

MANAGING WATER, A NEW STRATEGIC AND OPERATIONAL CHALLENGE: RISKS, OPPORTUNITIES AND PORTFOLIO RESILIENCE





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INTRODUCTION

A s climate disruption accelerates, water is emerging as a strategic and universal challenge. A vital resource for the planet, populations and the global economy, water lies at the heart of industrial, agricultural, geopolitical and economic tensions. Globally, 90% of water usage is to produce agricultural and industrial goods, making it one of the most critical raw materials for our economies.

Prolonged droughts, extreme floods, degradation of freshwater resources, and unequal access—all these manifestations of a global water crisis could upend established economic models, disrupt operations, and reshape business performance.

At Andera Partners, we believe that mastering water-related challenges is both an economic and environmental imperative. Protecting and sustainably using water is essential to building long-term resilience and value.

In this context of rising risks—physical, regulatory and reputational—linked to water management, investors, companies and stakeholders must rise to the challenge and take meaningful actions. Following the 2023 release of our white paper on decarbonizing small and mid-sized companies, and our commitment to the Science-Based Targets initiative, we now publish this new white paper focused on water. It marks a major step in our sustainability journey.

This initiative is a continuation of our ambitious and pioneering approach to biodiversity. Water management emerged from our recent studies as one of the most important factors driving ecosystem pressure. Recognizing water as both a biodiversity driver and an essential preservation lever, we chose to focus on this issue to help portfolio companies better integrate systemic challenges.

Through a prospective and sector-based approach, we aim to empower our partners, investors, and corporate leaders to integrate these challenges into strategic decisions. If water is a shared good, its preservation and responsible management are key to futureproofing.

With this publication, Andera Partners eaffirms its ambition to be a leader in sustainable transformation—capable of anticipating systemic challenges and supporting companies in building more resilient, resource-conscious models.

TOP 5 I Biodiversity issues in the Andera Partners portfolio



1. WHY WE MUST CONSIDER WATER AS A STRATEGIC PRIORITY FOR OUR **INVESTMENTS?**

Why focus on water? 1.1

ater is a critical economic resource for agricultural and industrial production-unlike carbon, which is an externality.

The intensification of global water crises translates into increased vulnerability for companies whose operations heavily depend on access to water-both operationally and financially. These risks are set to grow, driven by competing demands, increasingly complex pollution challenges, and the worsening of climaterelated hazards.

From operational disruptions and rising water management costs to mounting regulatory pressure, water-related issues have a direct impact on economic performance.

Water directly contributes to **50**% over 50% of global GDP through agriculture, industry, and energy - Source : CDP / WRI / IPCC In 2023, 70% of listed companies **70**% reported being exposed to a "substantial" or "severe" water-related risk - Source : CDP Global Water Report 2023 On average, a one-day disruption k**100**€ in water supply can cost €100.000 to €1 million at - m**1**€ a critical industrial site - Source : Veolia

They must therefore be systematically integrated into risk management models.

With the application of the polluter-pays principle, companies are likely to be increasingly called upon to help finance water infrastructure-particularly management-despite wastewater currently contributing only 20% of total funding, while households still account for 46%.

The extreme heatwaves of 2022 and 2023 highlighted the magnitude of the risks: some industrial sites experienced impacts amounting to several million euros.

The energy sector has already faced significant water stress: several nuclear power plants were forced to scale back production due to rising river temperatures affecting cooling systems.

Exceptional exemptions were granted to allow the discharge of warmer water, in order to maintain continuity of electricity supply.

In industry, some major companies were compelled to temporarily shut down several production sites following water restrictions of up to 30%, resulting in a complete halt of operations.

In such cases, it is not the price of water that drives investment decisions, but its unavailability.

It is this scarcity-far more than cost-that compels economic players to anticipate risks, adapt processes, and invest in resilience.





1.2 How can water be measured?



For investors, this multi-scope approach enables the identification of vulnerabilities at each stage of the value chain, the prioritisation of high-risk geographic areas, and the assessment of a business model's medium-term resilience.

While drawing a parallel with carbon governance and analytical frameworks can help streamline the integration of water-related metrics, a fundamental difference must be acknowledged: water is an economic input for companies, whereas carbon is an externality.

Measuring water use is directly linked to production needs—much like energy—and therefore requires more detailed analysis and precise calibration to inform strategic production and investment decisions.

The concept of contextual water footprint goes beyond global indicators and provides a more accurate picture of real-world impacts.

This shift in perspective positions water at the core of a sustainable investment strategy—aligned with portfolio resilience objectives, long-term value creation, and the global imperative of water security.







In terms of operational scenarios, four major stress tests are commonly considered: the absence of water (due to reduced availability or a prefectural ban, for example), rising water prices, the electricity-water interdependence, and conflicts over competing uses between different user groups.





2. ASSESSING WATER-RELATED IMPACTS AND DEPENDENCIES ACROSS A MULTISECTOR PORTFOLIO

ndera Partners conducted an in-depth analysis of water-related interdependencies across its investment portfolio, by intersecting issues of **dependency**, **vulnerability**, and **impact**.

- **Dependencies:** assessing sector-specific dependencies on water to identify companies most exposed to risks relating to water access or quality.
- Vulnerability: measuring the physical vulnerability of assets to flooding or coastal risks, particularly in the face of rising sea levels and climate change.
- *Impacts and pressures:* gauging the environmental pressure portfolio companies place on water resources— via water use and pollution.

2.1 A multidimensional, scalable and actionable analysis

Each company was assessed based on sector and asset typology (e.g., offices, warehouses, plants), as well as geolocation.

This approach helped answer critical questions:

- Which companies combine strong water dependency and location in water-stressed areas?
- Which sectors are vulnerable to extreme climate events like floods?
- Which industries significantly pollute or extract water in regions with weak treatment infrastructure?
- What is Andera Partners' global exposure to water-related risks and opportunities?



The analysis is based on established scientific databases and tools, including the Aqueduct platform by the World Resources Institute (WRI), the Water Impact Index from the Carbon Disclosure Project (CDP), World Bank data, the Environmental Performance Index (EPI) from Yale and Columbia Universities, ENCORE data (Exploring Natural Capital Opportunities, Risks and Exposure), as well as IPCC reports.

Our analysis tool has been revised and enhanced by Water Wiser, a water strategy and consulting firm.



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These databases enabled us to build a robust analytical framework comprising 13 metrics, grouped into three categories: water dependency (business needs), vulnerability to physical risks (exposure to climate-related hazards), water-related environmental pressures (company impacts on nature), based on the following indicators:

CATEGORIES	I.	METRICS
Water dependency 4 metrics	•	Sectoral water dependency intensity Water quality sensitivity Location in water-stressed areas Location in areas with poor treatment and sanitation infrastructure
Vulnerability to physical risks 2 metrics	•	Typology of exposed assets Location in flood risk areas
Water related environmental pressures 7 metrics	· · · · · · · · · · · · · · · · · · ·	Discharges of nutrients, pollutants, and solid waste Freshwater extraction compared to renewable water supply in the area Aquatic ecosystem occupation Level of eutrophication in a geographic area Country's waste (all categories) treatment capacity National trend in freshwater resource conservation National trend in seabed preservation

Environmental pressures are currently more prominently represented than dependencies or vulnerabilities, for three main reasons:

1. **They directly reflect tangible impacts on ecosystems**, enabling a clearer and more objective assessment of environmental materiality.

2. **They are easier to measure, compare, and regulate**, through mechanisms such as withdrawal permits, pollution thresholds, or siting within protected areas.

3. **They are often the only indicators that are audited or subject to sanctions**, such as threshold exceedances, accidental pollution, or discharges into sensitive zones

Pressures are the primary lever for action, as from an operational standpoint, they are the elements that companies can effectively reduce—such as **optimising water withdrawals, improving wastewater treatment, and lowering nutrient emissions**, among others.

2.2 Limitations and next steps

Water is an inherently local resource—it falls, infiltrates, flows, and evaporates within specific territories. Its availability and quality are shaped by the geographic, climatic, and ecological conditions unique to each watershed. This makes water a major political issue for local authorities, who must mediate between often competing uses—agriculture, industry, drinking water, and natural ecosystems.

Moreover, access to water directly influences socio-economic dynamics—territorial attractiveness, agricultural resilience, and industrial development. Water also reflects and amplifies social inequalities, as some users are more vulnerable to restrictions. Ultimately, effective solutions require tailored local governance, based on dialogue and collaboration among all stakeholders.

Water must therefore be understood in the context of place. The analytical tool developed could be further enhanced by integrating several additional elements:

- topographic and hydrological data
- basin-level and economic governance factors
- local political realities

In addition, more granular data typologies—such as satellite imagery—could enhance our understanding of water stock dynamics within a given region.

While the methodology can still be improved, it nonetheless provides a solid foundation for integrating waterrelated challenges into Andera Partners' approach. By identifying companies with high exposure to water resources, Andera Partners has significantly structured its strategy to better prioritise action—particularly in terms of ESG support for portfolio companies on water-related issues.







3. FROM ANALYSIS TO ACTION: HOW TO GUIDE OUR STRATEGIES?

3.1 Mapping exposures: identifying at-risk companies

The analysis is structured around two components:

he first provides a **portfolio-level assessment**, in which each company is classified according to its main sector of activity, in order to identify water-related **dependencies**, **vulnerabilities**, **and pressures**. This methodological choice enables a consistent, sector-based view, independent of individual site characteristics. The second component offers a more detailed **site-level analysis**, aimed at identifying risks that are specific to geographic location.



Sectoral analysis of Andera Partners' portfolio exposure to water-related issues, by amounts invested

• The quantity, quality, and discharge of waste into water emerged from the analysis as highly material issues for Andera Partners' portfolio, highlighting the cross-cutting nature of water-related challenges. In fact, **32% of the invested amounts by our funds is exposed to water quality issues, and 26% to water availability risks. Additionally, 11% of the companies analysed-representing 14% of invested capital-face a potential risk of water pollution linked to waste discharge, due to the specific nature of their sector. Furthermore, our geographic analysis revealed that only 4% of companies combine both a sectoral risk of waste discharge and location in areas with poor waste infrastructure, which helps mitigate the actual residual pollution risk.**

• Only one company in Andera Partners' portfolio operates in a sector classified as vulnerable to flooding. However, our geographic analysis enabled us to go beyond sector-based risk assessment and identify assets located in high flood-risk areas. As a result, **21% of invested amounts is allocated to companies with at least one site**—regardless of its size or importance—exposed to a high risk of flooding, primarily linked to riverine floods.



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100% <1% 90% 11% 33% 80% 70% 60% 50% 84% 40% 66% 30% 20% 10% 0% Need for high-quality water Need for high-quantity water Non-dependent sites Dependent sites located in a low-risk geographical area Dependent sites located in a high-risk geographical area

Water stress and access to clean water by site

• Among the 605 sites analysed (offices, warehouses, factories, etc.), 33% rely on access to highquality water for their operations to function properly. However, over 99% of these sites are located in areas with robust sanitation infrastructure, indicating a low exposure to operational disruptions linked to a lack of clean water.



3.2 Prioritising actions based on measured impacts, reducing dependencies and vulnerabilities

Thanks to a detailed analysis, we were able to identify **29 companies particularly exposed** due to the combination of high water materiality and various operational locations in a risk-prone area.

The key issues identified relate to **securing water supply**—both in terms of quantity and quality—as well as managing waste potentially generated during the production process. For each issue, a set of diagnostic questions has been developed to be addressed to the companies, in order to **guide the implementation of appropriate corrective measures.**



SECTORS CONCERNED I DIAGNOSTIC QUESTIONS

Water quality	Pharmaceuticals, chemicals, medicinal/botanical products, hospitality	 Has the company secured its water supply in at-risk zones? Are there closed-loop systems or on-site treatment?
Water quantity	Pharmaceuticals, edible oil, steel, fish processing, hydropower	 Has the company anticipated the risk of activity halts during droughts? What is the daily loss cost and expected ROI of mitigation?
Waste management	Electronics, aerospace, waste treatment, other manufacturing	 Does the company minimise waste generation? How is residual waste treated?





CONCLUSION

TOWARDS MORE RESILIENT PORTFOLIOS IN THE FACE OF THE WATER

Andera Partners' portfolio



• Water is the new challenge for ensuring business continuity and a critical lever for resilience and asset protection

The value it creates must be recognised and factored in—especially considering the costs of water scarcity or difficult access.

Integrating water into analysis—its dependencies, vulnerabilities, and pressures—is the first step to managing risks and creating value

The growing importance of water as a production factor makes it a key vector for both investment risk and business opportunity in the years ahead

n a world facing mounting pressure on natural resources, the ability to understand and integrate waterrelated risks has become a major resilience factor for investors, and key to protecting long-term asset value. Water is no longer a peripheral issue it directly affects business continuity, competitiveness, and value chain resilience.

As investors, it is our responsibility to **anticipate these risks** and protect portfolios from increasingly acute water stress. Sector-specific water dependencies and geographic vulnerabilities help assess the robustness of business models and pinpoint levers for action—reducing operational, financial and regulatory risks. Beyond risk management, proactively addressing water issues is also a **value-creation lever**. Helping companies use water more efficiently and responsibly not only strengthens their competitiveness but also helps preserve operating licenses and improve their attractiveness in increasingly sustainability-focused markets.

In this context, new investment opportunities are emerging around sustainable water management. Developing solutions that reduce consumption, optimise industrial processes, or boost resilience to water-related shocks offers major potential for long-term value creation.

Thus, water-related challenges should not be seen as constraints, but rather as strategic opportunities to enhance portfolio resilience and support sustainable performance—aligned with both investor expectations and upcoming regulations.

At **Andera Partners**, we will continue our commitment by fully integrating these challenges into our analysis and decision-making processes, confident that companies capable of anticipating transformations will be best positioned to create long-term value.



APPENDICES

QUALITATIVE AND QUANTITATIVE RESOURCES USED FOR THE ANALYSIS

DESCRIPTION

Sectoral analysis - Sectoral water dependency intensity: degree of water dependency of an economic sector for its operations.

Sectoral analysis - Sensitivity to water quality: vulnerability of a sector or site to variations or pollution in water quality.

Geographic analysis (lat/long) - Location in water-stressed areas: presence in regions where water demand exceeds or approaches available resources.

Geographic analysis (lat/long) - Location in areas with poor water treatment infrastructure: presence in regions with limited or no wastewater treatment capacity.

Sectoral analysis - Sectoral vulnerability to flooding: types of infrastructure or facilities vulnerable to water-related hazards (e.g., corrosion, flooding)

Geographic analysis (lat/long) - Location in flood-prone areas: presence of sites in territories exposed to riverine or coastal flooding.

Sectoral analysis – Tendency to discharge nutrients, pollutants and solid waste: volume or frequency of emissions affecting aquatic environments (mainly nitrogen and phosphorus)

Geographic analysis (lat/long)- Level of eutrophication in a geographical zone: extent of nutrient pollution leading to algal blooms and reduced oxygen levels in water.

Geographic analysis (national) - National wastewater treatment capacity: country-level availability and efficiency of wastewater management systems (global ranking).

Sectoral analysis - Water withdrawal-to-availability ratio in a geographic area: ratio of extracted to renewable water resources in a given region.

Geographic analysis (lat/long) - Water withdrawal-to-availability ratio in a geographic area: ratio of extracted to renewable water resources in a given region.

Sectoral analysis - Occupation trend of aquatic ecosystems (freshwater and marine): surface area or footprint of human activities in or around natural aquatic ecosystems.

Geographic analysis (national) - National freshwater withdrawal-to-availability ratio: proportion of water withdrawals relative to freshwater availability in a country.

Geographic analysis (national) - Level of marine area protection: proportion of territorial waters under conservation measures.

SOURCES

ENCORE – sectoral analysis (International Standard Industrial classification)

ENCORE – sectoral analysis (International Standard Industrial classification)

WRI Water stress Aqueduct Water Risk Atlas – analyse géographique (latitude et longitude par site)

WRI Unimproved/No drinking water & Untreated connected wastewater Aqueduct Water Risk Atlas – analyse géographique (latitude et longitude par site)

ENCORE – sectoral analysis (International Standard Industrial classification)

WRI Coastal flood risk & Riverine flood risk Aqueduct Water Risk Atlas – analyse géographique (latitude et longitude par site)

ENCORE – sectoral analysis (International Standard Industrial classification)

WRI Coastal eutrophication potential Aqueduct Water Risk Atlas – analyse géographique (latitude et longitude par site)

EPI - World waste management ranking Yale Center for Environmental Law & Policy, Center for International Earth Science Information Network Earth Institute, Columbia University

ENCORE – sectoral analysis (International Standard Industrial classification)

WRI Water Depletion Aqueduct Water Risk Atlas – analyse géographique (latitude et longitude par site)

ENCORE – sectoral analysis (International Standard Industrial classification)

%, freshwater withdrawal as a proportion of available freshwater resources, World Bank Open data, 2000 to 2021

%, marine areas on territorial waters, World Bank Open data, 2000 to 2021

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