

Investment Insight

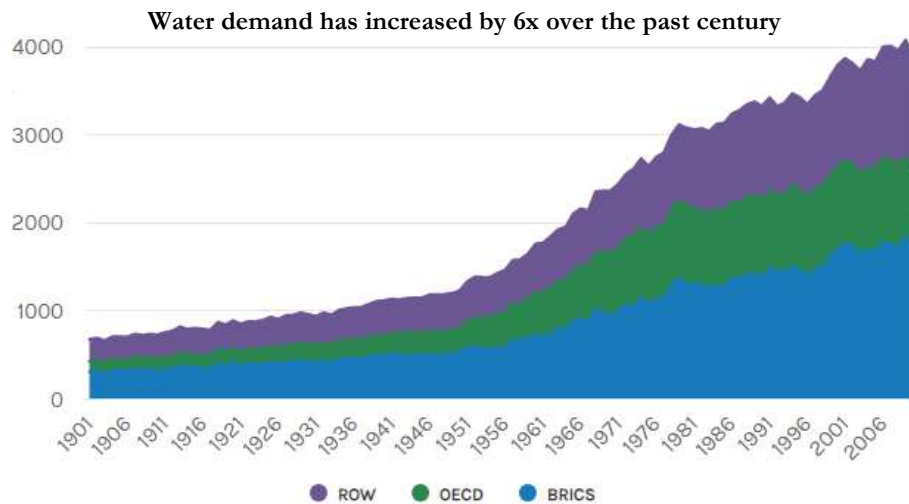
THE GLOBAL WATER CRISIS: CHALLENGES AND OPPORTUNITIES

The world's water supply has fallen by more than 50% over the past 60 years, yet demand is set to grow by up to 30% by 2050. Addressing this challenge will require significant investments in global water infrastructure as well as better water management practices by companies across the economic spectrum.

Environmental issues present some of the most complex problems humanity is facing. Climate change, biodiversity loss and ocean acidification, for example, are increasingly pushing against planetary boundaries with eco-systemic, economic and social implications. Global companies are both part of the problem and of the solution. As investors and stewards of our clients' capital, we believe we have an important responsibility to understand these systemic risks, to engage with companies on how to address them, and to take advantage of opportunities to invest in companies that provide solutions.

The global water challenge and its financial implications

Water scarcity is one of the most urgent environmental and social issues facing us today. More than 750 million people lack access to clean drinking water across the globe and 1.8 billion have no access to basic sanitation, costing USD 260 billion annually, according to the OECD. This pressure is only set to increase.



Source: Morgan Stanley

Note: Global fresh water usage in billion cubic meters

Water supply has fallen 56% per capita since 1962, with 57% of aquifers having passed their 'tipping points' (Food and Agriculture Organisation, FAO) and 36 countries having extremely high levels of baseline water stress. Some 3.6 billion people spend at least one month of the year living in severe water stress, according to the World Health Organisation (WHO), a number that is expected to increase to 5.7 billion by 2050. Amplifying this pressure, water demand is set to grow 20-30% by 2050 driven by population growth, urbanisation, and industrialisation. Demand for water in urban areas is expected to outstrip supply in 27% of the 500 largest cities by 2050. Regional imbalances mean that 58% of freshwater globally is

concentrated in 10 countries. Asia, for example, accounts for 60% of the world's population but holds only 36% of its freshwater supplies.

Poor water governance greatly exacerbates the problem. While certain countries have access to a sufficient clean water supply, existing water infrastructure in select countries is degrading and inefficient. In the US, deteriorating pipe systems, theft or inaccurate meters result in approximately one out of every six gallons of treated water being lost before reaching the end customer. This 'non-revenue' water is a major financial challenge for utilities globally, often representing anything from 10% to 60% or more of net water produced. In addition, 80% of wastewater globally goes untreated, degrading the available supply. An estimated 300-400 megatonnes of waste are discharged by industry alone annually.

This poses serious burdens on water quality. One of the most prevalent water quality challenges is nutrient loading by nitrates and phosphates that are released through agricultural activity. In Europe, 38% of water bodies are under significant pressure from agricultural pollution whilst 15% of monitored groundwater stations report nitrate levels above WHO standards (FAO, UN). Potable water quality, even in developed markets, remains an issue. Alarming, according to McKinsey, 10 million American households are without access to safe drinking water.

This supply-demand imbalance will be further exacerbated by climate change and extreme weather events, with more frequent droughts in some regions such as the US Southwest, and more acute floods in East Asia and South Asia. Some areas are even subject to both types of water risk: for example, Brazil experienced the worst drought in a century in 2021, followed by unprecedented levels of rainfall in subsequent years, flooding crop fields and disrupting mining operations. For each degree of global warming, approximately 7% of the population is expected to experience a 20% decrease in water resources.

The financial implications of this will be significant. The economic value of assets at risk from flooding alone is set to triple to USD 45 trillion between 2010 and 2050. The number of people at risk from floods is projected to rise from 1.2 billion today to approximately 1.6 billion by 2050. At the same time, water is vital for the production of food, energy, and extractive resources, for manufacturing and industry, for the livelihoods of people, and for the global economy overall. By 2050, the World Resources Institute (WRI) estimates that 31% of global GDP will be exposed to high water stress, up from 24% in 2010, significantly affecting economic production and the resilience of global food supplies.

A call to action

Water has been taking centre stage in key global intergovernmental platforms seeking to address some of humanity's most urgent common priorities.

The United Nations (UN) Climate Change Conference brings together key stakeholders in a common platform to address climate change, COP27, held in 2022, was the first conference to include water in its official agenda. It highlighted there was an inextricable link between climate change and water, leading to the launch of the new Action for Water Adaptation and Resilience (AWARe) initiative. The initiative has three principles: to reduce global water loss; promote cooperative water adaptation plans; and promote the interlinkages between water and climate action to achieve the 2030 Agenda for Sustainable Development.

The outcomes of the conference fed into the UN Water Conference, which was held in March 2023 and was the first to be held since 1977. The conference was a midway review of the

implementation of the UN Water Action Decade (2018-2028), which calls for universal access to drinking water and sanitation by 2030 and for the protection and restoration of freshwater ecosystems. It led to the adoption of the Water Action Agenda representing 700 voluntary commitments made by nations and stakeholders to accomplish the UN SDGs and their targets connected to water. Emphasis was placed on the accelerated implementation and improved delivery of water-related goals, with the understanding that existing and future water challenges require innovative and transformative ideas and a 'beyond business as usual' approach.

Water will again be a prominent discussion topic at this month's COP 28 in Dubai, with emphasis placed on water resiliency, the protection of freshwater ecosystems and the need to develop water-resilient food systems.

The UN Water Conference and the UN Climate Change Conference are both seeking to mobilise and accelerate action on water, and this will determine success in meeting the 2030 Agenda for Sustainable Development.

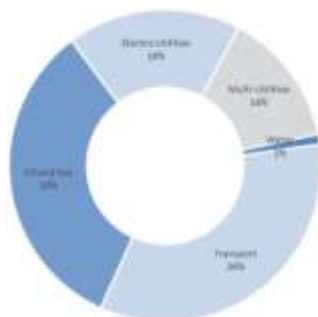
Accelerated action is needed to fulfil SDG 6, which calls for universal access to drinking water and sanitation. Water must be also critical to the delivery of the other SDG targets. For example, SDG 9 will require existing infrastructure to be upgraded and retrofitted to make it sustainable and resilient. It is also core to SDG 12, which calls for sustainable consumption and production patterns. Meanwhile, SDG 11 concerns the adoption of urban planning that fosters resilient cities, which must adapt to the growing impacts of water stress.

A compelling investment opportunity

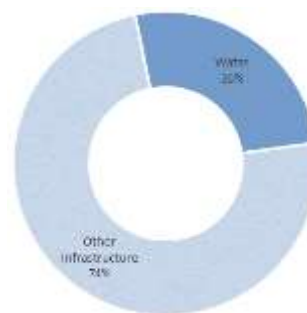
This backdrop inevitably leads to the need for significant investments in the water value chain. The OECD estimates that USD 1 trillion of water infrastructure spending per annum will be needed between 2020 and 2030 in OECD and BRIC countries to address these challenges, up from a current expenditure of USD 0.6 trillion annually. The level of expenditure on water services for high-income countries is expected to be around 0.75% of GDP (ranging between 0.35% and 1.2%) and could go up to 2.5% for some BRIC countries and 6% for some low-income countries.

The water infrastructure investment gap

At present, only 1% of total infrastructure investment worldwide goes into water.



However, the World Economic Forum projects that water will account for 26% of required infrastructure investment by 2030 to support a global population of 9 billion people.



Source: The World Economic Forum

This investment creates significant investment opportunities. Infrastructure investments are seeing significant capital flows, including new solutions for water treatment and water

management, construction and repair of water transport systems, and implementation of new technologies like smart data to improve the efficiency of water use. At the same time, companies across industries are investing to enhance their water efficiency, manage water-intensive processes and reduce their water footprint.

Our approach as investors is focused on two aspects. First, we focus on solutions providers that are differentiated by their innovation, technology and scale, and stand to reap the benefits of this multi-decade investment cycle. Second, we look at the water practices of the companies we are invested in and assess what they are doing to address the water footprint of their own operations.

Xylem: the world's leading water technology company

Xylem is the world's leading water technology company providing highly engineered products across a wide variety of applications serving the utility, industrial, commercial, and residential building sectors. The company is a key solutions provider to the challenges of scarcity, resiliency, and affordability in water infrastructure with 90% of its revenues being derived from products that are directly tied to the provision of clean drinking water and the treatment of wastewater.

Xylem already had one of the broadest product portfolios in the industry before further entrenching its positioning through the acquisition of Evoqua Technologies in January this year for USD 7.5 billion. The deal significantly enhanced Xylem's capabilities, increasing its exposure to industrial water applications and providing it with complementary outcome-based service revenue streams. The company has also continued to strengthen its industry-leading smart water offering, with 35% of revenues historically coming from digital solutions, growing at twice the rate of the rest of the portfolio.

We believe that Xylem is set to grow mid- to high-single digits organically over the next few years as water utility end markets accelerate on the back of an increased focus on water preservation and quality. Drivers include tightening water regulations, accelerating water infrastructure growth in emerging markets and increasing demand for digital offerings. It is also well placed to be a key solution provider to some of the physical effects of climate change, for example, the demand for de-watering services during floods.

Sika: a global leader in structural waterproofing products

Swiss-based *Sika* is a global leader in structural waterproofing products, providing a comprehensive set of solutions that help prevent leaks, protect water quality, and extend the lifespan of water infrastructure. Water reservoirs and tanks must, for example, be watertight, exhibit long service lives and be protected from contaminants entering the structures. Sika provides membrane solutions that address exactly these issues. For wastewater and sewage systems, it offers a range of products that help protect or refurbish structures from the effects of abrasion, chemical attacks, or microbial-induced corrosion.

All these products showcase one of Sika's strongest competitive advantages. While its products are a small part of the overall cost of buildings and infrastructure, they play a key role in their structural integrity. This positions Sika as a key enabler to SDGs 9 and 11, as its industry-leading R&D effort helps to make infrastructure and cities safer and more resilient to climate change, extreme weather events and the threat of high water stress.

Opportunities for other companies

Equally important is how our investee companies are managing water as a resource within their own operations and their value chains. Using the Sustainability Accounting Standard Board's (SASB) materiality framework (now part of the International Sustainability Standards Board), we assess a company's approach to water management by looking at its direct water use/consumption, management of wastewater and its operating practises in water-stressed regions.

Companies that use large amounts of water or rely on purified sources of water are exposed to supply disruptions that could significantly affect their operations or their costs. Companies that do not effectively manage wastewater, fail to address local water concerns, or extensively operate in water-stressed regions may face further reputational or regulatory risks, ultimately jeopardising their social license to operate. Conversely, those with industry-leading water management practices stand to benefit from a reduced cost base and in many cases higher equity valuations over the long term.

Nestlé: a large provider and user of water

Water is a critical input for agricultural production and plays an important role in food security. *Nestlé*, the world's largest food and beverage manufacturer, manages a highly complex global agricultural supply chain and has introduced several water and regenerative agriculture initiatives to drive impact. In 2018, it launched an initiative to guide its alignment with the Alliance for Water Stewardship (AWS) and set a 2025 goal to certify all its bottling sites to the AWS standard. It recently deepened its commitment to water preservation investing CHF 120 million on 100 projects to regenerate ecosystems across 48 key water sites. However, the company is not immune to water-related controversies and we assess the above initiatives in this context. The company's bottled water business ultimately draws on natural aquifers and water bodies, highlighting the difficult choices inherent in tackling the water crisis, the urgency of some of the announced initiatives and our duty as shareholders to keep holding companies to account on targets and progress.

Nestlé's progress in water stewardship

- 2.38 million m³ water use reduction at Nestlé factories in 2022
- 97.1 million m³ total water withdrawals in 2022
- 2.3 million m³ volumetric water benefit delivered by Nestlé Waters projects at the end of 2022



Source: Nestlé, Creating shared value and sustainability report 2022

Technology sector under scrutiny

The technology sector has historically been under scrutiny for its water consumption, with stakeholders, especially in water-stressed regions, calling for closed-loop cycles in operations to recirculate and recycle water onsite. Water, for example, is used to regulate the temperature of data centres.

Among our holdings, *Meta* and *Alphabet's* data centres are among the most water efficient in the world with a water usage effectiveness (WUE) of 0.2 litres per 1 kWh vs an industry average of 1.8 litres per 1 kWh. Both companies have committed to being water-positive by 2030 and restoring more water to the environment than the volume consumed in their global operations. They are looking to fulfil this pledge through water restoration projects.

For example, in 2022, Meta funded several water restoration projects returning over 600 million gallons of water to high and medium-water-stressed regions. Technology advancements are also driving positive outcomes, with Meta currently exploring new indirect cooling technologies in its data centres and deploying prototype cooling systems that use air instead of water.

Alphabet's position as an industry leader places it especially well to share technology and tools that enable the prediction, prevention and management of water stress. As an example, its Google Earth team is driving efforts to scale models and solutions that make water resource information visible and actionable. Partnering with the UN Environmental Programme and the EU's Joint Research Centre, Alphabet has developed the Freshwater Ecosystems Explorer, a geospatial data platform that helps decision-makers quantify and visualize surface water changes.

Semiconductor producers are not only among the world's fastest-growing companies but also among the most water-intensive companies in the technology sector. *Nvidia* and *ASML* understand this and have taken steps to reduce their water intensity. Nvidia conducts annual water risk assessments of its facilities, third-party data centres and strategic supply chain partners to guide efficiencies in its water use and management. Meanwhile, ASML has committed to responsibly using water while taking action to preserve water quality. We believe more can be done and would like to see both companies set explicit quantifiable water targets, which we have set as our own target in our engagement with the companies going forward.

Company engagement

Engagement and stewardship are integral parts of our investment approach. We continue to engage at the individual company level and are in the process of evaluating relevant collaborative engagement initiatives, including the Ceres Valuing Water Finance Initiative, that we could join to amplify our voice and impact.

The vision of the 2030 Agenda for Sustainable Development can only be achieved with coordinated action and commitment by governments, companies, investors and other stakeholders. Solving water will be a key and necessary milestone in realising this vision.

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November 2023

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