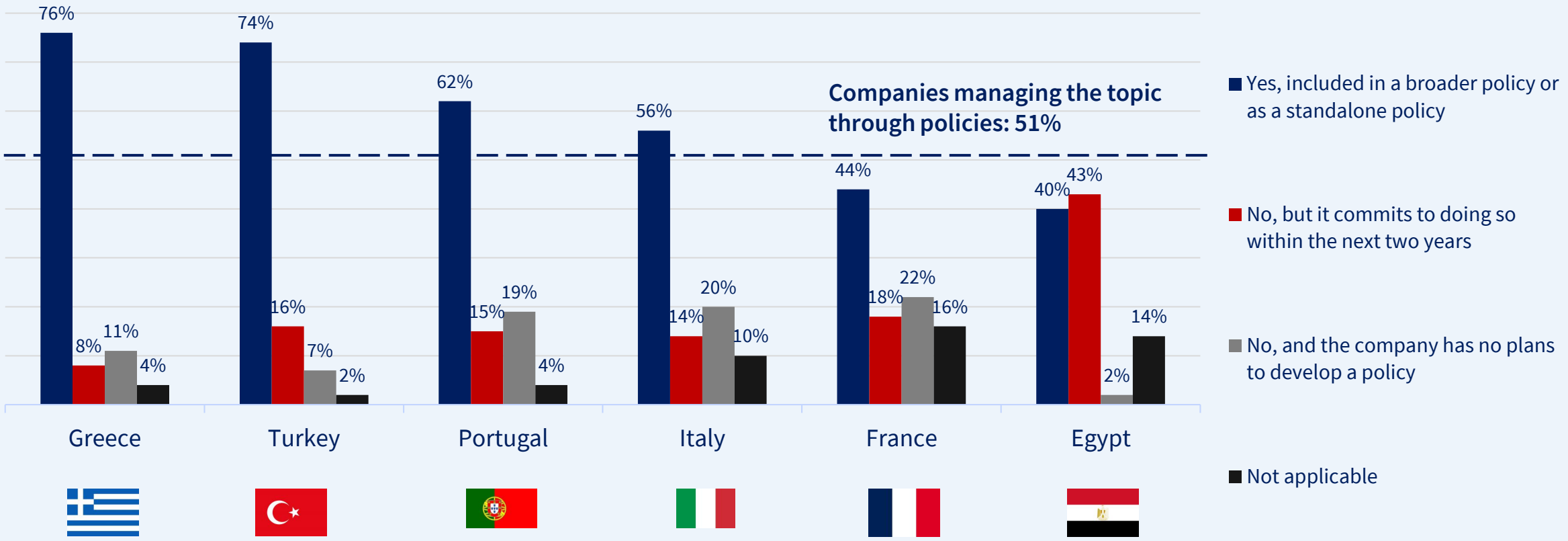


*TEHA analysis of a sample of 94 Italian companies

In the Euro-Mediterranean sample, more than half of companies have already adopted a water policy

Water management policies

(«Has the company adopted a water policy?»)



Source: data extracted from the «Environment» section of the 2025 Digital Questionnaire for Italy, France, Greece, Portugal, Turkey and Egypt.

The management infrastructure is already widespread: 86% of companies are ISO 14001 certified

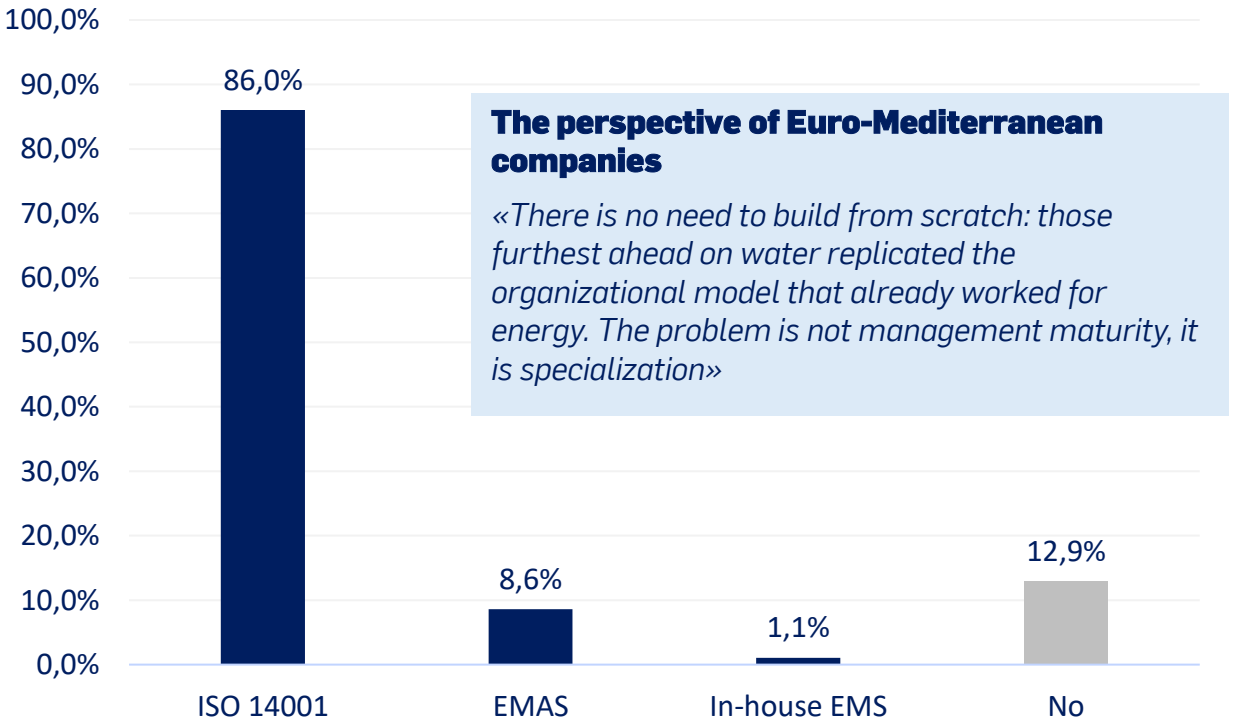
Certifications show a much higher level of maturity: 86% of companies already hold ISO 14001 certification, while a smaller share refers to EMAS (8.6%) or to an internally developed environmental management system (EMS) (1.1%).

Only a minority say they have no continuous environmental performance control system (12.9%), and all of these companies plan to adopt one within the next 3 years.

The relationship between systems and policies is asymmetric, however: where a dedicated water policy exists, a management system is almost always in place, while in the group without specific policies coverage falls to 67%.

This adds a complementary reading to the previous findings: while water-specific governance (oversight, dedicated policies, targets) is still poorly structured, the broader environmental control infrastructure is already widespread. This suggests that the challenge is not so much building from scratch as tailoring existing tools to cover water more precisely.

Performance control system *(«Does the organization have a continuous environmental performance control system covering the sustainable use of water resources?»)**



The perspective of Euro-Mediterranean companies

«There is no need to build from scratch: those furthest ahead on water replicated the organizational model that already worked for energy. The problem is not management maturity, it is specialization»

*TEHA analysis of a sample of 94 Italian companies

However, water targets are still mostly internal: only 4.3% are aligned with international frameworks

The picture does not improve on planning: 40.4% of companies have not set any quantitative water management target.

Companies without an environmental performance control system do not set water targets: none were recorded in the sample. And the few targets aligned with international frameworks all belong to certified companies.

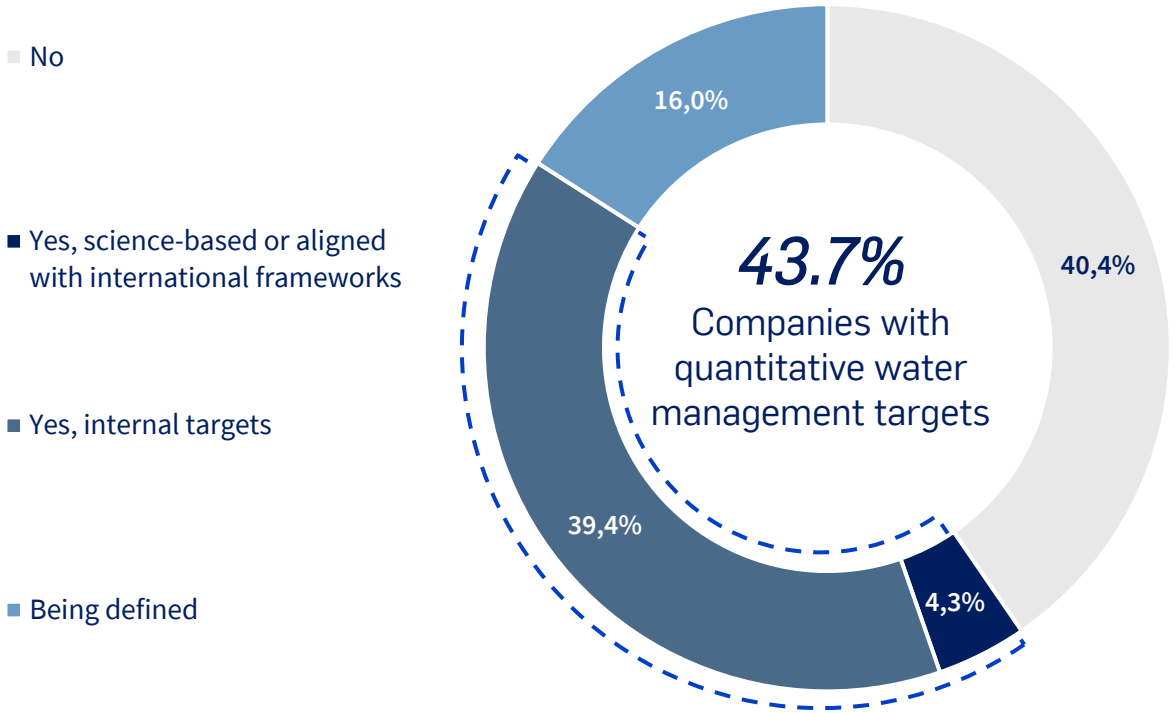
39.4% have internal targets and 16.0% have targets currently being defined. Only a marginal share, 4.3%, has science-based targets or targets aligned with international frameworks.

This confirms the reading on company policies: where they exist, water targets are mostly internal and not yet anchored to recognized standards, pointing to a structuring process still under way rather than mature strategic planning.

The perspective of Euro-Mediterranean companies

«Setting water targets is more complex than for emissions: an absolute withdrawal target is, in practice, a cap on production»

Quantitative targets *(«Have you set quantitative water management targets?»)**



*TEHA analysis of a sample of 94 Italian companies

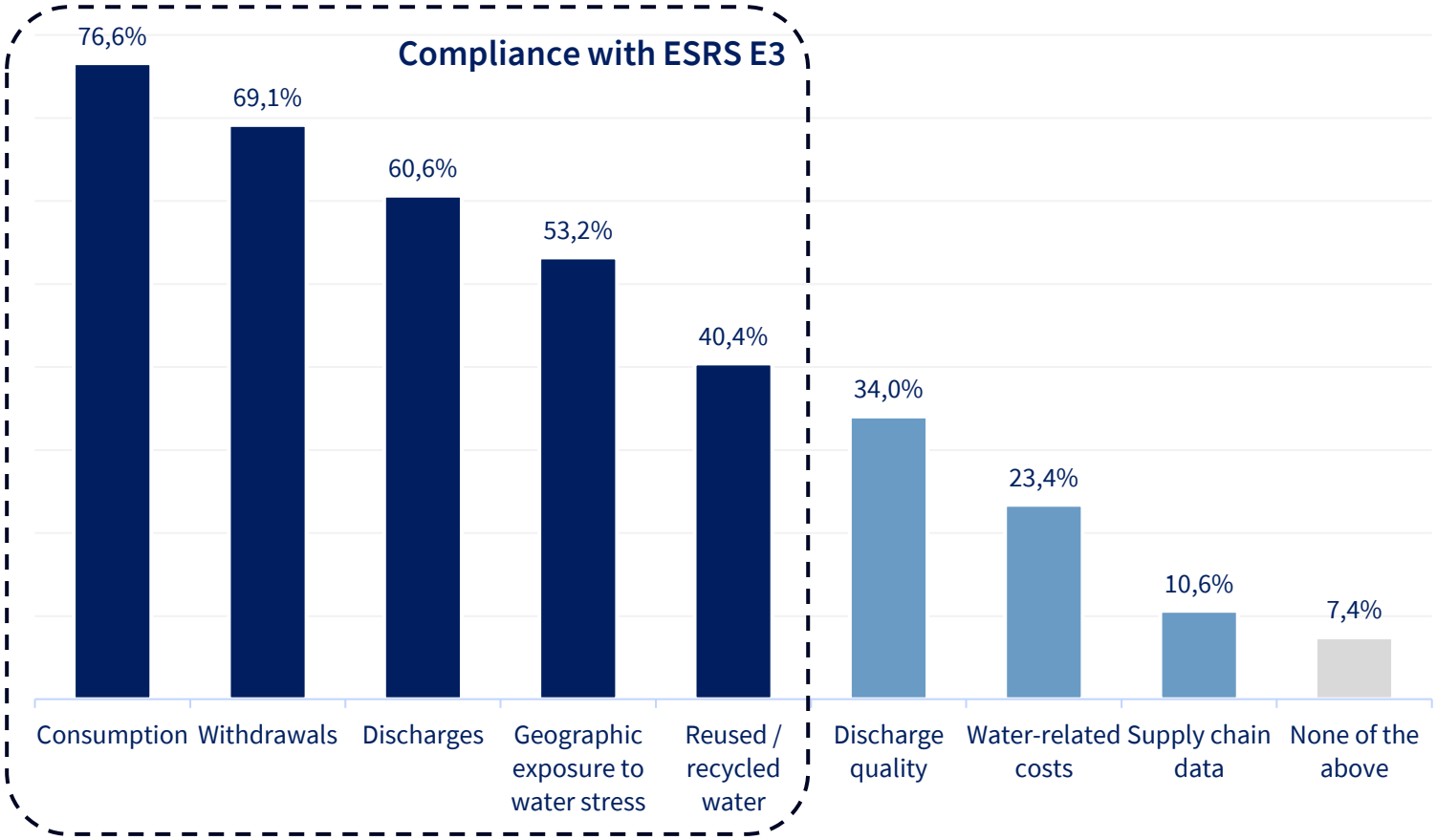
Monitoring focuses on operations, while the value chain remains almost off the radar

Companies mainly monitor indicators on the direct impacts of their own operations, such as consumption, withdrawals, discharges and asset exposure to water-stressed areas, partly in response to the growing reporting requirements introduced by the CSRD.

Indicators for assessing dependencies and risks along the value chain are still uncommon: only 10.6% of companies monitor supply chain water data and 23.4% track the total costs associated with water management.

Consistently, 92.5% use reporting standards such as ESRS and GRI, while only 31% use specific tools for mapping water risks and dependencies, such as the WWF Water Risk Filter, WRI Aqueduct, TNFD and CDP Water Security.

Water management metrics monitored *(«What water data do you monitor regularly?»)**



*TEHA analysis of a sample of 94 Italian companies

2.3. INVESTMENTS

Companies are acting, but investment and innovation remain limited: just over half allocate resources to water management and only a small share invest substantially. External collaborations already involve 43% of companies, but only 7% have structured them on an ongoing basis.

Water investments remain modest, with no strong acceleration expected over the next three years

About half of companies allocate resources to water management, but within this group only two in five do so substantially, exceeding 5% of their total investments.

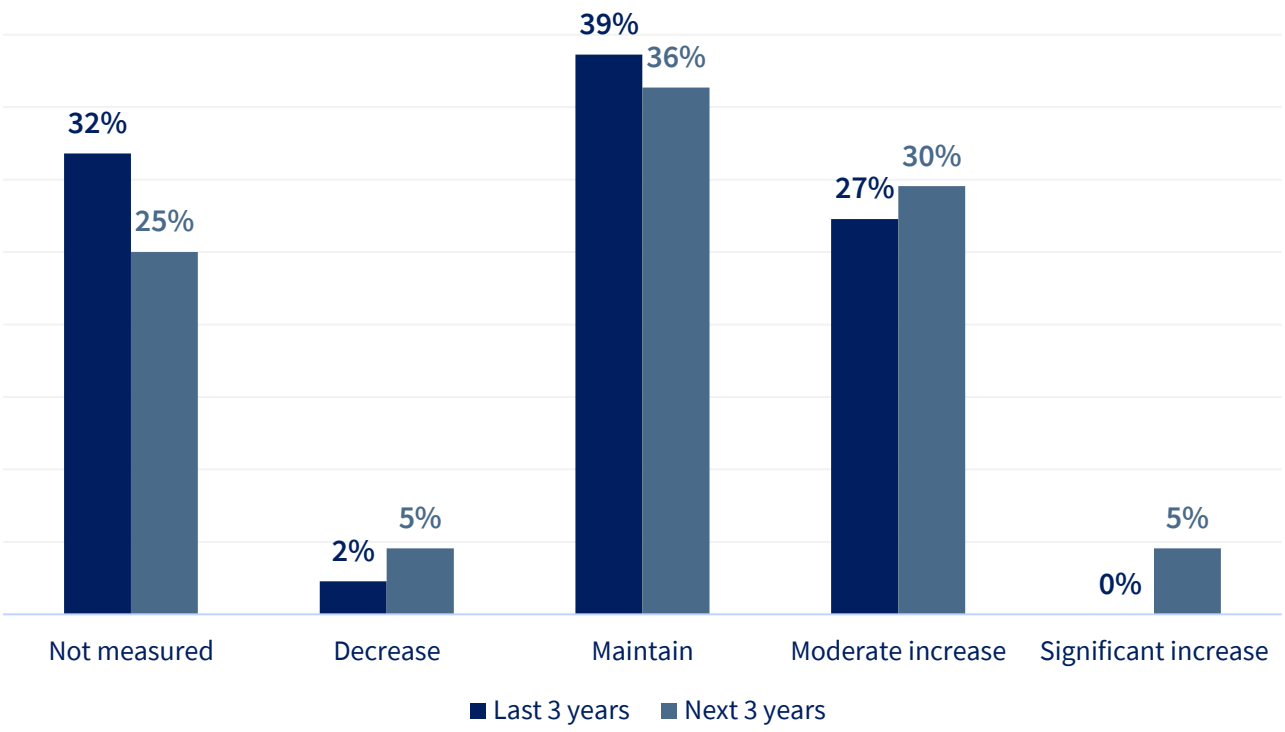
The rest of the sample is split between those that say they do not invest in water at all (29.5%) and those unable to say how much they invest (15.9%).

The outlook for the next three years does not change the picture: maintaining current levels prevails, significant increases remain marginal (5%) and one company in four expects not to measure its water investments yet. A sign that the topic is not perceived as urgent.

The perspective of Euro-Mediterranean companies

«A business case with a clear, fast economic return is still hard to demonstrate today: water still costs too little compared with the investment needed. What really drives action is business continuity, not direct financial return»

Approach to water management investment *(«Over the last 3 years and the next 3 years, how have your company's water management investments evolved and how do you expect them to evolve?»)**



*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

Future priorities extend water management toward efficiency, circularity and supply chain engagement

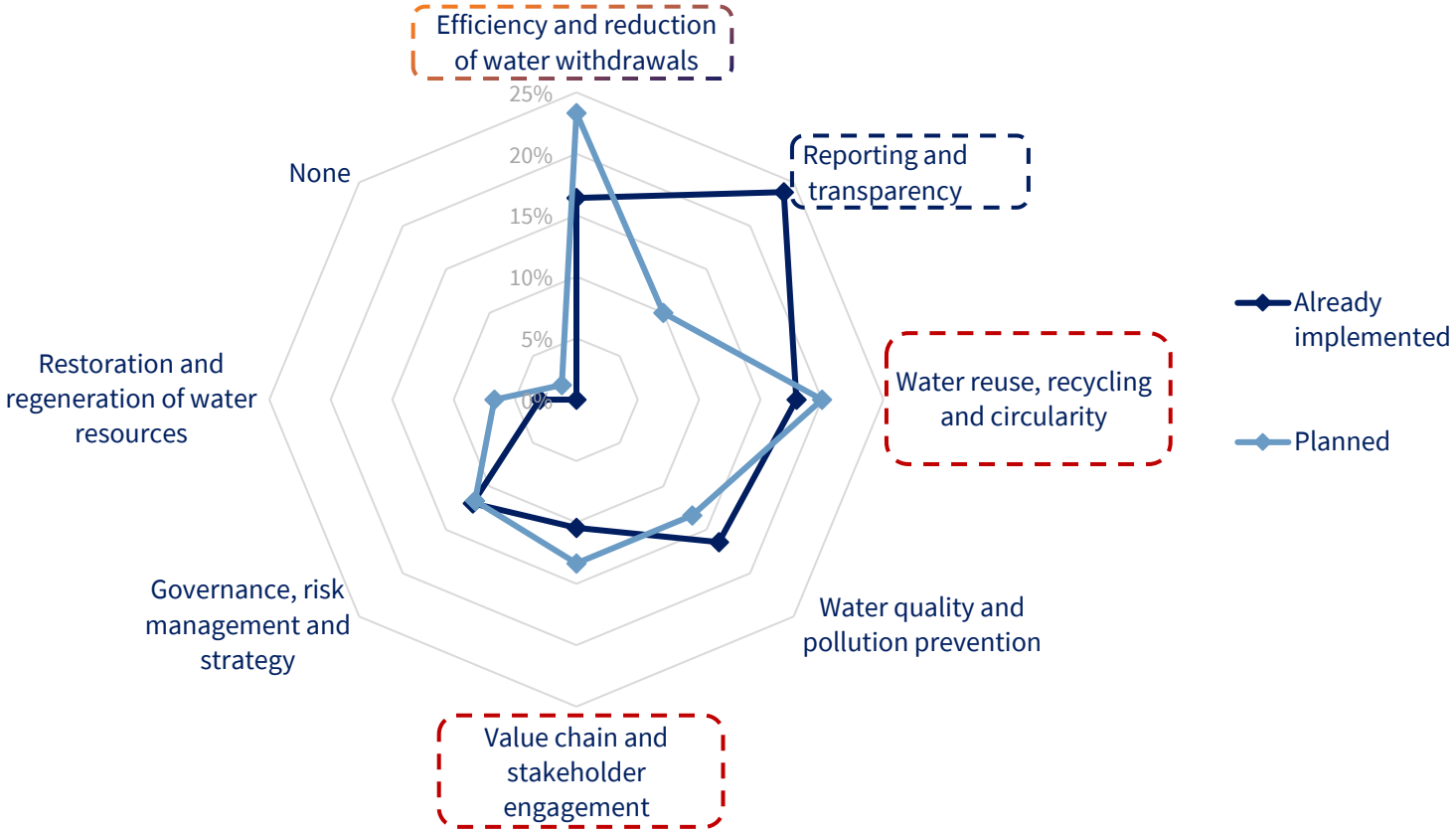
The actions implemented focus on two operational areas: efficiency and reducing water withdrawals, and reporting, areas in which companies have built up the most experience and already have measurement tools.

Beyond consolidating efficiency and withdrawal reduction measures, **planned priorities show greater momentum toward stakeholder engagement and the value chain**.

The perspective of Euro-Mediterranean companies

«The biggest waste is not in missing technologies, but in processes that were never questioned again. The fastest results came from almost zero-cost interventions, starting from a detailed mapping of uses: measuring is the first investment, not the last»

Actions implemented and planned *(«Which of the following actions have you already implemented?»; «Which of the following actions are being planned?»)**

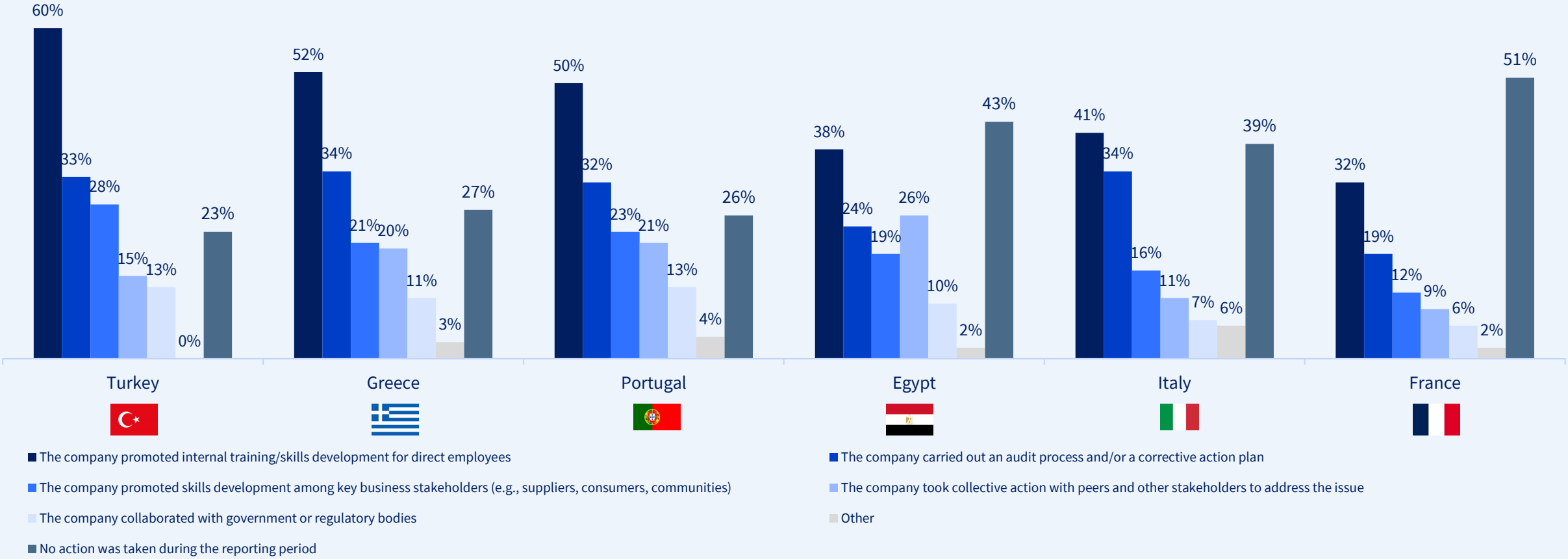


*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

Across the Euro-Mediterranean area, training and audits lead the actions, but 44%* remain inactive

Actions

(«What actions did the company take during the reporting period to prevent/mitigate water-related risks/impacts?»)



Source: data extracted from the «Environment» section of the 2025 Digital Questionnaire for Italy, France, Greece, Portugal, Turkey and Egypt. (*) 44% is the overall value, summing all respondents across the 6 countries.

The business case for water remains mainly about protecting the business rather than generating growth

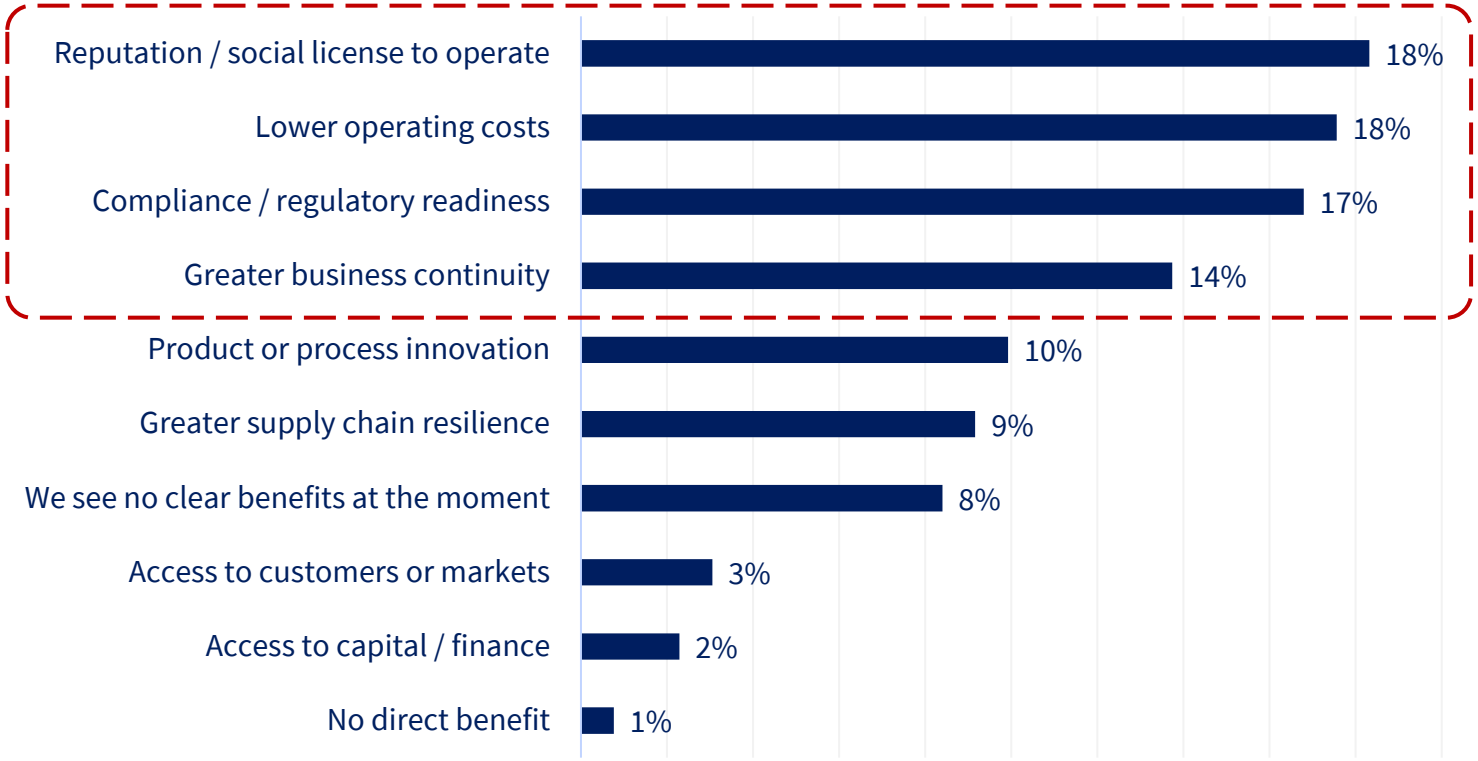
Business development benefits remain marginal: access to customers and markets (3%) and access to capital (2%) rank last among perceived benefits.

The reputational benefit emerges mainly in infrastructure, which accounts for 29% of respondents. This suggests that the business case for water management is still built mainly from a defensive perspective, focused on reducing risks and strengthening business resilience.

The perspective of Euro-Mediterranean companies

«The calculation that convinces is not how much the investment returns, but how much it costs not to make it: what happens to the company the day a site can no longer withdraw water»

*Perceived benefits of investment («What business benefits do you mainly associate with water management investments?»)**



*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

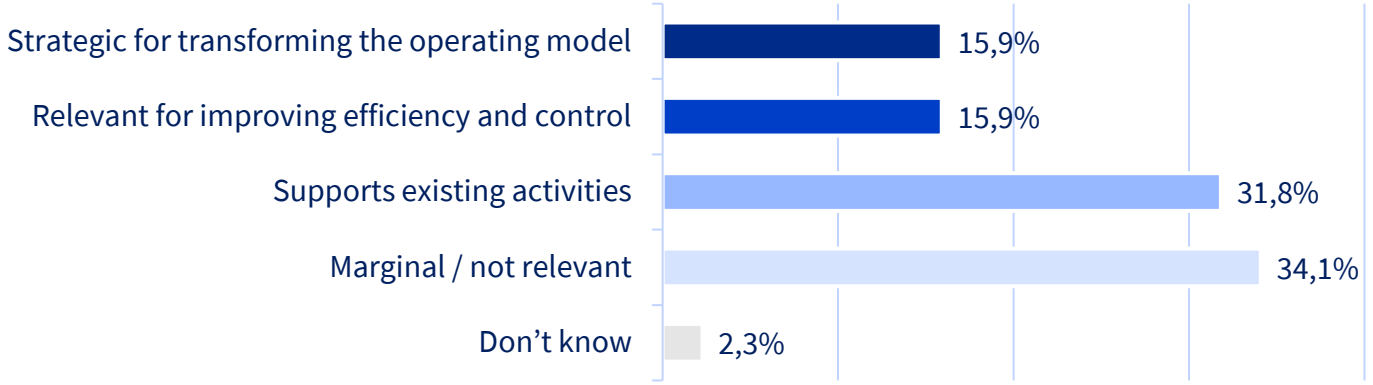
43% collaborate with external partners, but only 7% in a structured way

The picture on the role of innovation remains cautious: only 15.9% consider it strategic for transforming the operating model, while another 15.9% consider it relevant for efficiency and control.

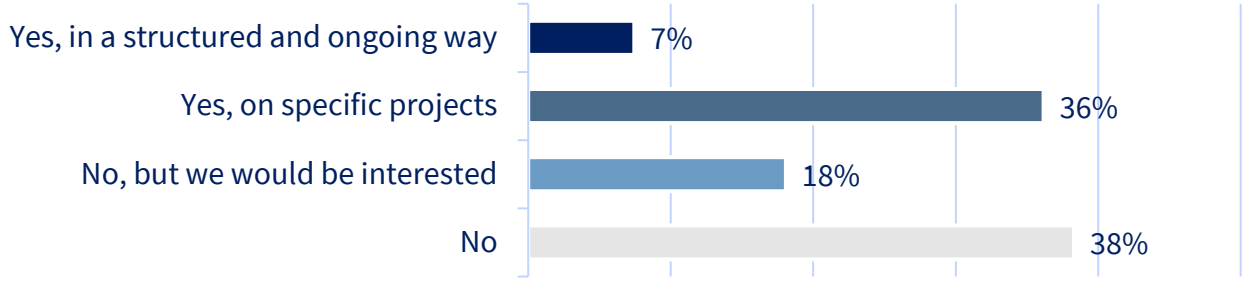
The picture on external collaboration is more dynamic: 43% of companies already work with external partners to develop water management solutions. Project-based collaborations prevail (36%), however, while only 7% have structured, ongoing relationships. Collaboration is therefore already widespread, but still rarely built into water management models on a stable basis.

Companies that collaborate externally also tend to be those that value innovation and invest more: these are parts of the same approach.

Perceived role of innovation *(«What is the role of innovation in managing, protecting and optimizing water in your company?»)**



Collaboration with external partners *(«Do you collaborate with external partners to develop water management solutions?»)**

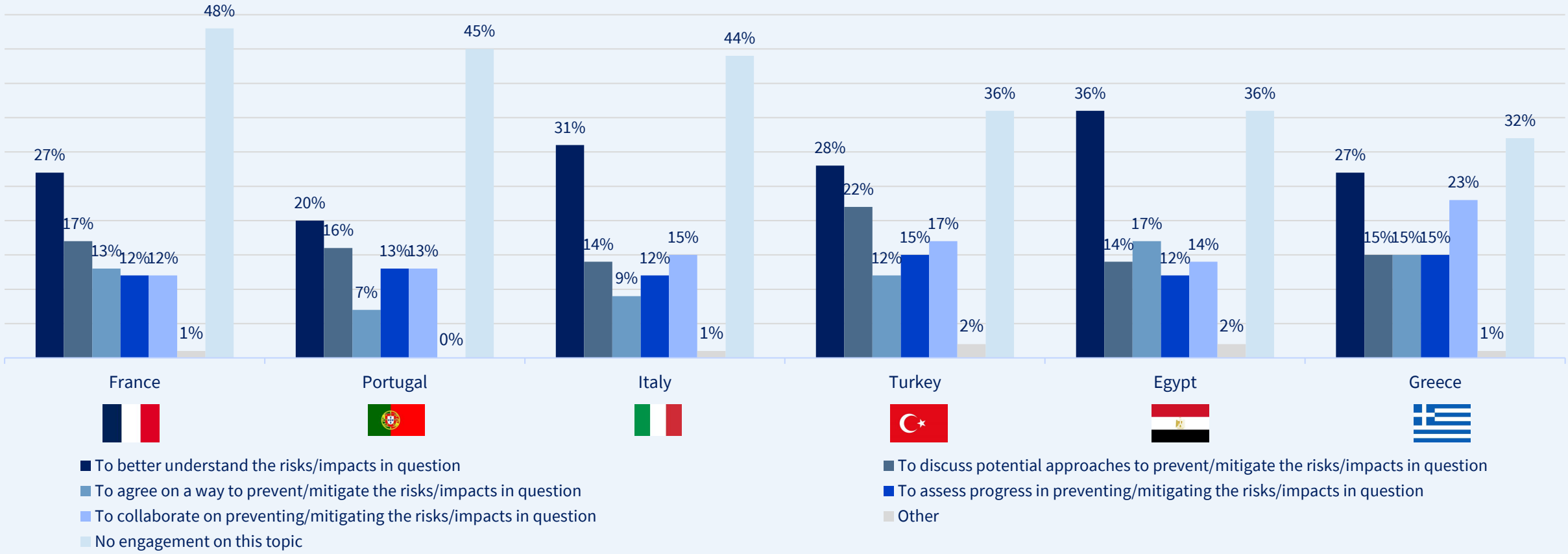


*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

Where it exists, stakeholder engagement aims to understand the risks faced and the impacts generated

Stakeholder engagement

(«During the reporting period, did the company engage with potentially affected stakeholders, or their direct representatives, on water?»)



Source: data extracted from the «Environment» section of the 2025 Digital Questionnaire for Italy, France, Greece, Portugal, Turkey and Egypt.

2.4. BARRIERS

The challenge is turning available solutions into investments that can actually be made: high costs, uncertain returns and regulatory complexity add to internal gaps in priorities and skills. Incentives are the top request, but almost 8 in 10 companies don’t know them or can’t access them.

64% consider the regulatory framework moderately adequate, but fragmentation and unpredictability hold back investment

Overall, the regulatory framework supporting water management investment is judged positively, but not uniformly: 64% of companies consider it adequate or moderately adequate, while 37% consider it inadequate or not at all adequate.

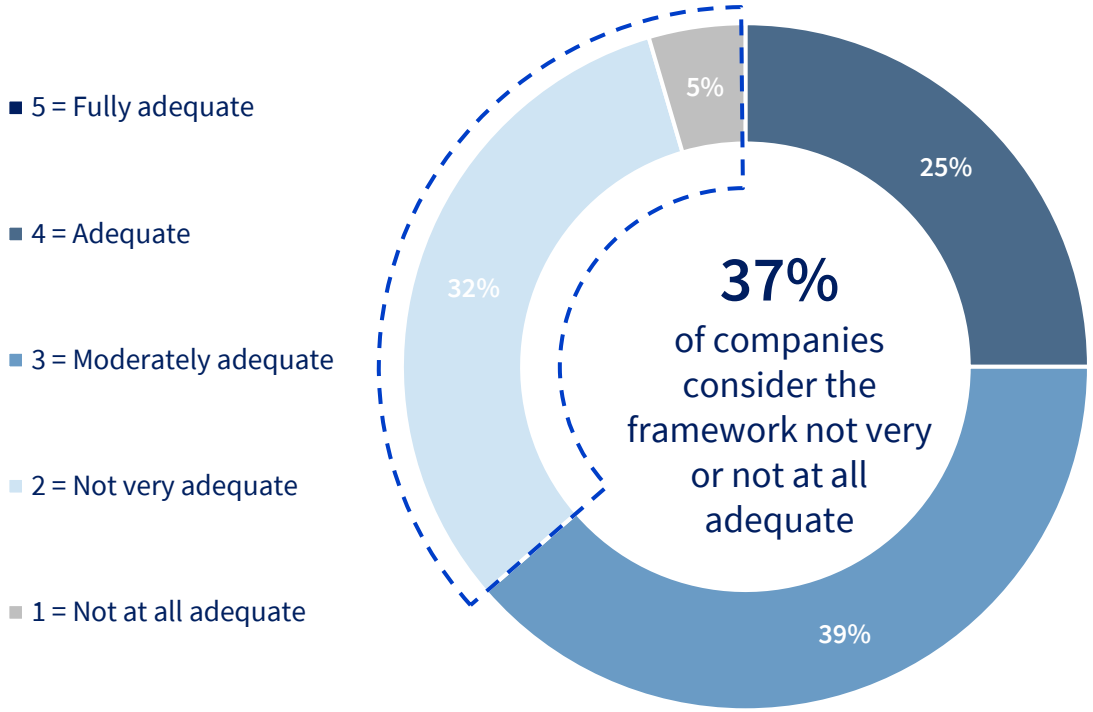
Among companies that do not invest or cannot quantify their investments, 60% consider the framework inadequate or not at all adequate; among those that invest, 83.3% consider it at least moderately adequate.

Regulatory and implementation fragmentation across areas and sectors, together with unpredictable permitting, hampers investment planning. Companies are asking for clearer guidelines, incentives and coordinated governance. Priorities include water reuse, technological innovation, infrastructure and basin-level interventions.

The perspective of Euro-Mediterranean companies

«The same solution is allowed in one area and banned in the next, and some rules cancel each other out: those who reduce withdrawals end up with more concentrated discharges and risk non-compliance. The system has every link in the chain ready, but lacks overall governance»

Adequacy of the regulatory framework *(«How adequate do you consider the regulatory and policy framework to support water management investment?»)**



*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

The main barrier is building a business case: costs, regulation and uncertain returns weigh most

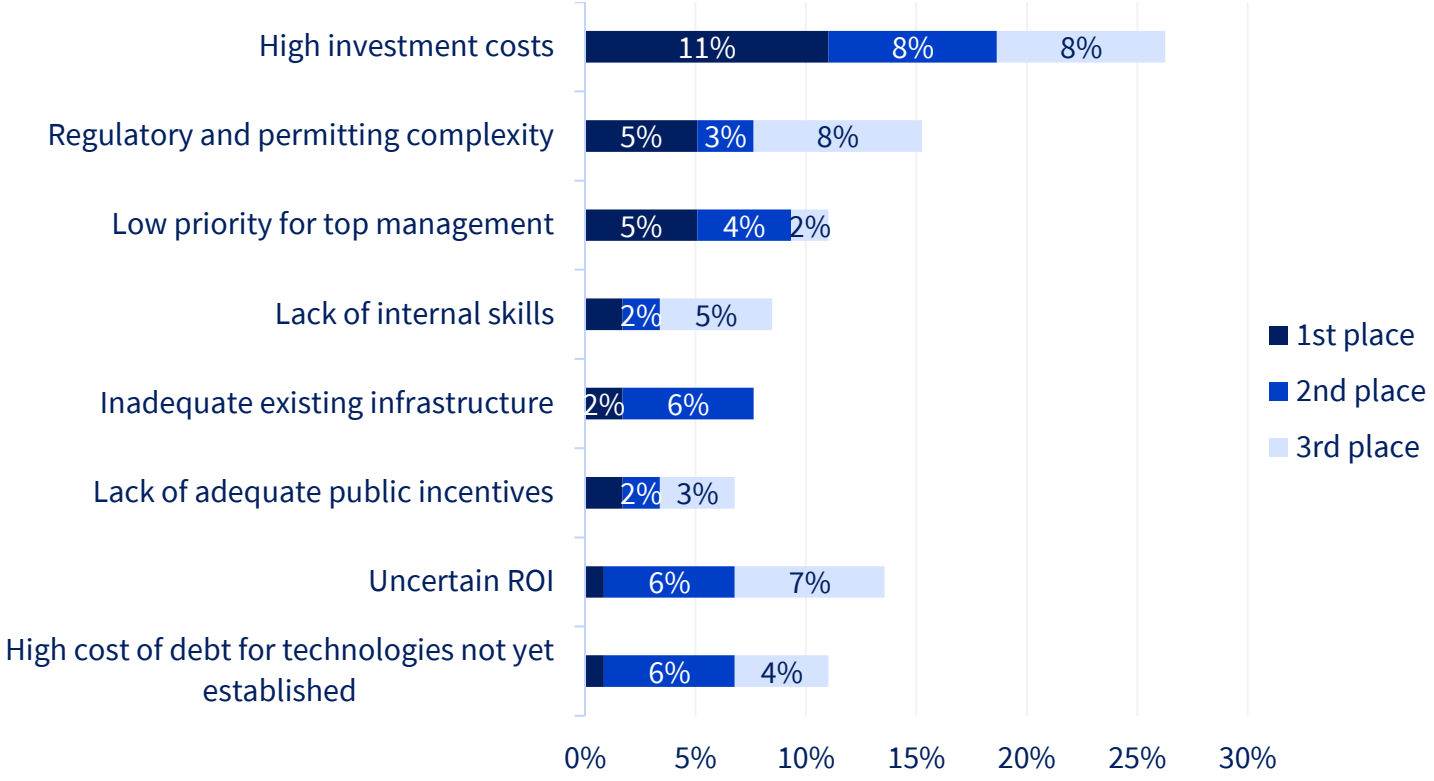
Companies identify high investment costs, regulatory complexity and uncertain economic returns as the main obstacles to the transition to a Water Smart Economy.

These barriers stem at least partly from internal organizational factors. The limited priority top management gives the topic and the lack of dedicated skills can make it harder to assess water-related risks and opportunities, build a credible business case and demonstrate the return on investment. Notably, about a quarter of companies selected "Other" among the main barriers.

The perspective of Euro-Mediterranean companies

«The technologies are already there: the real obstacle is adoption, which depends on awareness, consistent rules and willingness to share risk. Without standard indicators you cannot build a business case, and without skills the most advanced systems stay switched off in the control room.»

Main perceived obstacles *(«What are the main obstacles holding your company back from adopting more advanced water management solutions?»), distribution of categories indicated as first choice**



*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

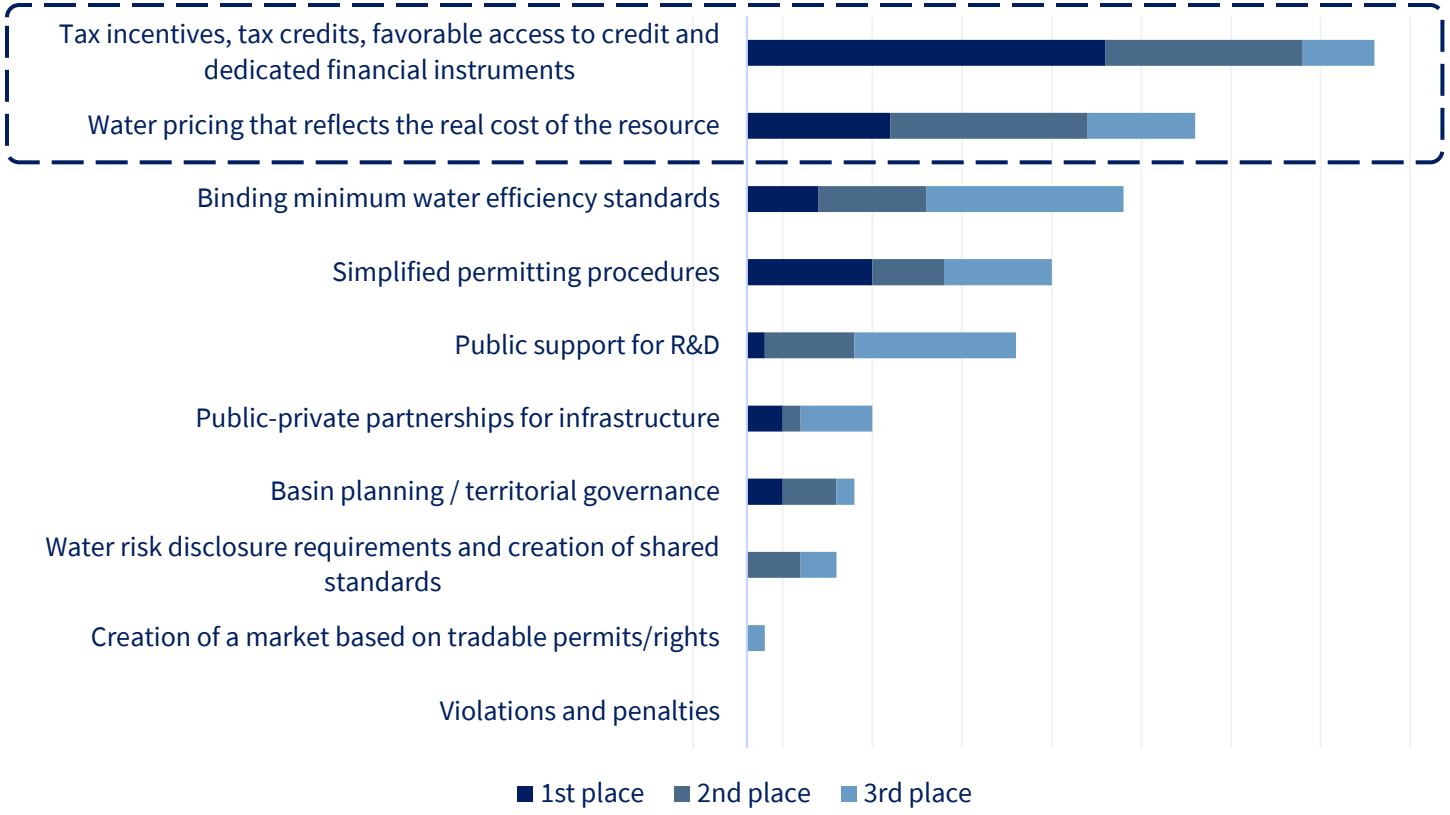
Incentives are the top request, but almost 8 in 10 companies don't know them or can't access them

Companies see economic and financial measures as the most effective levers to accelerate water management investment and innovation: tax incentives, subsidized credit and dedicated financial instruments rank first, followed by pricing that reflects the real cost of the resource.

A major gap emerges, however: almost 80% of companies say they are unaware of (72%) or have no access to (6.8%) the incentives already available, and only 11.5% have actually benefited from them. The most requested lever is also the least used.

Companies see innovation mainly as an operational and technological lever: automatic data collection, real-time monitoring, sensors and digital tools to measure consumption, performance and impacts.

Enabling levers *(«Which policy measures do you consider most useful for accelerating water management investment and innovation?»)**



*TEHA analysis based on responses from 44 companies in the TEHA Survey on the Water Smart Economy.

Global Compact Network Italy

TEHA

3. UN Global Compact participants' water management practices

How we worked

Collection of company initiatives

The collection of initiatives took place alongside the survey of companies in the countries involved in the project and covered the Global Compact Country Networks that joined the initiative: Italy, France, Portugal, Turkey, Greece and Egypt.

Participants: A2A SpA, Acea Ato2 SpA, Acquedotto Pugliese, Aeroporti di Roma, Águas e Energia do Porto, Anadolu Efes, Antipollution S.A., Aquanexa Srl, Bolton Group, Coca-Cola İçecek A.Ş. (CCI), Edison SpA, Egytrans NOSCO, Ferrari N.V., Gruppo CAP, Gruppo Mastrotto SpA, Hellenic Environmental Center S.A. – Green Ports Group, Industrial Development Bank of Türkiye (TSKB), Irritec S.p.A., ISOMAT, Kazan Soda Elektrik Üretim A.Ş. (WE Soda), MAIRE, PPC, Sanpellegrino S.p.A., Séché Environnement

To ensure consistency, comparability and quality of content, companies were asked to follow a common template when preparing their cases, organized as follows: 1. Challenge addressed, i.e., which water-related problem prompted the intervention; 2. Action implemented, with a clear explanation of what was actually done (technology, process, partnership, etc.) and how the project exemplifies the contribution to a water-smart economy; 3. Implementation, i.e., how the project was planned, delivered and monitored (strategy, processes, operations, indicators/KPIs if available), with a description of how it was carried out (investment, governance, stakeholder engagement); 4. Results, i.e., the benefits and impacts achieved.

The initiatives collected were reviewed by the UN Global Compact Network Italia Secretariat, which could propose additions or changes, agreed with the submitting companies, before their inclusion in the final report.

Breakdown by water use and sector of the 25 responding companies

Water use	Sector	No.	%
Energy production & storage	Energy & power	2	7.4%
Financial institution	Financial services	1	3.7%
Industrial uses	Food & beverage	4	14.8%
	Industrial manufacturing & services	4	14.8%
	Materials, metals & construction	3	11.1%
	Waste & environmental services	2	7.4%
	Transport & infrastructure	1	3.7%
Irrigation	Industrial manufacturing & services	1	3.7%
Urban water networks / Utilities	Water utilities & networks	6	25.9%
	Transport & infrastructure	1	3.7%
Total companies	-	25	-

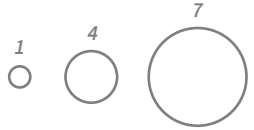
The levers of the Water Smart Economy: how companies act along the water value chain

The best practices collected were classified by the company's main water use and then by type of intervention, distinguishing between solutions aimed at reducing risks and dependencies and solutions aimed at reducing impacts, further broken down by specific area of action.

	REDUCES RISKS AND DEPENDENCIES			REDUCES IMPACT		
Company's main water use based on sector and business	*Infrastructure resilience & storage* *Strengthen infrastructure and storage capacity*	*Risk assessment & decision-support tools* *Measure water risk to guide investment decisions*	*Water reuse / circularity & operational efficiency* *Reuse water in production processes to reduce withdrawals*		*Digital monitoring & predictive management* *Monitor and forecast to detect leaks and optimize the network*	*Nature-based / regenerative solutions* *Regenerate basins and ecosystems beyond the company perimeter*
Energy production & storage	●					
Financial institution		●				
Industrial uses			●	●		●
Irrigation				●		
Urban water networks / Utilities	●	●	●		●	●

**Methodological note*: the matrix shows the reclassification of the best practices collected and is not an exhaustive census of all possible water management initiatives companies could implement. When an initiative generates benefits both in reducing risks/dependencies and in reducing impact, it was classified in the category where its contribution is greater.

Legend: number of solutions collected



A shared Euro-Mediterranean direction: reduce dependencies and impacts to build water resilience

ENERGY PRODUCTION & STORAGE

Water becomes dual-use infrastructure: energy storage and water resilience in the same asset

- Companies maximize the value of existing infrastructure rather than building new assets, cutting permitting time and risk.
- Pumped-storage hydropower proves to be a lever with a triple benefit: energy security, water risk management and protection of downstream ecosystems.

INDUSTRIAL USES

Internal reuse is the most mature lever

- Companies turn discharges into a resource, reducing dependence on external sources and exposure to extreme events.
- Low-investment measures (monitoring, maintenance, site audits) generate measurable returns even before infrastructure capex.
- A group of companies extends action beyond the production perimeter, shifting competitiveness from the individual factory to the resilience of the local area and the supply chain.
- Business continuity, not direct economic return, drives investment priorities.

FINANCIAL INSTITUTION

Water risk becomes part of lending criteria

- Climate and water risk assessment moves upstream of financing, becoming a condition for access to credit. In this way, financial institutions take an active role in steering investment toward adaptation, anticipating regulatory demand.

IRRIGATION

Irrigation efficiency integrates water, energy and materials into a single strategy

- Precision irrigation combined with digital platforms moves the sector from a single-resource approach to integrated water-energy-carbon management.

URBAN WATER NETWORKS / UTILITIES

Network digitalization turns management from reactive to predictive

- Italian utilities are using the PNRR to accelerate a structural technological leap, not only to fund routine maintenance.
- The reuse of treated water, still marginal in the collection, is emerging as the next frontier, including for financial innovation (water credits).

3.1. The role of water in the energy transition

Energy production & storage

Financial institution

Industrial uses

Irrigation

Urban water networks / Utilities

Company: PPC (ΔΕΗ), Country: Greece

Pumped-storage hydropower at the Nestos Complex

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Ensuring the different water uses are met with the same infrastructure (energy, irrigation, environmental flow), in both drought and flood conditions.

Solution

PPC made the most of the pumping function (transferring water from the downstream reservoir to the upstream one, to return it to production when needed) already present at the Thesaurus plant, within the multi-purpose Nestos hydroelectric complex (Thesaurus and Platanovrysi), as an integrated tool for water management and energy storage. Operations are based on daily production and pumping planning, continuous monitoring of hydrological and meteorological data and coordination with the Water Directorate of Eastern Macedonia and Thrace, Civil Protection, the municipalities of Nestos, Paranesti and Xanthi and irrigation consortia. No new hydraulic works were built.

Result

In the drought years 2024–2025, reusing the available reserves made it possible to maintain environmental flow, irrigation uses and the ecological status of water bodies despite reduced natural inflows; in winter 2025–2026, four consecutive floods were managed without activating the spillways, protecting downstream areas and preserving reserves.

Expected performance

- Pumped-water generation: +41% (61% of the complex's total hydroelectric generation vs. ~20% in 2010–2021)
- Pumped inflows: +54.5% in 2024 (850 million m^3 vs. 550 million m^3) and +70.5% in 2025 (1,100 million m^3 vs. 645 million m^3
- Flood management: ~50 million m^3 pumped against inflows of ~700 million m^3 on a usable volume of 500 million m^3, without activating the spillways

Company: Edison, Country: Italy

Pumped storage from existing Southern Italy reservoirs

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Meet the electricity system's needs for storage and flexibility while enhancing the value and full functionality of existing reservoirs, thereby increasing water availability for the surrounding area.

Solution

Edison is developing new pumped-storage hydropower plants by leveraging existing reservoirs that are currently subject to significant storage constraints, with the aim of restoring their full functionality and enhancing their value. Around 150 reservoirs across eight regions in Central and Southern Italy have been mapped, and more than 50 feasibility studies have been carried out, leading to the identification and selection of around a dozen sites suitable for pumped-storage development.The most advanced projects are Pescopagano (Basilicata) and Villarosa (Sicily), covered by an agreement with Webuild for investments of approximately €1.2 billion. For both projects, the Environmental Impact Assessment procedure has been successfully completed.

Result

The projects are currently undergoing the authorization process. Once completed, they will contribute to the restoration and enhancement of existing reservoirs, increasing water storage capacity to support agricultural and civil uses, as well as land and flood protection, without significant impacts on the water resource itself, thanks to the essentially closed-loop nature of the pumping cycle.

Expected performance

- Reservoirs mapped: ~150 in 8 regions of Center and Southern Italy
- Feasibility studies: over 50
- Suitable sites identified: about 12

3.2. Assessing water risk in investment

Energy production & storage

Financial institution

Industrial uses

Irrigation

Urban water networks / Utilities

Company: Industrial Development Bank of Türkiye, Country: Turkey

CRET: water risk in financing decisions

Infrastructure resilience & storage | **Risk assessment & decision-support tools** | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Assess and integrate water risk for a project's operational continuity in order to define financing eligibility conditions.

Solution

TSKB developed in-house the Climate Risk Evaluation Tool (CRET), a project-level physical climate risk assessment methodology integrated into the due diligence process and applied during appraisal, before the financing decision. The tool evaluates the site's exposure to drought, water stress, floods and extreme precipitation over two future time horizons under the IPCC RCP 4.5 and RCP 8.5 scenarios, using localized national-source data and global datasets (Aqueduct, Copernicus, NASA); the final risk score combines hazard, exposure, sensitivity and adaptive capacity.

Result

Water risks systematically enter the investment assessment and feed the dialogue with clients on adaptation measures during project preparation.

Expected performance

- Risk score per project, over 2 time horizons and 2 IPCC scenarios (RCP 4.5 and 8.5)
- No direct water savings nor declared quantitative KPI: the tool acts on the quality of the investment decision

3.3. Reuse, circularity and efficiency in production processes

Energy production & storage

Financial institution

Industrial uses

Irrigation

Urban water networks / Utilities

Company: Bolton, Country: Italy, Sector: Consumer goods

Water assessment at plants in areas of high water stress

Infrastructure resilience & storage | **Risk assessment & decision-support tools** | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Gaining a clear, site-by-site view of uses, water balances and risks (quality, scarcity, dependence on external supply) across Bolton's plants located in areas of high water stress or exposed to operational water risks, as a basis for defining and prioritizing reduction measures.

Solution

With external consultants, Bolton conducts structured field water audits (not desk-based document reviews but on-site operational checks) that map sources (mains, third parties, wells), process uses, discharges and treatment, inspect sources, plants and production lines, verify monitoring and permits and identify quality and scarcity risks. Each plant draws up an action plan with prioritized technical and management measures.

Result

Work in progress: coverage is currently partial (audits completed at 6 of 12 plants, to be finished by 2028). The result achieved is the quantification and prioritization of site water risks, translated into roadmaps of measures focused on business continuity, compliance and safety.

Expected performance

- Definition of a new water withdrawal reduction target, supported by a bottom-up feasibility assessment

Reduces risks | Reduces impacts

Company: Kazan Soda Elektrik, Country: Turkey, Sector: Materials and metals

Treated urban wastewater in soda production

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Securing a resilient alternative water source for natural soda production in a water-stressed basin, where prolonged drought, declining rainfall and the prioritization of water for communities have increased pressure on shared water resources. With regional reservoir levels falling to approximately 5% in 2025, alternative water reuse solutions became critical to reducing risks for both industry and the environment.

Solution

Kazan Soda built an 18.25 km pipeline from the Kahramankazan Municipal Wastewater Treatment Plant, operated by ASKI (Ankara Water and Sewerage Administration), and installed an advanced treatment system including dissolved air flotation (DAF) and reverse osmosis. The system enables the reuse of treated urban wastewater as process water for soda ash production, promoting water circularity and reducing reliance on conventional water sources. The project also builds on previous water efficiency improvements through process optimization and internal water recovery initiatives.

Result

The project was commissioned in July 2026, introducing a new non-conventional water source for soda ash production and establishing a circular water management approach through the reuse of treated urban wastewater. By replacing a significant portion of freshwater demand with reclaimed water, the project reduces pressure on shared surface and groundwater resources while strengthening long-term resilience against water scarcity.

Expected performance

- Expected reuse: ~9,000 m^3/day, equal to ~3.3 million m^3/year
- Share of process demand from alternative sources: ~50%
- Reduced reliance on shared surface and groundwater resources
- Economic co-benefits: lower water sourcing costs with a short payback period

Company: ISOMAT, Country: Greece, Sector: Materials, metals and construction

Biological treatment and water reuse in Thessaloniki

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Gradually reducing liquid effluent and freshwater consumption in production, while handling a larger volume of effluent by integrating both the company's industrial and municipal wastewater into a single process

Solution

At its Agios Athanasios site (Thessaloniki), ISOMAT completed a new biological treatment plant that replaces the previous one, with higher capacity and able to treat the company's industrial and domestic wastewater together: sedimentation and flocculation, sludge thickening and centrifugal separation to extract as much water as possible, followed by oxidation in an aeration tank. The outputs are sludge, handled by an external operator, and treated water.

Result

A significant share of the treated effluent returns to production with guaranteed quality, reducing groundwater and mains water withdrawals and the discharge load. The amount is not quantified in the case sheet.

Expected performance

- N/A

Company: Antipollution, Country: Greece, Sector: Manufacturing

Vertical garden

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Turning water flows currently treated as waste (rainwater and equipment washing water) into a reusable resource, moving from a linear consumption model to a circular one without affecting the plant's operational continuity and efficiency

Solution

At its Aspropyrgos site, Antipollution designed and installed a functional vertical garden that works as an active natural treatment system: hardy, low-maintenance plant species and a specially designed substrate filter rainwater and equipment washing water, which is then reused to wash vehicles and equipment. The design is modular, allowing gradual expansion and replication at other company sites.

Result

Closed water loop at plant level, replacing freshwater in service uses and improving the local microclimate.

Expected performance

- N/A

Reduces risks | Reduces impacts

Company: Ferrari, Country: Italy, Sector: Manufacturing

Zero Liquid Discharge: industrial wastewater recovery

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Rethinking a production process (painting, foundry, mechanical washing) to control freshwater withdrawals, making use of a flow that was previously discharged

Solution

In November 2024, Ferrari installed downstream of its in-house treatment plant a recovery line consisting of a softener and a first reverse osmosis stage, which captures effluent from painting, foundry and mechanical washing before it is discharged to the sewer and returns it to the industrial water circuit. Dedicated meters monitor recovery and discharge. Next steps include a second osmosis stage, an evaporator and a crystallizer.

Result

The linear withdraw-use-discharge model was replaced by a circuit in which water is reused several times; with the first stage alone, most of the treated effluent already returns to production, reducing withdrawals and discharged volumes.

Expected performance

- Effluent recovered and returned: ~35,000 m^3/year (2025)
- Treated effluent recovery rate: 60%
- Reduction in annual process water demand: -3%
- Stated target: near-zero discharge with the second stage

Reduces risks | Reduces impacts

Company: Coca-Cola İçecek , Country: Turkey, Sector: Food and beverage

Advanced treatment and reuse of wastewater (cooling towers)

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Enhancing the quality of treated wastewater, which already complies with environmental discharge standards and supports aquatic life, to enable its reuse in utilities as cooling water. This is achieved through the integration of an advanced treatment process, including a membrane bioreactor (MBR), allowing higher-quality wastewater recovery in response to increasing water stress and rising water costs.

Solution

Coca-Cola İçecek integrated an advanced treatment system as a retrofit for the existing wastewater treatment plant: a membrane bio-reactor (MBR) for the removal of suspended solids and organic matter, activated carbon for dissolved organic compounds, ultrafiltration for fine particles and colloids, reverse osmosis for the reduction of dissolved salts, and final disinfection with ozone and UV rays for microbiological safety. The recovered high-quality water supplies utility systems.

Result

The advanced treatment enables a significant share of treated wastewater to be reused at the quality required for high-standard uses (such as cooling towers), reducing groundwater withdrawal and the discharge load. It also strengthens the site's water resilience against climate stress and supply-cost volatility.

Expected performance

- N/A

Reduces risks | **Reduces impacts**

Company: Gruppo Mastrotto, Country: Italy, Sector: Manufacturing (Fashion/Luxury)

Water credits and footprint in Vicenza's tanning district

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Managing the water footprint of a production process beyond the company perimeter, turning an impact that was neither measured nor priced into a measurable value that can be traded at local level

Solution

Gruppo Mastrotto takes part as a pilot company case in the Life project «Svolta Blu» (2024–2028, coordinated by Viacqua and funded by the European Union's LIFE program), which is testing in the Vicenza plain a voluntary system of "blue credits" (certified units representing a measurable water benefit) that rewards water saving, reuse, conservation and groundwater recharge measures. The company provides its production context for calculating the water footprint, builds the consumption baseline, defines monitoring indicators and evaluates efficiency, recovery and reuse measures.

Result

Project in progress: no results are available yet. The expected outcome is the validation of the blue credits model and a consumption baseline to guide reduction investments.

Expected performance

- Specific water consumption per unit of product
- Volumes recovered and reused
- Blue credits generated and associated groundwater recharge volumes

Reduces risks | **Reduces impacts**

Company: Maire, Country: Italy, Sector: Manufacturing

Desalination and construction site wastewater in the UAE

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Reducing freshwater consumption at construction sites in a highly water-stressed area such as the UAE, where freshwater is scarce and must be bought and transported from third parties, even though seawater is plentiful.

Solution

In 2025 MAIRE installed reverse osmosis plants at the Group's two main construction sites in the United Arab Emirates, Hail & Ghasha and Borouge IV. At Borouge IV, in the Ruwais area on the Persian Gulf, the plant treats not only seawater but also wastewater from operations at the adjacent Borouge III site. The desalinated water is used for hydraulic testing, equipment cleaning, dust suppression and irrigation, replacing water bought from third parties and delivered by tanker truck.

Result

Purchases of large volumes of water from external suppliers, and the emissions from transporting it, were eliminated; connecting two adjacent sites made it possible to recover additional volumes that would otherwise have been discarded.

Expected performance

- Cumulative water treated at the two plants: 92,000 m^3, equal to the freshwater saved
- Borouge IV: ~56,000 m^3 in 8 months of continuous operation (January–August 2025)
- Indicator monitored monthly: m^3 of treated water produced by the plant

Reduces risks | Reduces impacts

Company: Hellenic Environmental Center S.A., Country: Greece, Sector: Environmental services

Circular treatment of oily liquid waste in Greek ports

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

The collection, transportation and management of liquid oily waste generated from maritime and industrial activities-a process of high technical complexity and particular environmental sensitivity-aimed at safeguarding water resources and the integrity of marine ecosystem, in full compliance with the provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

Solution

Hellenic Environmental Center S.A. operates an integrated system for the collection and transportation of liquid oily waste. The Company utilizes a dedicated fleet of tank trucks and vessels for the collection, transportation and storage of waste falling under Annexes I, II, IV and VI of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). The treatment of such waste in its licensed facility is based on proprietary technology protected by international patents (WIPO, USA, China, United Arab Emirates, India and South Africa). The process is governed by the principle of Zero Waste. Real-time monitoring of operational and environmental parameters constitutes a key aspect of the Company's circular activities.

Result

Prevention of marine pollution and environmental contamination. Safe collection and transportation. Complete purification and reuse of the water contained in the waste during the treatment process. Recovery of high-quality fuels reintroduced to the market. Production of alternative raw materials destined for industrial sectors.

Expected performance

- N/A

Reduces risks | **Reduces impacts**

Company: Séché Environnement, Country: France, Sector: Environmental services

Rainwater reuse for cooling at Beaufort

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Reducing a plant's dependence on mains drinking water, where about 95% of water consumption feeds the cooling tower, by using a local resource that was already available but unused (rainwater)

Solution

Analysis of consumption at the Beaufort solvent regeneration site identified the cooling tower as the dominant point of use. The site therefore made use of an existing 500 m^3 tank that collects rainwater from about 2,400 m^2 of roofs, installing a pumping system to the tower, a backflow prevention device to protect the drinking water network, filtration and disinfection, and adapting operating parameters and maintenance procedures. Mains water remains as a back-up source. Work started in early 2024 and the system was commissioned at the end of March 2024.

Result

Withdrawals from the mains almost halved and, by managing storage capacity according to the season, the site is less exposed to droughts and use restrictions. The methodology can be replicated at other Group sites.

Expected performance

- Mains water consumption: -46% (from ~4,000 to ~2,000 m^3/year)
- Share of drinking water consumption used by the cooling tower before the intervention: ~95%

Reduces risks | **Reduces impacts**

Company: Egytrans NOSCO, Country: Egypt, Sector: Transport and infrastructure

Digital monitoring for tank washing efficiency in Egypt

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Improve the water efficiency of a water-intensive activity such as ISO tank washing, and contain wastewater while increasing processed volumes, without resorting to new infrastructure investments but acting on monitoring, maintenance and behaviours.

Solution

In 2024 Egytrans Depot Solutions (a subsidiary of Egytrans NOSCO) acted on operations rather than on new plants: upgrading the environmental monitoring and wash management software for precise visibility of consumption and wastewater, strengthening preventive maintenance with more frequent inspections of valves, pipes, hoses and washing equipment, revising operating procedures, targeted training of technicians and including the water topic in toolbox talks and HSE meetings. Minimal capital investment.

Result

Against a significant increase in tanks washed, the wastewater generated remained stable and emissions per tank fell by one fifth: resource productivity increased without new water infrastructure.

Expected performance

- Tanks washed: 1,744 vs 1,472 in 2023 (+18.5%)
- Wastewater generated: 160.0 vs 160.8 tonnes
- Water consumption 2024: 5,053 m^3
- Emissions per tank: 0.20 → 0.16 $mtCO_2e$ (-20%)

Reduces risks | **Reduces impacts**

Company: Sanpellegrino, Country: Italy, Sector: Food and beverage

F.O.N.T.E.: groundwater recharge and land regeneration

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | **Nature-based / regenerative solutions**

Challenge

Protecting the ability of source basins and ecosystems to regenerate the resource the business itself depends on, since the company's product is mineral water itself.

Solution

In 2025, Sanpellegrino launched the F.O.N.T.E. program (Future, Origin, Nature, Territory, and Ecosystems), comprising communication initiatives developed in collaboration with institutions, universities, consortia, and local authorities to protect water resources, safeguard biodiversity, and enhance local areas. The program also operates beyond the company's own boundaries, intervening in watersheds, ecosystems, and infrastructure of public interest, thereby generating direct environmental benefits for local territories and communities. Key initiatives include: Valdisotto, Valtellina (Lombardy) – a project launched to restore and reforest a portion of the 115 hectares of forest damaged by Storm Vaia in 2018. Middle Brenta Basin (Veneto) – as part of the *Bosco Limite* project, two infiltration basins fed by the Brenta River were constructed to facilitate aquifer recharge in the area. Nossana Spring, Bergamo (Lombardy) – construction of a filtration plant for the Nossana spring is underway, involving an investment of over €11 million; upon completion, the facility will be handed over to Uniacque to supply water to municipalities in the Bergamo area. Paradiso Area, San Pellegrino Terme (Lombardy) – redevelopment of the area is in progress with a total investment of approximately €10.7 million, aimed at restoring and enhancing the territory's historical and natural heritage. Tenuta Panna and Oasi del Gabbianello (Tuscany) – implementation of agroforestry measures, wetland protection, restoration of water supply, and habitat improvement for the benefit of biodiversity and local ecosystems.

Result

The initiatives included in the F.O.N.T.E. program aim to strengthen water resource availability, protect biodiversity, and improve the resilience of ecosystems and territories through concrete, measurable interventions.

Expected performance

- Valtellina: water-related benefits from reforestation exceeding approximately 1 million m^3 over the 2023–2033 period
- Middle Brenta Basin: groundwater recharge capacity of approximately 750,000 m^3/year
- Nossana Spring: plant treatment capacity of approximately 3.9 million m^3/year
- Paradiso Area: restoration and enhancement of historical and natural heritage, improved accessibility, and biodiversity protection
- Gabbianello Oasis: restoration of an area of approximately 25 hectares and expansion of the wetland area by over 2 hectares

Reduces risks | **Reduces impacts**

Company: Anadolu Efes, Country: Turkey, Sector: Food and beverages

Regenerative agriculture in the barley supply chain in Turkey

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | **Nature-based / regenerative solutions**

Challenge

For Anadolu Efes, climate resilience begins long before brewing – it begins in the soil. Since 1982, Anadolu Efes has invested in Türkiye's barley value chain, developing drought-resilient barley varieties through its own agricultural engineers and supporting farmers in their cultivation. Today, 81% of agricultural raw material purchases come from areas exposed to high or very high water stress, while barley productivity could decline by up to 15% by 2050. Building a resilient barley supply therefore requires going beyond water efficiency to regenerating soil health and its natural capacity to retain water and sustain productivity.

Solution

Anadolu Efes is evolving more than four decades of agricultural engagement into a regenerative model designed for a changing climate. Through its Regeneration From Field to Bottle Program, developed with Anadolu Meraları, the company is testing a transition from conventional practices towards regenerative barley production. Following soil analysis, pilot fields combine no-till sowing, organic inputs and vegetative ground cover to rebuild soil health and improve its natural capacity to retain water.

But the model goes beyond changing farming practices. Anadolu Efes combines field experimentation, farmer training, technical assistance, drought-resilient registered seeds and financial incentives, creating the conditions for farmers to participate in the transition. The ambition is to turn learnings from the pilots into a scalable pathway for the barley supply chain, with the long-term objective of sourcing 100% of barley through regenerative agriculture by 2035.

Result

In the pilot applications, the soil's capacity to retain water increased, along with organic matter, microbial biodiversity and carbon sequestration.

First-Year Pilot Results

- Soil water retention capacity: +13%
- Soil organic matter: up to +25%
- Population of beneficial bacteria and fungi: up to +23%
- Carbon sequestration: ~6.7 t/hectare

3.4. Water efficiency in the agri-food supply chain

Energy production & storage

Financial institution

Industrial uses

Irrigation

Urban water networks / Utilities

Company: Irritec, Country: Italy, Sector: Irrigation

Drip irrigation and circularity in agriculture, Italy

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Increasing crop productivity and resilience while reducing the water, energy and fertilizer intensity of traditional irrigation systems.

Solution

Irritec develops drip irrigation systems that deliver water directly to the root zone, reducing evaporation, runoff and deep percolation. The Cultivis digital platform optimizes irrigation volumes based on agronomic, climate and field data, while the Biospirit product line uses renewable, non-fossil raw materials. Through its Green Fields program, Irritec supports farmers in collecting end-of-life drip lines and identifies products with a lower carbon footprint. The company also promotes the irrigation use of treated wastewater.

Result

Lower water and energy consumption in the field, reduced emissions associated with water and fertilizer distribution, recovery of end-of-life pipes, and lower use of virgin raw materials.

Expected performance

- Distribution efficiency: 95–98%
- Productivity increases of 15–30% compared with traditional systems

3.5. Digitalization and resilience of water supply infrastructure

Energy production & storage

Financial institution

Industrial uses

Irrigation

Urban water networks / Utilities

Company: Acea Ato2, Country: Italy, Sector: Water utilities and networks

New pipelines for the resilience of the Simbrivio aqueduct

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Ensuring continuous, safe drinking water supply to more than 500,000 residents in a landslide-prone and geomorphologically complex area, where the existing aqueducts, dating from the 1930s and 1960s and nearing the end of their life, are vulnerable to ground failures that force them out of service.

Solution

Under the PNRR (M2C4, Investment 4.1 on primary water infrastructure), Acea Ato2 is building 16.5 km of pipelines between Monte Castellone and Colle Sant'Angelo: an initial DN1000 section from the Monte Castellone distribution chamber of the Nuovo Acquedotto Simbrivio Castelli, a DN600 section to the municipality of Genazzano and a final section along the SP Prenestina road to the Colle Sant'Angelo distribution chamber in Valmontone. The route avoids geomorphological risk areas or uses safe materials where this is not possible; monitoring includes online physical-chemical and water balance measurements. Intervention priorities derive from the risk scenarios of the Water Safety Plan and the company Emergency Plan.

Result

Work under construction: no results quantified yet. The project closes a hydraulic loop that replaces aqueducts dating from the 1930s and 1960s nearing the end of their useful life, replacing local sources of volcanic origin with permanent drinking-quality spring sources.

Expected performance

- N/A

Reduces risks | Reduces impacts

Company: Acquedotto Pugliese, Country: Italy, Sector: Water utilities and networks

Climate models for predictive water management in Apulia

Infrastructure resilience & storage | **Risk assessment & decision-support tools** | Water reuse / circularity & operational efficiency | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Ensuring long-term water supply in a region with no resources of its own, which depends for more than 84% on just seven external point sources.

Solution

Together with the Centro Euro-Mediterraneo sui Cambiamenti Climatici (Euro-Mediterranean Center on Climate Change, CMCC), Acquedotto Pugliese applied climate models and European databases (C3S Copernicus, Euro-Cordex) to its supply sources, quantifying climate risks to water availability and quality. The outputs are made available as maps and indicators on the Dataclime platform for the Southern Apennines River Basin District and feed into a control room that integrates field and remote-control data, linked to civil protection structures.

Result

A shift from emergency management to long-term resource planning: forecasts of the theoretical availability of reservoirs, springs and aquifers that make it possible to anticipate rationing scenarios and guide infrastructure investment.

Expected performance

- N/A

Reduces risks | Reduces impacts

Company: Gruppo CAP, Country: Italy, Sector: Water utilities and networks

Treated water reuse and Water Credits at Parco Nord Milano

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Closing the gap between the technical potential for reusing treated wastewater in Italy, estimated at 21%, and actual reuse, at about 4%, by tackling the infrastructure and economic barriers that limit its uptake.

Solution

Gruppo CAP developed an integrated urban reuse model by connecting the Bresso-Niguarda treatment plant to the irrigation network of Parco Nord Milano with a 3,580-meter HDPE pipeline, integrating UV disinfection, continuous metering and SCADA remote control. The total investment is €250,000. Alongside the physical reuse of water is the Water Credit WTR system: for every m³ of treated water reused and certified, a blockchain-tracked token is generated, which water-intensive companies can purchase. The model was developed with Hypercube and with technical and strategic support from AON.

Result

Treated water replaces groundwater withdrawals for irrigating lawns and supplying fountains and canals, helping preserve higher-quality resources for priority uses. Integration with Water Credits makes the water benefit measurable, traceable and potentially monetizable, turning a reuse project into a replicable water resilience model. The project reflects Gruppo CAP's evolution toward a role increasingly focused on the circular use of resources and the development of integrated solutions for the local area.

Expected performance

- ~500,000 m³/year of treated water reused at full capacity
- Guaranteed average flow: 50–60 m³/h
- 1 Water Credit WTR for every m³ reused and certified
- Lower groundwater withdrawals for non-potable uses

Company: Aeroporti di Roma, Country: Italy, Sector: Infrastructure

Circular water reuse at Rome Fiumicino airport

Infrastructure resilience & storage | Risk assessment & decision-support tools | **Water reuse / circularity & operational efficiency** | Digital monitoring & predictive management | Nature-based / regenerative solutions

Challenge

Supporting the airport's growth (more passengers and more floor area) while reducing water consumption and decoupling operational expansion from dependence on drinking water

Solution

Since 2012, Aeroporti di Roma has built at Fiumicino a circular water management model based on alternative non-potable sources and on reusing water treated by the airport's wastewater treatment plant, with a dedicated distribution network, advanced treatment, an IoT monitoring platform, leak detection technologies and network control.

Result

Three quarters of the airport's water demand is met by non-potable sources, and drinking water is reserved for uses that actually require its quality. Between 2019 and 2025 total consumption fell despite growth in floor area and passengers.

Performance achieved

- Share of demand met by non-potable sources: 75%
- Total water consumption: 2.12 → 1.89 million m^3 (-11%)
- Water intensity: 48.7 → 36.8 liters/passenger (-25%)
- Drinking water per passenger: 20.3 → 10.1 liters (-50%)

Company: A2A Ciclo Idrico, Country: Italy, Sector: Water utilities and networks

Digital twin and AI against leakage in the Brescia area

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | **Digital monitoring & predictive management** | Nature-based / regenerative solutions

Challenge

Recovering efficiency from an aging aqueduct network with high losses (M1b 39.2% in 2020), filling the gap in the real-time data needed to manage it.

Solution

A2A Ciclo Idrico applied an integrated leakage reduction program based on IWA best practices to the networks of the province of Brescia: GIS mapping and network digitalization, hydraulic modeling with Infoworks WS Pro and creation of digital models, progressive district metering, installation of smart flow, pressure and transient meters, replacement of customer meters with smart meters, an Early Warning System for water quality, leak detection with the AQUARIUS platform and artificial intelligence algorithms, and replacement of the most critical pipes identified by the models

Result

Losses fell by more than a third and management moved from reactive to predictive: early detection of bursts, continuous quality monitoring, lower pumping energy consumption and lower withdrawals from natural sources.

Expected performance

- Percentage losses (ARERA M1b): 39.2% → 23.64% (-39.7%)
- Linear losses (M1a): 23.84 → 16.26 m^3/km/day (-31.8%)
- District-metered network: 116.84 → 1,132.46 km
- Customer meters replaced with smart meters: 13,505

Reduces risks | **Reduces impacts**

Company: Aquanexa, Country: Italy, Sector: Water utilities and networks

Digital twin and smart metering in Valle Umbra

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | **Digital monitoring & predictive management** | Nature-based / regenerative solutions

Challenge

Recovering large volumes of water from an extensive, fragmented Apennine network with very high losses (~50% of the volume supplied) and no complete cartographic and functional knowledge of it, moving beyond purely reactive leakage management

Solution

Aquanexa, technical partner of Valle Umbra Servizi under the PNRR (M2C4-I4.2, project 143), digitalized 3,372 km of network across 22 municipalities with a "from pipe to data" approach: aerial photogrammetric survey over 12,811 hectares and 1:500 scale mapping, district metering with step tests, leak repair and replacement of the sections with the highest burst rates; on the digital side, demand- and pressure-driven hydraulic modeling, a digital twin of the distribution network, results-based leak detection with permanent pre-locators, a fixed LoRaWAN and NB-IoT remote reading network with more than 78,000 ultrasonic meters, a SCADA platform, a WMS system for the water balance and an asset management platform.

Result

The district water balance identifies hidden losses, billing is based on actual consumption and investment priorities are guided by models rather than emergencies.

Expected performance

- Estimated loss recovery: 3–4 million m^3/year, ~30% of initial losses and ~15% of the volume supplied
- Smart meters installed: 78,178 of 83,906 connections (93%)
- District-metered network: 2,569 km (PNRR target 1,076 km by 6/30/2025, 1,086 km achieved)
- Energy avoided: 1.5–2 GWh/year; emissions avoided: 450–650 t CO_2/year

Reduces risks | **Reduces impacts**

Company: Águas e Energia, Country: Portugal, Sector: Water utilities

InnoWave: AI against water losses in Porto

Infrastructure resilience & storage | Risk assessment & decision-support tools | Water reuse / circularity & operational efficiency | **Digital monitoring & predictive management** | Nature-based / regenerative solutions

Challenge

Further reduce non-revenue water in an already high-performing water system, moving beyond a reactive approach to leak detection in favor of a predictive, integrated and data-driven model.

Solution

Águas e Energia do Porto developed InnoWave, a digital ecosystem that integrates artificial intelligence, machine learning, GIS, operational data and customer information into three complementary tools: CIL Pressure for the analysis and optimization of network pressures; H2Leaks, which cross-references internal data with external variables (weather, population density, land use, traffic) to predict the areas with the highest probability of breakage; Repair Leaks ASAP, which prioritizes pipe replacements based on breakage history and the physical characteristics of the infrastructure. The models are trained on historical data and continuously validated by field technical teams.

Results

Steady trajectory of non-revenue water reduction since 2022, with fewer unnecessary interventions, faster decisions and greater reliability of monitoring systems.

Expected performance

- Non-Revenue Water: 14.8% (2022) → 11.76% (2025)
- Water losses per service connection, bursts recurrence, detection and response efficiency
- Scope: over 830 km of Water network, 171,000 customers, over 550,000 inhabitants served
- Broader impact: accelerating technological innovation in water efficiency and sustainability beyond water loss reduction

Global Compact Network Italy

TEHA

4. Creating the conditions to turn the value of water into decisions

One system-level enabling condition and 6 operational guidelines for companies and the water service

ENABLING CONDITION

Move toward international water pricing systems that reflect the actual value of the resource and encourage a more efficient use, integrating environmental costs and scarcity signals into supply and management costs, differentiated according to current and expected water availability in different areas.

HOW - The model should jointly consider:

- the **purpose and priority of use**, distinguishing between civil, agricultural, industrial and energy uses, taking into account the priority assigned to each use[1];
- the **type and intensity of the user**, differentiating pricing by sector and water use intensity[2],
- the **source of supply**, i.e., whether water is withdrawn from the mains, surface reservoirs, aquifers or rainwater[3];
- the **current and expected level of water stress**, considering how water conditions in the area will evolve in light of climate change and medium- to long-term scenarios[4],

introducing mechanisms that reward reuse and efficiency, while safeguarding access to the resource for essential uses and taking into account the social and economic impacts on different users[5].

WHO - The model should be defined by a multidisciplinary, multi-stakeholder panel able to integrate climate and hydrological data, knowledge of water systems and of industrial dynamics and needs, economic analysis and assessment of social and distributional impacts.

OPERATIONAL GUIDELINES

FOR COMPANIES AND FINANCE

MEASURE dependencies and integrate their value into business decisions, also involving local stakeholders.

INVEST in water efficiency and reuse, considering the future value of the resource.

INTEGRATE water risk into credit and investment assessments.

FOR THE INTEGRATED WATER SERVICE

STRENGTHEN the tariff lever to support the investment needed for a more efficient and resilient service.

STEER investment toward resilience, circularity, reuse and source diversification.

DIGITALIZE networks and assets to improve knowledge of the resource and target the greatest impact.

Global Compact Network Italy

TEHA

Source: (1) OECD, Water Resources Allocation, 2015; Zetland, D. (2021), "The Role of Prices in Managing Water Scarcity", Water Security; (2) Caravaggio, De Cesare & Di Liddo (2024), "Optimal water tariffs for domestic, agricultural and industrial use", Annals of Operations Research; Wen et al. (2023), Journal of Cleaner Production; (3) OECD, Toolkit for Water Policies and Governance, 2021; (4) Pulido-Velazquez, Alvarez-Mendiola & Andreu (2013), Journal of Water Resources Planning and Management; Monteiro (2011), Water Resources Research; (5) Zetland, D. (2021), "The Role of Prices in Managing Water Scarcity", Water Security

Translating the value of water into business and financial decisions to steer investment and capital

MEASURE

dependencies and integrate their value into business decisions, also involving local stakeholders.

PRIORITY ACTIONS

- Map consumption, withdrawals and dependencies at site level and along the value chain, considering the relevant river basin;
- Assess exposure to water risk, integrating climate risk analysis and medium- to long-term scenarios to account for the expected evolution of scarcity, variability in availability and quality of the resource;
- Collaborate with local stakeholders (operators, basin authorities, communities and suppliers) to include knowledge of local specificities in the assessment.

INVEST

in water efficiency and reuse, considering the future value of the resource.

PRIORITY ACTIONS

- Build business cases on the total cost of water, including the economic risks of scarcity, operational disruptions and future cost increases;
- Prioritize interventions according to a clear hierarchy: reducing consumption and efficiency;
- Adopt internal economic tools, such as an *internal water price* or price scenarios, to compare and prioritize investments beyond the current cost of water.

INTEGRATE

water risk into credit and investment assessments, considering companies' exposure and resilience.

PRIORITY ACTIONS

- Integrate water risk into credit and investment processes, considering the company's geographic exposure, dependence on the resource and intensity of use;
- Assess companies' resilience through forward-looking indicators and scenarios, considering their ability to reduce consumption, diversify sources and manage scarcity;
- Reflect water risk in financing decisions, differentiating terms and capital allocation also on the basis of the mitigation strategies adopted.

Directing Integrated Water Service investment toward greater efficiency, resilience and adaptive capacity

STRENGTHEN

the tariff lever to support the investment needed for a more efficient and resilient service.

PRIORITY ACTIONS

- Ensure that tariff regulation recognizes the investment needed to address water scarcity, climate change and new quality standards;
- Also consider the operating costs of new solutions, not only the initial investment, to encourage digitalization, advanced treatment, reuse and alternative sources;
- Strengthen results-based incentives, rewarding measurable improvements in efficiency, resilience and service quality, while safeguarding affordability for users.

STEER

investment toward resilience, circularity, reuse and source diversification.

PRIORITY ACTIONS

- Prioritize interventions based on basin risk, moving beyond planning based mainly on the physical condition of assets;
- Act along the entire water cycle, from reducing losses to storage, from reusing treated water to diversifying sources;
- Encourage integrated, local solutions, developing synergies with companies, agriculture and local authorities for reuse, recovery and shared management of the resource.

DIGITALIZE

networks and assets to improve knowledge of the resource and target the greatest impact.

PRIORITY ACTIONS

- Extend metering (smart metering and remote control) and district metering to gain a more granular view of withdrawals, consumption and losses;
- Integrate operational, climate and local data to anticipate scarcity and identify the most vulnerable assets;
- Use analytics and predictive systems to direct maintenance and investment toward the interventions with the greatest expected impact.

Source: Source: TEHA Group analysis of Community Valore Acqua, White Paper 2026, 7th edition

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