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Foreword

Freshwater is our planet’s most precious resource, yet innovations to solve the world’s greatest water challenges often receive insufficient attention and funding. In India, for example, where 600 million people grapple with high to extreme water stress, the urgent need for inventive solutions is more evident than ever. As we confront this reality, it becomes increasingly clear that greater investment is needed in freshwater innovation – from venture capital and other sources – to address the pressing issues we face.

UpLink, the World Economic Forum’s open innovation platform, is driving investment to impact-driven, early-stage entrepreneurs to support them in tackling complex problems, bringing their groundbreaking technologies to market and forging partnerships that drive tangible impact. Early-stage investment not only nurtures promising ideas but also fuels a culture of innovation, propelling us towards a water-secure future.

The five-year CHF15 million ($16.5 million) Aquapreneur Innovation Initiative is led by UpLink and the World Economic Forum’s Food and Water Initiative in collaboration with HCL Group. It is founded on the belief that we must collectively mobilize resources and support the development and scaling of original solutions that can ensure water security for all. Each year the initiative sources up to 10 innovators (“Aquapreneurs”) through its innovation challenges. These dedicated entrepreneurs, who are working to find solutions to today’s biggest water issues, need investment and an enabling environment around them to deliver on the promise of each of their missions.

The first cohort of 10 Aquapreneurs in 2023 collectively raised CHF54.5 million ($60 million) in funding within one year of being selected by UpLink. Yet we know that many more water-focused entrepreneurs are seeking knowledgeable investors to give them the capital to implement their pioneering solutions and fix complex water challenges.

This initiative is just the beginning. It is a call to action for venture capitalists, philanthropists and other stakeholders to step forward and invest in freshwater innovation.

We extend our appreciation to all of our partners and Aquapreneurs committed to this vital cause and invite you to join us in our shared aim of protecting, restoring and safely managing freshwater ecosystems globally.
Welcome to the field of water investment – an area ripe with opportunity and significance. In today’s world, where climate change and regulations are reshaping industries, interest in water solutions is at an all-time high.

However, the water sector can seem daunting, filled with complex terminology and challenges, especially for those new to investing. In this paper, we set out to simplify things by sharing vital insights from the “Water Investment for Non-Water Investors” series of workshops. Following a collaboration in autumn 2023 between the European Water Tech Accelerator and UpLink, the World Economic Forum’s open innovation platform, and drawing on the insights of our water investment community, the workshops aimed to introduce the topic of water to investors who have not yet invested in water or who are planning to invest in that area.

Created from the content of that series, this paper offers practical advice for investors. From emerging innovations to regulatory considerations and investment strategies, it provides guidance for those navigating water investment.

As you read through the paper, our hope is that you will find clarity and inspiration to make informed decisions in this critical area.

Gaëtane Suzenet
Co-Founder, European Water Tech Accelerator, France

Jacob Tompkins
Co-Founder, European Water Tech Accelerator, United Kingdom
Executive summary

Water is an often-overlooked area of opportunity in the impact-investing space.

Impact investors recognize the profound potential of early-stage entrepreneurs as catalysts for transformative change. Backing early-stage entrepreneurs offers the opportunity to shape the trajectory of meaningful ventures from their inception, helping them to grow and ensuring alignment with investors’ core values. While investing for impact has been steadily gaining traction, particularly in the clean energy sectors, water is an often-overlooked area of opportunity in the impact investing space.

Water plays a critical role in virtually every aspect of human life. This is underscored by WWF findings that the total global quantifiable economic use value of water in 2021 was estimated to be $58 trillion — or the combined GDPs of China, Germany, India, Japan and the United States. Consequently, the water market is immense. In 2022, global brands reported water-related opportunities valued at $436 billion, while worldwide water and waste-water treatment markets were valued at $301.77 billion. Yet for now investors are not seizing the opportunity at hand.

As part of the Aquapreneur Innovation Initiative objective to drive investment in water innovation, in autumn 2023, UpLink – World Economic Forum teamed up with the European Water Tech Accelerator to provide interested impact investors with a well-rounded introduction to the water investment landscape. The resulting series of workshops, “Water Investment for Non-Water Investors”, was intended to provide potential investors with insights into the water sector, including trending innovations, regulatory considerations and investment strategies.

With water often being a technical and jargon-heavy sector, this series aimed to break down some of the barriers to entry for newcomers, while highlighting the strong interrelation of water with other sectors.

Collected here are the top insights for potential water investors:

- **Understand regulations and the market:** The water market presents significant opportunities for high returns due to its vast size and relatively few players. However, a holistic view is required when investing in water. It is imperative to first understand potential regulatory barriers as well as market needs and size. Engage with the water sector systematically, not opportunistically.

- **Invest with those with expertise:** When starting to invest in water, invest with others. The water sector is a welcoming community, and open to guiding first-time water investors on their journey. Bundle your first co-investment with others.

- **Shape the market:** As a nascent marketplace, first-mover investors can shape localized and regional water markets, enabling innovation, finance and policy levers. Be a positive driver of change for people and planet.

- **Find start-ups with water expertise:** When assessing the strength and potential return on investment (ROI) of a start-up, check its team members’ technical understanding of water barriers and opportunities in their target market.

- **Act early:** Water will become increasingly important over time. Join a growing global coalition of organizations as an early mover, solving water challenges through innovation. Acting early provides the opportunity for greater impact and greater returns.
Introduction: Water investment for non-water investors

The aim of this paper is to demystify water investment for those new to the field.

In autumn 2023, UpLink, the World Economic Forum’s open innovation platform, teamed up with the European Water Tech Accelerator. The aim was to provide interested impact investors with a sound introduction to the water investment landscape as part of the Aquapreneur Innovation Initiative objective of driving investment in water innovation. Both organizations are encountering mounting curiosity and increasing numbers of requests from investors eager to learn more about water and its opportunities but unsure where to start. In this context, the “Water Investment for Non-Water Investors” series of workshops set out to provide investors with insights into the water sector, including trending innovations, regulatory opportunities and risks, and investment strategies.

Through the series, several investors came to realize that, as they said, “they are already investing in water”, just not from a water angle, and that water has several commonalities with other sectors when it comes to investment.

Those involved saw a need to transmit these lessons to a wider audience and, in doing so, expand the water-innovation ecosystem to include diverse stakeholders.

This paper lays out the current water investment landscape and opportunities, examining trends and technology in the water space, as well as regulatory considerations and investment approaches.

Solving water is the low-hanging fruit in solving the broader climate crisis.
Tharman Shanmugaratnam, President of Singapore and Co-Chair of the Global Commission on the Economics of Water (World Economic Forum Annual Meeting, Davos, 2024)

Accelerating the water innovation agenda

To drive the freshwater conservation and management agenda, leading global conglomerate HCL is partnering with UpLink, the open innovation platform of the World Economic Forum that connects highly promising, early-stage start-ups with the partners and funding they need to scale. Through a CHF15 million ($16.5 million) investment over five years, the Aquapreneur Innovation Initiative is accelerating the innovation agenda for water and creating a first-of-its-kind innovation ecosystem for the global freshwater sector on UpLink, in collaboration with the World Economic Forum’s Food and Water Initiative.

Each year the initiative sources up to 10 water innovators – so-called “Aquapreneurs” – through its innovation challenges. Find out more about the #1 Cohort (2023) as well as the #2 Cohort of Aquapreneurs (2024). The #3 Challenge was launched in May 2024 at the World Water Forum in Bali, with the #3 Cohort of Aquapreneurs to be announced during the World Economic Forum’s Annual Meeting in Davos in January 2025.
The water and innovation investment landscape

The water market is enormous, yet water receives less than 1% of climate-tech investment.

The WWF reported the total global quantifiable economic use value of water in 2021 to be an estimated $58 trillion – equivalent to the combined GDPs of China, Germany, India, Japan and the United States. Global brands reported water-related opportunities totalling $436 billion in 2022, and the world’s water and waste-water treatment markets were valued at $301.77 billion.

Impact investors seek out mission-driven entrepreneurs who align with their values but who also have the potential to provide financial returns. Clean-tech investment opportunities have been gaining traction with investors, governments and businesses since the early 2000s, driven by heightened awareness of the impacts of climate change and promising advances in technology.

A more recent emergence, however, is the opportunity presented by investment in technologies that aim to improve the availability and quality of water resources.

Technological innovation has enabled society to move towards alternative energy sources to reduce carbon emissions, as well as offering the opportunity to conserve water, humanity’s most precious resource, while realizing financial gains and increasing resilience to the impacts of climate change.

Yet, while there are several investment funds and firms that specialize in water, investment in water has not seen the same interest as other areas. Out of $53 billion invested in climate tech in Europe in 2021, a mere $455 million – less than 1% – went towards water tech. Historically, this lack of funding was related to a lack of public awareness of the water crisis, the complex nature of water as both a resource and a common or cultural good and a lack of data to demonstrate the depletion of groundwater reservoirs around the world.

The water sector is slowly but surely attracting more interest and capital as the emergence of digital-led innovations promises to deliver asset improvements. In Morgan Stanley’s 2024 report on individual investor sentiment in sustainability, “water solutions” now rank number one globally in both the US and Europe for investors being “very” or “somewhat” interested. Experts foresee an increasing interest from non-water actors, including tech companies, climate and alternative energy investors in the water sector.

Good businesses in water, frankly, are not hard to find.
Tom Ferguson, Founder and Managing Partner, Burnt Island Ventures

Investing in Water: A Practical Guide
Water trends and technologies

Every activity has a water footprint, with boundless avenues for innovation.

All activities and products use water directly or indirectly, which presents myriad opportunities for innovations that deliver smarter management of this precious resource.

2.1 Water technologies

Advances in technology are enabling people to approach water use in ever smarter, faster and better ways. Some of the most promising solutions include sensor technologies and data analytics that can monitor water quality, consumption and distribution in real time. These innovations cover a wide spectrum of uses by, for example, utility operators, property managers and residential homeowners. Indeed, homes are ripe to become innovative spaces – the modern shower has not changed drastically since its invention in 1767, for instance, while toilets overuse (fresh) water – begging for new developments to transform the sector.

Advances in water-treatment technology, such as ceramic membranes (a filtration technology) are making it possible to purify hard-to-treat waste water to allow for safe reuse. Treatment, coupled with enabling regulations, means that we are now seeing more on-site grey-water (domestic waste-water) reuse and even some examples of direct potable reuse.

Smart irrigation solutions, including precision-drip irrigation, a system that delivers water directly to the root zone of plants in a controlled and precise manner, can reduce the 70% of freshwater withdrawals that are directed towards agriculture.

Another area with the potential to disrupt the sector is “personalized water”. In the case of energy, customers in some countries can already choose their energy source and thus opt to pay more to protect the environment. Offering this type of service model bundled with innovative products could make water saving an attractive, cost-saving and socially conscious no-brainer.
2.2 | Trends in the water market

As an accelerator, we’re not sure that the future will be about big infrastructure. It could be about decentralized infrastructure … so the level of money is different, and the set-up of the money will be different, too.

Gaëtane Suzenet, Co-Founder, European Water Tech Accelerator

There is no doubt that technology focused on sustainability and efficiency is reshaping the water sector. However, as with other sectors, it is important to distinguish which developments will trigger global, long-term ripple effects and which are hype – neither scalable nor accessible to the wider public.

There is an ongoing disconnect between technology that captures investor interest and technology that addresses a clear market need. Investors should prioritize thorough market research and due diligence to ensure that the technologies in which they invest not only capture interest but also effectively address genuine market needs.

An often-noted challenge in the water space is the difficulty of introducing innovation in public utilities as these organizations are usually risk-averse and have long buying cycles. However, this is changing.

Decentralized systems, such as close-looped solutions, portable water-purification devices and domestic water treatment, are becoming increasingly common, illustrating a market shift that offers great opportunity for innovation and improved water security.

2.3 | New stakeholders

Water is also shaped by those who are entering the market. In recent years, the sector has seen growing interest from large tech companies. IBM, Microsoft and Amazon have all set water targets and taken a strategic interest in water, a critical resource for cooling their data centres. Microsoft, for example, participated in Emerald Technology Venture’s $100 million water technology-focused fund10 and partnered with several water start-ups, including Kilimo11 and FIDO.12

Another investment trend, seen in Asia,13 North America14 and Europe,15 is large corporates investing in and acquiring companies as means of carrying out their own research and development activities. These types of acquisitions are favourable for investors and allow corporations to expand their product portfolios, addressing global challenges related to water scarcity, pollution and sustainability.
Regulatory considerations

Regulation is the spark that ignites water innovation.

Water is the first resource affected by climate change, resulting in significant challenges of availability and quality. At the same time, water and wastewater processes – such as abstraction, collection, treatment and distribution – use large amounts of energy and produce significant greenhouse gas (GHG) emissions, being responsible for as many GHG emissions as the global shipping industry.

3.1 Regulatory environment

You can’t go in opportunistically. Be systematic, understand who the market is, know how the tech works, know who the customer is and what the buying cycle is.

Jacob Tompkins, Co-Founder, European Water Tech Accelerator

The water industry, as both a contributor to and victim of climate change, highlights the pressing need for regulatory action, with governments driving the creation of new policies. Regulatory frameworks sometimes hinder progress, despite being designed to set high standards and requirements for the public and private sectors on water use, discharge and conservation, accelerating the adoption of advanced solutions. This is one of the most complex elements to understand when investing in water.

The regulatory environment plays a crucial role in creating incentives for innovation and investment in water-related technology and infrastructure, mobilizing the private sector to adopt new solutions. Examples of regulatory responses include initiatives such as the Water Framework Directive in Europe, which sets out to achieve “good status in all bodies of surface water and groundwater by 2027”. The Sustainable Groundwater Management Act in California aims to prevent overdraft, improve groundwater quality and ensure the long-term availability of groundwater.

One of the largest market opportunities for water is within the water-utilities space. However, utilities are heavily regulated to safeguard public health by reducing any risk of waterborne diseases and contamination, meaning these organizations are risk-averse. A major challenge is utilities’ long buying cycles, often spanning several years or even decades. Centralized water systems need to last for decades and ensure standards of safety, and they require significant resources and time for planning, development and implementation.

 Currently the adoption rate of water technology in the utilities remains quite low. As Jacob Tompkins of the European Water Tech Accelerator explains: “We have only taken a small fraction of the new tech that’s coming forward and applied it. On the one hand, that makes it risky, on the other hand, there are still only a few players out there investing in this technology, making it ripe for disruption.”

These long buying cycles also provide the opportunity for a new approach to business models. For example, the capital expenditures required for water infrastructure can be steep, which has led to some companies offering leasing options as a more flexible option for their clients.
Those investors targeting the European and North American markets need to understand that regulation heavily influences investment. Peter Yolles, Managing Partner of Echo River Capital, cites regulations as a major factor in investment decisions. He resides in California (a hotbed for start-ups and investors and a leader in water regulations due to its significant water issues) and explains that water regulations can be broken down into three main areas: water quantity, water quality and the water–energy–climate nexus.

**Water quantity:** With new regulations covering the management of groundwater, local groundwater management agencies in California have been required to install a range of new technologies to monitor and track the quantity and quality of water in groundwater basins. This also presents an opportunity for water trading between groundwater agencies while keeping water usage in check.

**Water quality:** US federal rules on the production, release and monitoring of per- and polyfluoroalkyl substances (known commonly as PFAS or forever chemicals) are having a major impact on the regulatory and innovation landscape. These chemicals, found in a variety of products – including clothing, furniture, adhesives and food packaging – have been shown to have adverse health outcomes, including an increased risk of cancers and a reduction in the ability of the body’s immune system to fight infection. PFAS have been detected in more than 60% of drinking water samples in the Los Angeles area, which has led to fines, settlements and clean-up efforts. To combat PFAS in drinking water, advanced treatment technologies are being deployed, such as granular activated carbon filtration, ion exchange resin and reverse osmosis, re-establishing or safeguarding public health standards.

**Water–energy–climate nexus:** The human management of water accounts for about 10% of global GHG emissions. Half of this is from the built environment: the energy needed to move, heat and treat water and waste water. The other half is from the natural environment: reservoirs and agriculture. California requires carbon disclosures for companies with at least $1 billion in turnover, which will eventually extend to water and waste-water use. This creates a large incentive for users to adopt technologies to reduce energy use, which will therefore shrink their carbon footprints. Emissions can also be reduced directly by changes in industrial processes or through carbon capture and storage.

These three emerging areas of regulation are driving innovation in the water space. They also highlight why California is often seen as a trailblazer in water policy. Other leading jurisdictions include Australia, Israel, Singapore, the European Union and South Africa. These all demonstrate a commitment to implementing robust water regulations and policies to address pressing water challenges and promote sustainable water management practices.

For investors, it is important to sharpen their understanding of these regulations, how they are shaping the target market and how they are likely to change over time.

Finally, another opportunity arising from this regulation-driving-innovation environment is that there is space for investors to drive regulations. Investors have the potential to be powerful agents of change in driving regulatory reform towards a more sustainable and responsible business environment. By actively engaging with regulators and water-conscious entrepreneurs, advocating for policy changes and integrating sustainability considerations into their investment strategies, investors can help shape regulations that promote long-term value creation and positive social and environmental outcomes.
Investment insights

Investors are urged to seize the opportunity and collaborate within the water sector.

To approach water investment in a more intentional and systematic way, water can be divided into four areas: quantity, quality, environmental health and access to sanitation.

4.1 Areas of impact and investment in water

Generally, water quantity and water quality are the main areas for investment activity, as they have a clear addressable market and provide the greatest opportunity for technological solutions. Environmental health is primarily being tackled by regulators and environmental bodies, with access to sanitation often being the domain of countries and humanitarian organizations (Figure 1).

Helge Daebel, who leads water activities at Emerald Technology Ventures, explains: “As a venture capitalist, and this applies also to the water space, you look for something that provides a sustainable competitive advantage for the business you are considering partnering with. And this advantage is very often technology-based.”

FIGURE 1 Areas of impact and investment in water

Main areas of investment activity

Quantity | Quality | Environmental health | Access to sanitation

Source: Adapted from the Water Investment Series for Non-Water Investors
4.2 Guidance for investors from investors

I would say that the network is kind, it’s collaborative, it’s underserved. There’s a ton of opportunity, and there’s a ton of value that can be unlocked.

Wayne Byrne, Venture Partner, Burnt Island Ventures

As part of the Water Investment Series, three main pieces of advice emerged for emerging investors from seasoned water investors:

1 Be collaborative

Investors are encouraged to be collaborative in their approach to water investments. The water landscape is a friendly and welcoming space, where newcomers are encouraged to join up with investors who have experience and expertise — for example, as a limited partner in a fund.

2 Take a portfolio approach

A common observation of experienced water investors is that first-time water investors will often make one water investment and when it does not work out, blame the sector. A portfolio approach, just as with other sectors, will diversify risk and offer the potential for higher returns.

3 Assess the quality and intention of entrepreneurs

When evaluating a potential water investment, Tom Ferguson of Burnt Island Ventures says: “We don’t spend enough time talking about the quality of the entrepreneur.” The “investability” of the water venture ultimately comes down to the quality of the decisions being made by the people starting these companies. This is why the entrepreneur’s familiarity with the water market, in addition to the technology itself, is crucial. Finally, the “intentionality” of the entrepreneur is seen as important in assessing alignment with the investor’s impact objectives; it is useful to judge whether the entrepreneur has the drive to overcome the complexities of the water sector and deliver on their organization’s vision.

4.3 Making the case for water investment

Making the internal case for water investment is a matter of realizing and clearly communicating water’s economic potential: the water market presents significant opportunities for high returns due to its vast size and relatively few players. However, water investment involves facing technical barriers, which include a deep understanding of the sector and its complexities. Despite these challenges, the economic rationale for water investment speaks for itself, highlighted by the importance of recognizing and seizing opportunities in this critical yet underdeveloped market.

In communicating the potential of water as an investment, it is important not to view water as a standalone sector. Water should not be viewed just as utilities or just as irrigation. There are many different application areas, because there is a water footprint in every activity and product. There is a reason why more players, such as tech companies, are entering the space. These new entrants recognize the investment value offered by water, and reinforce the opportunity that exists to become an early mover on the innovations that will solve global water challenges.

Tom Ferguson from Burnt Island Ventures is effusive about the opportunities in water that are often overlooked because of the subject matter. His overall impression: good businesses are not hard to find, and the entry pricing is good. It’s important to treat water with the care it deserves, predicated on the reality of the market – not what potential investors wish the reality of the market to be. The importance of water is only going to increase over time, so the best time to act is now.
Conclusion

The best time to invest in water is now.

The world of water investment presents immense opportunities against the backdrop of climate change and evolving regulations. This paper, based on the “Water Investment for Non-Water Investors” series of workshops produced by UpLink – World Economic Forum and the European Water Tech Accelerator, serves as a primer for investors entering this vital sector.

By distilling insights from the series, the aim is to demystify the complexities of water investment, call attention to the interconnectedness between water and every other sector and activity, and support investors by offering practical guidance on navigating emerging innovations, regulatory landscapes and investment strategies.

Today, the global water market is immense and predicted to receive more investment in the years to come. New technologies are challenging how water is handled – from filtration to reuse and efficiency. They are ready to disrupt the sector. New actors are also entering the market and influencing regulations, with growing interest from large tech companies. Although current regulatory frameworks can be a hindrance, they also set requirements for water use, discharge and conservation, supporting the adoption of advanced solutions.

Water investment is currently focused on water quality and quantity, emphasizing the need for new water investors to collaborate, take a portfolio approach and assess water entrepreneurs carefully. As water becomes increasingly critical, acting early not only presents lucrative opportunities but also allows investors to contribute meaningfully to addressing global water challenges and shaping a more resilient future.

For future investors, some vital insights to take on board and share are:

- **Understand regulations and the market:** The water market presents significant opportunities for high returns, but a holistic view is needed when investing. Engage with the water sector systematically, not opportunistically.

- **Invest with those with expertise:** When starting out, invest with others. The water sector is a welcoming community, and open to guiding first-time water investors on their journey.

- **Shape the market:** Become a first-mover investor, shaping localized and regional water markets, enabling innovation, finance and policy levers.

- **Find start-ups with water expertise:** When assessing the strengths and weaknesses of a start-up, check its team members’ technical understanding of water barriers and opportunities.

- **Act early:** Water will only increase in importance over time. Join a growing global coalition of organizations as an early mover, solving water challenges through innovation.
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