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Welcome to the November 2018 issue

Where are the CEOs who will champion water security, asks CDP's Cate Lamb in this month's magazine, as she laments that she can count on one hand the number of corporate leaders who have spoken authentically and competently on the topic, and what it means for their business.

The low level of attention paid to water is all the more stark, given corporate leadership on climate change, to which water insecurity is causally related.

Today nearly half the world's population has only limited daily access to freshwater, a situation that will get much worse with climate change and rising urbanisation. According to the UN there will be a 40% shortfall in global water availability by 2030.

Water utilities, power stations and agriculture are most vulnerable, but sectors from food and beverages to semi-conductors, mining and textiles face disruption if they do not have a reliable, high-quality supply of water.

This month in the magazine we examine how companies are responding to this most pressing of global issues.

Mark Hillsdon reports on how the urgent need to protect a shared and threatened resource is forcing companies to move away from traditional water management and strike innovative new partnerships with governments and NGOs.

He also profiles how drinks companies such as Heineken, Carlsberg and Diageo, which operate in some of the most water-stressed areas of the world, are focusing on circular economy solutions and collaborating to safeguard watershed health.



7-9 Fashion St, London E1 6PX UK

Editor: Terry Slavin

Sub-editor: Karen Luckhurst

Contributors: Mark Hillsdon, Angeli Mehta, Mike Scott, Cate Lamb, Jonathan Farr, Michael Levitin

Editorial: terry.slavin@ethicalcorp.com

Subscriptions

subs@ethicalcorp.com
+44 (0) 20 7375 7575

Advertising and sales: Ed Long
ed.long@ethicalcorp.com
+44 (0) 20 7375 7188

Design: Alex Chilton Design
info@alex-chilton.co.uk
+44 (0) 20 7042 6340



Mike Scott reports on how Cape Town’s experience of almost running out of water has unleashed an explosion in innovation and investment globally, so that serious money is now starting to flow into solutions to water scarcity and pollution.

In California, Michael Levitin writes about how some of America’s biggest companies are working together to tackle drought conditions that have contributed to the rapid spread of deadly wildfires, and threaten the country’s biggest source of fresh food.

Angeli Mehta reports on how the textiles industry, one of the world’s biggest consumers and polluters of water, is trying to clean up its act through platforms such as the Partnership for Cleaner Textile in Bangladesh.

She also looks at innovations to make cotton less water-intensive, and how Levi Strauss is working to reduce water use in manufacturing its jeans with technology it has now made open source.

Other companies profiled include Mars Inc, which has been working in partnership with WWF, UN Environment and the International Rice Research Institute to substantially reduce water use in rice cultivation, and India’s Mahindra Group, which used its 2% mandated CSR levy to develop an integrated watershed management programme in the central Indian state of Madhya Pradesh.

WaterAid’s Jonathan Farr has the final word, arguing that one clear message from the latest IPCC report is that, with a minimum of 1.5C increase in global temperatures locked in, it’s time to get serious about spending on adaptation. And business and investors will play a vital role.

We hope this month’s issue will help contribute to that impetus for change.

Terry Slavin



terry.slavin@ethicalcorp.com
[@tslavinm](#)



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Editorial: terry.slavin@ethicalcorp.com

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subs@ethicalcorp.com
+44 (0) 20 7375 7575

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ed.long@ethicalcorp.com
+44 (0) 20 7375 7188

Design: Alex Chilton Design

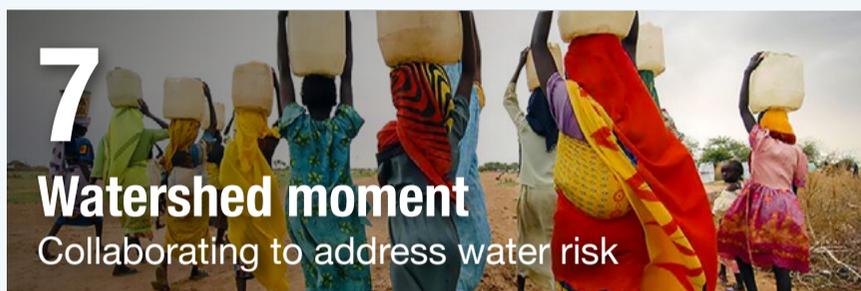
info@alex-chilton.co.uk
+44 (0) 20 7042 6340



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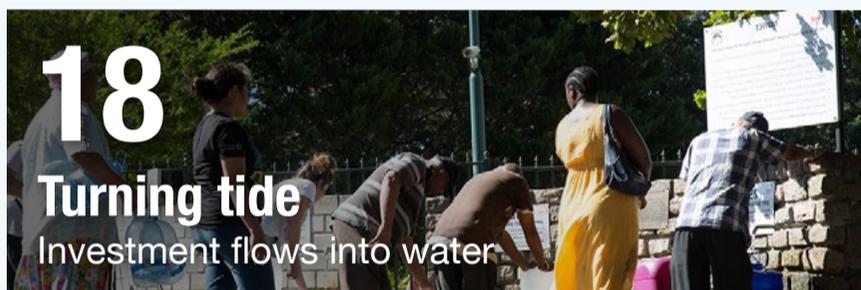
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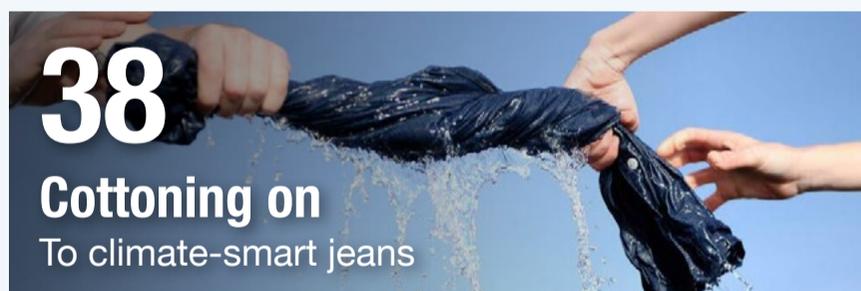
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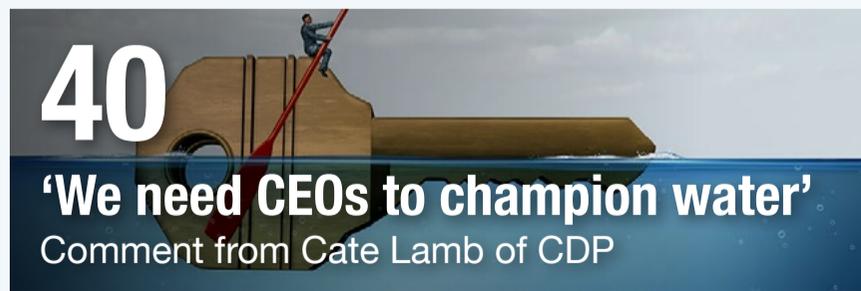
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RASHAD MAMMADOV/SHUTTERSTOCK

Rising water risk pushes companies to seek higher ground in collaboration

Mark Hillsdon reports on how the growing need to protect a shared resource that is under critical threat is leading to innovative new partnerships

Sustainable management of the world's water has become one of the most pressing global issues. Historically, the management of water has been poor and blighted by under-investment, which has left nearly half the world's population living with only limited daily access to freshwater.

Issues such as climate change, population growth and rapid urbanisation mean that the pressure on already overstretched water resources is only going to increase, with the Organisation for Economic Co-operation and Development (OECD) estimating that at least \$1 trillion needs to be spent globally on water management projects every year.

Speaking at the recent FT Water Summit in London, Heineken CEO Jean-François van Boxmeer warned: "Water is the resource that can lead much more quickly to violent conflict in the world than anything else ... [yet] for some reason, society as a whole has not always sensed the urgency around water."

That is starting to change as droughts, floods and declining freshwater become the new norm. Many companies recognise that they need to move away from traditional forms of water management and embrace new approaches to water stewardship.

'Water is the resource that can lead more quickly to violent conflict than anything else, yet society has not always sensed the urgency around water'



30 SECOND READ

- Climate change, population growth and urbanisation are putting pressure on stretched water resources. Half the world's population have limited access to freshwater, and scarcity can lead to conflict. More than \$1 trillion needs to be spent globally on water management each year to support infrastructure.
- Companies are embracing new approaches to water stewardship. More than 2,000 businesses are disclosing their water footprint and the private sector, with a longer-term global vision of water risk, is in pole position to take action.
- Investment is key, but historically water projects have failed to attract private investors because they are not large enough to provide high returns. One solution is to encourage investors with a programme of projects producing multiple benefits.
- New funding ideas are also helping to change the look of water management. Examples include a public-private partnership financing forest restoration in California and a green bond supporting water supplies in the east of England. The funds also offer downstream investment to tackle the root cause of poor water quality.

CDP, which helps organisations measure their environmental impacts, reports that more than 2,000 businesses are now disclosing their water footprint, with almost a quarter saying that water efficiency is leading to new opportunities and benefits (See [We can't wait for Al Gore. CEOs have to lean in to the water crisis](#))

Sophie Trémolet, senior water advisor Europe for The Nature Conservancy (TNC), has also seen water security edging closer to the top of the business agenda. "Corporates have woken up to the need of taking water seriously, perhaps more than governments," she says.

"Because of the 'broken-dam' nature of water management ... unless there's a drought or a national level risk there's no ability for local governments to co-ordinate their actions," she continues. This puts businesses, which have a much longer-term, global vision about their water risk, in pole position to take action, she believes.

"We have moved forward, particularly in terms of how companies are viewing water risks," agrees Dr David Tickner, chief freshwater adviser at WWF-UK, "[But] the reality [is that] demand for water keeps going up, pollution of water keeps getting worse, and biodiversity and lakes and wetlands ... continue to decline in too many locations. There's still an awful lot more to do in most parts of the world, and the risks are very real."

Ambika Jindal, vice-president of sustainable finance at ING bank, says part of the problem has been the failure to attract enough private investors by not offering them water projects that are large enough to provide high returns.

"The challenge for water projects seems to be that they are not yet designed to be appealing for private sector finance," she explains. "The first step is for water solution providers and the private sector to work together to build a pipeline of projects that have such a lifetime plan in place."

Encouraging investors

This is one of the ideas set out in [Seizing the Water Opportunity](#), a joint report by ING, WWF and global management consultants, the Boston Consulting Group.

'Corporates have woken up to the need of taking water seriously, perhaps more than governments'



The idea is to encourage investors with the offer of a programme of projects that produce multiple benefits for multiple different stakeholders, including a profit for investors. The concept involves identifying, framing and then realising bankable projects, a relatively new concept for the conservation community, says Tickner.

“What we mean is bigger projects, more financially demanding projects,” he explains. “We also know that financial investors, particularly from private financial institutions, are just not interested in small investments, they’re interested in investments of tens of millions of dollars, if not larger.

“We’ve latched on to this partly because of the scale of the challenge in some areas. It’s the kind of challenge where a little bit of philanthropic funding here and there [is] no longer enough.”

One example is the WWF’s work around leather in Kanpur, India, where pollutants flow untreated into the river Ganges, affecting human health. “We’ve pulled together the international players who buy leather from those sources, plus the tanners locally ... into a platform to try and identify solutions,” he says. (See [Apparel brands join forces to clean up their act](#))

As well as attracting investment, it’s also about showing local companies that water management can save money, particularly around retrieving some of the chemicals they use in the tanning process rather than pumping them out as effluent. “Closed-loop recycling is very much at the heart of a lot of this stuff,” explains Tickner.

New funding ideas are also helping to change the look of water management. Blended finance involves the public sector, philanthropic donors and impact investors funding less favourable schemes, with higher risk but lower returns, while commercial investors start funding more mainstream projects, with higher potential returns.

In America, Forest Resilience Bond is a public-private partnership that enables private capital to finance much-needed forest restoration, particularly in California, where recent events have shown the need to address the risk of forest fires, and the effect they can have on water courses.



SUNDRY PHOTOGRAPHY/SHUTTERSTOCK

Biodiversity in lakes and wetlands continues to decline

‘It’s the kind of challenge where a little bit of philanthropic funding here and there is not enough’



PEOPLE IMAGE STUDIO/SHUTTERSTOCK

Water treatment works fail to tackle the cause of poor water quality

In the UK, Anglian Water has issued the first public utility green bond, worth £250m, which will finance a range of activities supporting the company's sustainability strategy, and efforts to secure long-term water supplies across the East of England, one of the driest areas of the UK. These include new water abstraction technologies, drought and flood-resilience schemes, and progressive water recycling.

Taking a more global perspective, TNC's water funds aim to bring together multiple players and give potential investors greater confidence to finance ecosystem services.

Typically, explains Tremolet, the fund is designed to give downstream users, such as water utility companies, businesses and individual citizens, a structure and the authority to invest in upstream catchment management. These groups are often the worst affected by impacts such as pollution and silting, which reduces the flow of the river.

How the funds are financed depends on location, continues Trémolet, and can range from major private and public-sector investment, to utility companies adding a tariff to bills, and even a local "water tax".

The funds also offer an important alternative to downstream investment in facilities such as water treatment plants, which may lead to cleaner water but fail to tackle the root cause of poor water quality. Instead, water funds encourage nature-based solutions that support conservation and the restoration of natural areas, while creating better access to clean water for people, commerce and nature.

This type of work includes working with farmers and, for example, paying them to fence off river banks to keep cattle off steep slopes and reduce run-off. This also helps stop river bank erosion, a major cause of the sedimentation that can clog rivers.

Water funds are designed to give utility companies, businesses and citizens a structure to invest in upstream catchment management



TNC currently has 30 water funds in operation and a new global partnership with drinks company AB InBev represents a critical step in scaling up the work.

Like many businesses operating in areas of high water risk, AB InBev is committed to having a positive and measurable impact on water security, for both its operation and local communities.

“We are deeply aware that these issues cannot be tackled alone,” says Andre Fourie, global director of water sustainability at AB InBev. “Firstly, just the scale of it, but also the complexity, and in each and every one of these high-risk watersheds we know that the challenges are unique.

“Watersheds will never work by just giving a billion dollars and hiring an engineering company,” he continues. “That might solve the technical problems, but water is a local resource that people feel strongly about, so while we want to go substantially faster ... we know we have to maintain that local consultation and engagement.

“That’s why we are entering into critical partnerships that will demonstrate impact on a global scale, at the pace that is needed.”

Part of this work with TNC is to develop new water funds in Colombia, El Salvador, Argentina and Mexico. These will unite various stakeholders around the common goal of contributing to water security through sustainable watershed management, while also improving agriculture, creating jobs and contributing to climate resilience.

AB InBev is also working with WWF to develop blended finance approaches at scale, helping to improve water access and quality, while enhancing the health of river basins, and ensuring the needs of local communities at projects in Africa and Latin America.

In George, South Africa, the Outeniqua project covers water issues at one of the continent’s few commercial hop-growing regions. The site is of huge importance to AB InBev, but is also an area of substantial water stress. Working with WWF, the company discovered that invasive alien plants were consuming as much as 50% more water than indigenous flora. As a result of clearing the plants from over 1,000 hectares, WWF estimate that over 1.5 million cubic metres (m³) of water is now being returned to the local ecosystem each year.



ANGLIAN WATER

Anglian Water has issued the UK’s first utility green bond, worth £250m

‘Watersheds will never work by just giving a billion dollars and hiring an engineering company – water is a local resource that people feel strongly about’



In nearby Zambia, a [WWF report](#) published in June looked at the need for innovative financial solutions to improve the health of the lower Kafue river system. The area is an important source of water for the capital Lusaka, and plans are now in place to bring together numerous stakeholders to address the impact of industry on the region. Possible investments range from habitat restoration to new infrastructure to treat greywater. The project will drive a win-win for communities, businesses and nature, adds Fourie.

Another key player is the International Water Stewardship Programme (IWaSP), which is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and jointly funded by the British and German governments.

In Kenya, a partnership with multiple UK retailers, including Marks and Spencer, Tesco and Asda, along with flower growers and local authorities and communities, is improving water conservation around Lake Naivasha. This is a major flower-growing area, and together the partnership has led to better water abstraction control, protection of the shore from erosion and increased reforestation, helping both the flower growers and communities, who now have better access to water.

But water is not just a rural issue. “Many cities in the world ... can’t account for more than 30% of their water,” says Fourie, “so we know that sometimes it’s more effective to invest in fixing those leakages than to start new projects.” In Cape Town, where AB InBev has a major brewery, the city has been on the verge of running out of water several times over the past few years. By helping to reduce pressure in certain parts of the system, the company is helping to save millions of cubic metres of water a year.

Collaboration between drinks companies also needs to be explored, says Fourie, and is something that’s often discussed at the Beverage Industry Environmental Roundtable, an important talking shop for the sector’s global leaders.

“We are increasingly talking about how we can collaborate in areas where we have common water concerns,” he says. “Instead of each of us launching our own water projects ... it is possible for us to collaborate, to partner and scale up.” ■



BAXYS/SHUTTERSTOCK

Investing in downstream projects, such as fencing off river banks from cattle, can reduce run-off and erosion

‘Many cities can’t account for more than 30% of their water, so we know it can be more effective to invest in fixing leakages than start new projects’



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DIAGEO

Drinks industry thinks outside the box to protect its most precious resource

Mark Hillsdon talks to Heineken, Carlsberg and Diageo about how they are collaborating on safeguarding watershed health, and circular economy solutions

Operating in some of the most water-stressed areas of the world poses some severe problems for the drinks and beverage industry, which relies so heavily on a consistent supply of water. But to tap the local watershed, businesses need to maintain a licence to operate, ensure the goodwill of local people and the support of scrutinising NGOs, while at the same time meeting local rules and regulations on issues such as waste water.

While 10 years ago it would have been difficult to make a strong business case for water efficiency, a decade on there are few more pressing issues for the sector than protecting this precious resource.

In the world of brewing, water efficiency is often talked about in terms of the ratio of water used to make a pint of beer. Small independents may still look at a ratio of 10:1, while the world's mega-breweries are achieving 4:1, with some edging towards the 3:1 mark.

“We are all trying to drive down the water use in our breweries,” says Willem De Jonge, Heineken’s director of global sustainable development. However, he adds, when the water used to grow crops such as hops and barley is taken into account, the figure is closer to 3,000 litres per pint.

Ten years ago it would have been difficult to make a strong business case for water efficiency in the drinks industry, now there are few more pressing issues



“We should not close our eyes to this part of the water footprint,” he says, hoping that “we will move away from the theoretical race to ever-lower efficiency figures amongst all the players because in the end ... investing in efficiency is often not the most effective [way to achieve] watershed health.”

Early next year, Heineken is set to launch a new water strategy. It represents a subtle shift in direction rather than a wholesale change, explains De Jonge, and focuses on watersheds around its operations in water-stressed areas such as Mexico and Spain.

“Each solution must be specific to the nature of water stress in that particular area, and take into account cost-effectiveness and potential impact,” he explains. “Water is very local and context-based ... That is an important difference to, say, climate, because climate is global. If you emit in Ghana, or Indonesia or the Netherlands, it doesn’t matter, it all ends up in the same atmosphere.”

The strategy will still include a focus on greater efficiency within breweries, alongside better re-use of water, and greater collaboration around watershed management, with the ultimate aim to improve watershed health.

Previously, water balancing, which uses various ways to level out the amount of water that a company extracts from a watershed, had proved successful, says De Jonge.

In the San Juan watershed in Mexico, for instance, Heineken is working with the Monterrey Metropolitan Water Fund to support reforestation projects, with the aim of balancing over 1 million cubic metres (m³) of water by 2020. As well as increasing water retention in the watershed, reforestation helps to reduce soil erosion and restore wetlands, increasing both water quality and biodiversity.

In Spain, the company has partnered with the NGO Commonland to restore three degraded lagoons in the Doñana wetlands, close to its brewery in Sevilla. By improving soil structure and water filtration, and re-planting indigenous trees, the work has exceeded all expectations, and is now balancing more than 1 million m³ of water per year, double the initial target.



DIAGEO

Businesses in water-scarce areas need to ensure local goodwill

‘Water is very local and context-based, unlike climate. If you emit CO₂ in Ghana or the Netherlands it doesn’t matter. It ends up in the same atmosphere’



Other water balancing initiatives include drip irrigation, the introduction of drought-resistant crops, and water capture using deep wells, which help to replenish the groundwater.

Watershed management

Heineken's new water strategy, however, will move away from just water balancing to more extensive watershed management, which involves creating partnerships with other watershed users, to expand the scope of activities.

The change will not be easy, concedes De Jonge: “[It] is a very big step forward, because water balancing is something you control yourself ... But seeking to collaborate with other water users in the watershed is a different animal, and it will be more difficult.”

The strategy will also see a greater emphasis on re-using water, particularly for irrigating crops. At the moment, treated water is released back into rivers, where it can swiftly leave the watershed, rather than help to replenish it. “Our current commitment is that we will treat it; our future commitment is we will seek to re-use it,” says De Jonge.

At Carlsberg, a key target is to halve water use at all its breweries by 2030. Adam Pawelas, the company's director of environment and utilities, talks about “moving into a water-restrained economy”. And, while he concedes that at one level saving water still equates to saving money, he also believes that “we are moving away from the money discussion to a real resource discussion”.

In 2016, working with the WWF, Carlsberg carried out a water risk assessment of all its 86 majority-owned sites around the world. Alongside physical risks such as water scarcity and flooding, the assessment also considered water quality and reputational risks, and identified 15 sites, mainly in India, China and Vietnam, as high risk.

These are now the focus of the company's water stewardship activities, which include new water-efficiency technologies and working groups, established with local stakeholders to look at community issues around water supply.

‘We are moving away from the money discussion to a real resource discussion’



SORAWIT8888 / SHUTTERSTOCK

Producing a pint of beer can use up 3,000 litres of water when irrigating crops such as barley is taken into account



According to Michael Alexander, Diageo’s global head of water, environment, agriculture and sustainability, part of the problem is that the cost of extracting water is too cheap. “Water is under-priced,” he says.

To address this, Diageo has given water an internal cost, in the same way that some businesses have adopted a shadow price for carbon, as a way of incorporating the possible impact of climate change on their investments.

It’s a methodology that helps to make the vital business case for water investment, and gives Diageo a more realistic understanding of how much it costs to pump, treat and discharge water.

“If we’re doing a capex (capital expenditure) proposal for a water-related investment and we only looked at the borehole meter cost, then the payback’s not going to look very attractive and it’s going to be a disincentive to investing,” he explains.

“Whereas if we can plug into that model the full value ... the internal cost of that water ... that will give us a more attractive payback and return and ... a more realistic impact of our investment.”

Like all major drinks companies, Diageo has been working to strict targets around water efficiency, which has improved by around 40% over the last 10 years. Among its 2020 goals is a commitment to return 100% of its wastewater to the environment safely and at its Uganda Breweries site near Kampala, it’s already meeting with some success.

The brewery extracts water from a part of Lake Victoria that has major challenges around pollution, but since investing in a new £4m wastewater treatment plant, which handles over 1 million litres of water a day, Diageo is now returning treated water to the lake that is cleaner than the water it originally extracted.

The company has also invested in reforestation schemes in the mountains behind the brewery to reduce erosion and run-off into the lake, which has become increasingly silted, making it hard to extract water in the first place.

“It helps us commercially to run our business better but also, more importantly, helps the environment and the quality of the water in that part of Lake Victoria,” says Alexander.



DIAGEO

Diageo has committed to return all its wastewater to the environment

Diageo has given water an internal cost, in the same way that some businesses have adopted a shadow price for carbon



In India, water efficiency among Diageo's businesses has improved by 54% and on the back of this the company is starting to work with key strategic suppliers, giving them what Alexander describes as "the tools to help manage their water risk ... and try and embed an approach to managing water which is similar to ourselves".

This is the next phase of water stewardship, he says. "Not only doing it for your own operations and your own catchment but helping suppliers do it in their catchment too, because ultimately that is part of your water footprint."

Innovation is also playing its part. Carlsberg, for instance, is replacing traditional wet operations, such as rinsing and washing, with a dry alternative that uses compressed air. As part of its push towards zero wastewater by 2030, the business is also briefing members of its new Carlsberg Young Scientists Community.

Launched earlier this year, the community will help Carlsberg "close the water loop", says Pawelas, by creating technologies that are both affordable and scalable. Scientists are now looking at new membrane technologies that can help to take pollutants out of used water, as well as researching biological treatments and ways of applying micro-organisms and algae to help purify water.

Innovation is also high on the agenda at Diageo, and the company's research and development team is constantly scanning the water sector for the latest ideas, says Alexander, with a view to developing partnerships and accelerating technologies.

This includes working closely with start-ups, such as Horizon Proteins in Scotland, which is looking for new ways to give value to wastewater, in this case by recovering and re-using proteins from distillery by-products to use as fish food. It is working with another business to develop a processing unit that can be installed in sustainable drainage systems to help to clean and regenerate polluted water.

"As we stretch our ambitions further and further, then we're going to have to get smarter and smarter," Alexander says. "[It's] not just about spending money." ■



JAKE HUKKEE / SHUTTERSTOCK

In Scotland, Horizon Proteins is looking to clean and regenerate water used in distilleries



Mark Hillsdon is a Manchester-based freelance writer who writes on business and sustainability for Ethical Corporation, The Guardian, and a range of nature-based titles including CountryFile and BBC Wildlife.

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MARK FISHER/SHUTTERSTOCK

Cape Town crisis unleashes explosion in innovation and investment

Water is a sector that has long been resistant to change, but escalating water shortages and pollution mean serious money is now flowing into solutions. Mike Scott reports

Cape Town's declaration late last year that it would run out of water in April 2018 if urgent action was not taken to conserve it captured the attention of the world. The drought-hit South African city has averted "Day Zero" for now, but only by introducing stringent conservation measures that at one point cut consumption to 50 litres per person daily, compared with the average Californian daily usage of 387 litres.

Cape Town is not an isolated example: cities from Los Angeles to London and Beijing to Bangalore are at risk of water stress. There will be a 40% shortfall in global water availability by 2030, according to the UN. When water runs short, the media focus tends to be on households, but businesses suffer significant impacts too. "Business needs water to heat, cool, clean and as an ingredient. But get it wrong, the consequences can be devastating and costly to the bottom line and to reputations," points out PwC.

According to the UN Global Compact initiative CEO Water Mandate, water risks to business generally fall into three categories:

- Physical – Not having enough clean, affordable water, when and where you need it, to run your factories and business.

'Business needs water to heat, cool, clean and as an ingredient. But get it wrong, the consequences can be devastating and costly'

**30 SECOND READ**

- Regulatory – Current and future laws and regulations that affect the availability and price of water.
- Reputational – The positive or negative brand impact that stems from how your business uses and manages water.

The most obviously affected sectors are water utilities, power stations and agriculture, but companies in sectors ranging from food and beverages to the semiconductor sector and construction face disruption if they do not have a reliable, high-quality supply of water. (See [Drinks industry thinks outside the box to protect its most precious resource](#))

Investors have also started to take note. “The global investor community is starting to recognise that water is a precious resource, not an endless one,” says Brooke Barton, senior director of water and food at the US investor coalition Ceres. “There is growing evidence that they are starting to take this seriously.”

There is an increasing number of investment funds such as Pictet’s Water Fund, the first water-themed investment vehicle, which was launched in 2000. The Swiss fund manager says water offers “a wealth of investment opportunities”, with the sector expected to grow globally at around 4-6% a year, not least because “over \$1 trillion needs to be spent each year between now and 2030 to provide effective water infrastructure globally”.

To balance water demand and supply will be a difficult process, the group adds. “Outsourcing of the management and operations of water infrastructure can be a good way to ensure the world’s water resources are efficiently managed. This creates new and sustainable opportunities for companies providing solutions, from infrastructure and distribution, to waste water collection and treatment.”

Demand is being driven by a number of megatrends, including population growth and higher demand for meat and other water-intensive products as incomes grow. Underpinning everything, though, is climate change, says Barton. “The recent Intergovernmental Panel on Climate Change [report](#)

- There will be a 40% shortfall in global water availability by 2030, according to the UN. Water shortfalls will have physical, regulatory and reputational impacts on businesses across sectors from power stations to fashion.
- Investors are recognising water is limited, and water-themed investment funds have sprung up. The first, Pictet’s Water Fund, was launched in 2000, and the sector is expected to grow globally at around 4-6% a year, with over \$1trn needing to be spent each year until 2030 on infrastructure.
- Demand for water is being driven by population growth and demand for water-intensive products, as well as the effects of climate change. Meanwhile pollution and deterioration in water quality are increasing and regulations tightening globally.
- This is leading to innovation in the sector, offering investment opportunities. Much of it comes from traditionally water-stressed countries such as Israel, Australia and Singapore, but the UK is also a global hub for new products.

‘The global investor community is starting to recognise that water is a precious resource, not an endless one’



made it clear that there is a stark difference between limiting temperature rises to 2°C or 1.5°C – it’s a difference of 50% in the number of people living in water stress.”

With both pollution and deterioration in water quality increasing, regulations are tightening around the world, creating a need to address environmental discharges, leaks and the amount of water homes and businesses use. As Cape Town illustrates, “what tends to happen is there is very little regulation, then a lot, suddenly,” Barton says.

Innovation in the water market

This has led to an explosion of innovation in the water market. Much of it comes from traditionally water-stressed countries such as Israel, Australia and Singapore, but the UK is also a global hub for new products. “The UK is more water-stressed than you might think and there is a lot of water technology innovation going on,” says Jim Totty, manager of the Nobel Sustainability Growth Fund at Earth Capital Partners.

Among his fund’s investments is Arvia, a spin-out from Manchester University, which has developed a technology that can remove very low concentrations of highly toxic chemicals from wastewater using much less energy than other treatment methods.

“We are targeting markets where the drinking water contains lots of contaminants. There are many areas where there are lots of pesticides and other contaminants, many of them carcinogenic. They lack a cost-effective way of treating water at the moment,” Totty says.

Another investment, Propelair, makes a water-efficient toilet that uses an integrated air pump to reduce the amount of water per flush from 6-8 litres to just 1.5. The product is initially aimed at the business market, but the company hopes to produce a domestic version as it scales up. “Companies and individuals are having limits to how much water they can use imposed on them,” he adds. “In office buildings, fast-food chains, hotels and the like, the savings are really material.”

However, the pace of change varies widely, Totty adds. “From country to country, the way that water is paid for is very different, so we need to work with local partners to navigate a very different set of commercial relationships. Some countries in the Middle East and Asia have very high subsidies,



JEREMY REDDINGTON/SHUTTERSTOCK

Major cities globally, including London, are at risk of water stress

‘From country to country, the way that water is paid for is very different, so we need to work with local partners’



for example, which means that people have no incentive to change their habits and save water.”

Another issue is that water is not a sector that is famous for innovation. “It has a tremendously long sales cycle because many assets sit there for a long time, the industry is heavily regulated and capital expenditure is tightly controlled. It creates an environment where there is a real reluctance to change,” Totty says.

Nonetheless, investors continue to target the sector because the water infrastructure gap is clear to see. Green bonds are increasingly being used to finance sustainable water infrastructure, boosted by the recent introduction of the Climate Bonds Initiative’s Water Infrastructure Criteria, which Barton says is now “the most credible benchmark for the sector”. The criteria, for the first time, mean watersheds, wetlands, and forests can be protected, managed and restored using Climate Bonds’ certified green bonds.

In addition to the opportunities to invest in water solutions, investors are also looking at water as a risk to their portfolios. (See [Rising water risk pushes companies to seek higher ground in collaboration](#)) However, it is difficult for them to assess their water risks because there is still a very large disclosure gap from companies.

In 2017 70% of companies reporting to the CDP’s investor programme said they had board oversight on water. However, only a small group of companies incentivise executives for performance on water-related issues, while only a few firms, including Diageo, Colgate, Palmolive and Nestlé, are putting an internal price on water to account for social and environmental costs and benefits. (See [We can’t wait for Al Gore. CEOs have to lean in to the water crisis](#)) Some institutional investors, however, are starting to turn up the pressure. Dutch investor Actiam has announced a target to make its investment portfolio water-neutral by 2030, to manage its freshwater impacts and reduce its risk exposure.

“As investors move up the learning curve, companies should expect more direct engagement from investors on issues such as industry practices and their ability to achieve zero liquid discharge, while investors will also be engaging with local policymakers,” Barton says. “There will be increasing demand for products tilted towards companies that can demonstrate they are better stewards of water.” ■



KATHIE NICHOLS/SHUTTERSTOCK

\$1trn needs to be spent per year to provide ‘effective water infrastructure’



Mike Scott is a former Financial Times journalist who is now a freelance writer specialising in business and sustainability. He has written for The Guardian, the Daily Telegraph, The Times, Forbes, Fortune and Bloomberg

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DAVID LITMAN/SHUTTERSTOCK

Connecting the drops to promote water security in California

Michael Levitin reports on how some of America's biggest companies are working to take tackle drought conditions that threaten the country's biggest source of fresh food, and pushing for stronger legislation

In America's most populous state water stress is not a risk on the distant horizon; it's a matter of life and death today. US fire authorities have said that the rapid spread of deadly wildfires that have devastated parts of northern California were exacerbated by drought conditions that have afflicted the state for the past six years.

In May 2014, after Governor Jerry Brown declared a state of emergency, multinational companies, non-profits and public-sector agencies met in Los Angeles to discuss a long-term response to a water crisis that affects the production of almost half the country's fruits, nuts and vegetables.

That same year, the Business for Innovative Climate and Energy Policy (Bicep) network, a coalition of more than 50 companies brought together by the sustainability non-profit Ceres, began working to develop water conservation strategies and influence smart water policy at the state level.

The results were two high-impact, private-public initiatives – the California Water Action Collaborative, or CWAC (pronounced Quack), and the Connect the Drops campaign, which are now bringing water agencies, NGOs and Fortune 500 corporations together in powerful new ways to tackle California's growing water crisis, with a potential to expand their success elsewhere.

Water agencies, NGOs and corporations are coming together in powerful new ways to tackle California's water crisis



30 SECOND READ

- California, which produces nearly half the US's fruits, nuts and vegetables, has been affected by drought conditions for six years, helping to fuel the recent wildfires. In 2014, Governor Jerry Brown declared a state of emergency, prompting multinational companies, non-profits and public-sector agencies to meet to discuss a long-term response.
- The result was two high-impact, private-public initiatives: the California Water Action Collaborative (CWAC) and Connect the Drops bringing water agencies, NGOs and Fortune 500 corporations together.
- Working alongside Governor Brown's California Water Action Plan, Connect the Drops offers a platform to 35 big-name firms to demonstrate their achievements and show that water conservation is smart business. Sign-ups include retail giant Target, which has committed to reducing water consumption in its California supply chain.

"It was a perfect storm to engage [businesses in] California and make some significant change," said Kirsten James, Ceres' director of California policy and partnerships and manager of the Connect the Drops initiative.

"We wanted to show our political leaders that water touches all parts of the California economy, and we worked with these companies, talking to decision-makers in Sacramento to support what we think is policy that will move our state down a path of having a secure water future."

Working alongside the five-year California Water Action Plan, which Governor Jerry Brown passed in 2014 to establish water conservation as a long-term state priority, Connect the Drops gives companies a platform to demonstrate their own water-saving achievements, bolstering their argument that water conservation is smart business for both the state and the private sector.

Today, the campaign features 35 big-name firms across many sectors – from home-building to tech, and from retail to the food and beverage industries – sending a clear signal that businesses understand the degree to which their own future in California is entwined with the state's water security.

One is Target, the second-largest retailer in the US and a giant in the food retail sector, which in October joined eight other large companies in Ceres' [AgWater Challenge](#) programme with World Wildlife Fund (WWF) when it committed to sharply reducing water consumption across its California supply chain.

The company's strategies include working directly with farmers to develop off-season cover crops that replenish and restore the soil, expanding agricultural acreage while reducing the need for so much irrigation and fertiliser. With Target leading the way, said James, "it's going to have quite an impact, inspiring other grocers to follow suit".

Role of the food sector

Currently, 70% of the world's freshwater supply goes to the food sector, thus food and beverage companies play an especially important role in helping to

Connect the Drops gives companies a platform to demonstrate that water conservation is smart business



reduce water use. The giant berry producer Driscoll's, which relies on abundant groundwater to grow its strawberries and other fruits, is now working to recharge California's underground aquifers through water recycling methods and using new data-collection technology to inform farmers about best irrigation practices. The company is also lobbying to help pass the Sustainable Groundwater Management Act, which would help strengthen water conservation policies at the state level.

Emergency mandatory water restrictions imposed by Governor Jerry Brown in 2015 have only sharpened companies' resolve to help the state adopt tougher water management policies.

Despite corporate support, the Safe and Affordable Drinking Water Act failed to pass earlier this year. But companies aligned with Connect the Drops – including Adobe, General Mills, Hilton, Kaiser Permanente, Genentech, Danone, Kellogg, North Face and PepsiCo – recently helped two other pieces of legislation succeed, Senate Bill 606 and Assembly Bill 1668, known together as Making Water Conservation A California Way of Life, successfully turning their concepts of water efficiency, conservation and drought preparedness into state law.

“These companies are becoming advocates because they're recognising they can only do so much within their four walls, so policy is really the driver,” said James. The strength of the dual law is that it allows companies to engage in water conservation practices at a level they feel comfortable with, enabling some firms to pursue more aggressive water stewardship programmes and others less so.

Clothing giant Gap, for example, posted Connect the Drops logos in all the windows of its 54 Banana Republic stores throughout the state.

Autodesk, a giant in software design that employs lots of water to run its data centres, has demonstrated better water management both in business operations and in the tools it provides to customers seeking smarter city designs. PepsiCo has made commitments to cut water use in its operations and supply chains, including at its Frito-Lay manufacturing facilities in California.



AARTI KALYANI/SHUTTERSTOCK

California's recent wildfires have been exacerbated by its six-year drought

‘Companies are recognising they can only do so much within their four walls, so policy is really the driver’



EDDIE J. RODRIGUEZ/SHUTTERSTOCK

Companies are working to reduce the amount of irrigation needed in supply chains

And the clothing manufacturer Levi Strauss, which operates a finishing factory in the Los Angeles area, launched a PR campaign encouraging people to wash their jeans less often. “As an iconic company in California, they want to be part of the solution,” said James. (See [‘Water-less’ manufacturing and new cotton irrigation techniques spell hope for jeans brands](#))

The California Water Action Collaborative includes some of the same companies as Connect the Drops – Target, Coca-Cola, Hilton, Driscoll’s and General Mills – but is, in many ways, even more ambitious.

This is because the consortium of several dozen organisations and multinational companies organised under CWAC has explicitly chosen to engage in innovative, metrics-driven water management pilot projects with a potential to scale and, if proven successful in California, to be replicated worldwide.

“It’s really appealing because you can use California and translate [the success here] elsewhere in places like Brazil, South Africa and India,” said Jason Morrison, president of the Oakland-based Pacific Institute, which helped initiate CWAC four years ago through the [Water Action Hub](#), an online water stewardship collaboration tool it developed with the CEO Water Mandate.

‘It’s really appealing because you can use California and translate the success here elsewhere in places like Brazil, South Africa and India’



The hub had allowed organisations to find and team up with others working on specific dimensions of the California water crisis, from urban water use to agriculture to climate mitigation.

But with CWAC they created a unique, powerhouse alliance of corporate, non-profit and state actors capable of delivering water management projects with sustainable financing models, using metrics that aligned with the state's broader water action plan.

It's the first time so many different private-public entities are working to address the water crisis in such a shared, coherent network, said Morrison, holding out the possibility of greater things to come.

"If there's one thing a global company does well, it's to scale its successful practice fast. If these [water management] projects in California prove to be effective and a good way to organise partnerships with environmental organisations, we could expand the CWAC model to other parts of North America, and if it's proven to work there, there would be an interest to apply it to other parts of the world."

Included in the collaborative is Microsoft, which has committed to use only greywater and captured stormwater for all its irrigation and sanitation needs at its Northern California facilities. Nestlé, Coca-Cola, Anheuser-Busch and MillerCoors are working alongside The Nature Conservancy to increase forestland and improve watershed management at the American River Watershed, which those companies depend on for their products.

The Pacific Institute is meanwhile working with Hilton, WWF and the Santa Ana Watershed Project Authority to reduce water use, replace lawns with drought-tolerant plants and recharge groundwater with managed stormwater in the Santa Ana River Basin of Southern California.

Addressing its food supply chain, Danone, along with Sustainable Conservation, is working with dairy farmers to irrigate their corn fields for cattle using nitrate-rich water taken from

'If there's one thing a global company does well, it's to scale its successful practice fast. If these projects prove effective we could expand the model'



KEN18/SHUTTERSTOCK

Berry grower Driscoll's is using water recycling methods to recharge underground aquifers



the cows' own manure-holding lagoons, which reduces water use while increasing the corn yield due to the high nitrate content. And General Mills, Campbell's, agri-business supplier Olam International and University of California Davis, along with the non-profit Sustainable Conservation, are working with orchard farmers in the Sacramento-San Joaquin Delta studying whether flood irrigation in winter months can produce greater plant root resilience, enabling farmers to use less water in the summer months.

Each of these CWAC projects involve a unique mix of government, private sector and NGO participation, but share adherence to UN Sustainability Development

Goal 6: to ensure access to water and sanitation for all, says Morrison. Above all, the collaborative is laser-focused on establishing the cost savings and water benefits of each project, he says. "Because if you can make a strong return on investment argument, then you'll get more companies to make those investments."

Google and food-flavouring giant Firmenich are also considering joining the alliance. If big Southern California employers like Kaiser Permanente, Disney and Bank of America can be convinced to come on board as well, it would be a game-changer, said Morrison.

These companies "have a long-term interest in California being a water-secure state, and they're interested in investing in the resiliency of that supply chain. It's enlightened self-interest and that's where the power of these collaborations lies," Morrison added. "When people understand these aren't just each drops in a bucket, but that they contribute to something bigger, that's when they get mobilised and energised."

Kirsten James of Ceres agrees that the water landscape in the Golden State has been transformed. "I think there's still a long way that California needs to go, like ensuring safe water for all communities, but we've made some good inroads. Now we have to be vigilant that we're implementing these plans in a way that's effective and makes sense." ■



PETR VORABEV / SHUTTERSTOCK

Orchard farmers are experimenting with flood irrigation in winter months



Michael Levitin is a journalist based in Berkeley, California, covering climate and clean energy financing among other topics. He has written for The Atlantic, The Guardian, Time and Newsweek.



SHYAMALAMURALINATH/SHUTTERSTOCK

How Mars is helping to slash water use in rice cultivation

When Mars Inc set the target of halving unsustainable water usage in its supply chain by 2025, there wasn't much question of where to start. Having mapped water usage across its extended value chain for its [Sustainable in a Generation plan](#), the food giant found that rice, grown mainly under irrigation in water-stressed Pakistan and India for brands such as Uncle Ben's, accounted for half of its unsustainable water use.

As Fiona Dawson, global president for Mars Foods, told the FT Water Summit last month: "Rice is a daily staple for 3.5 billion people on the planet and accounts for a staggering 40% of the world's irrigated water."

She pointed out that rice farmers are some of the poorest in the world, and some of the most vulnerable to climate change, including rising sea levels, drought, flooding, salinity and rising temperatures. Despite this, rice production will need to increase 25% in the next 25 years to feed a rising population. "As a rice producer, as a responsible business, we decided this is a challenge we must absolutely face into," said Dawson.

Mars teamed up with WWF, UN Environment and the International Rice Research Institute to launch a [Sustainable Rice Platform \(SRP\)](#), to promote more climate-friendly rice production methods, such as alternative wetting and drying, which departs from the continuous flooding used in conventional rice cultivation by alternatively draining and reflooding rice paddies to keep optimum water levels. Rice meeting the platform's Standard for Sustainable Rice Cultivation is also grown with fewer pesticides.

Dawson said Mars had worked with 2,000 basmati rice farmers in India and Pakistan to help them adopt new growing methods. In Pakistan, its interventions had resulted in a 32% increase in farmers' income, 17% increase in yields and 30% decrease in water usage over the past three years. "This gives us great hope," she said.

Mars Food has nearly reached its 2020 goal of sourcing all its rice from SRP-certified suppliers, says Dawson, rolling its programme out in Thailand and Cambodia, and working with its farmers in the US and Europe to reduce use of water and pesticides, and protect biodiversity.



“This makes a difference to the communities in which we work, but it is also good business”, she said, having saved Mars \$12m to date. “With global demand for rice growing, it’s imperative that Mars Food is at the forefront of improving the quality of rice and the resilience of our supply chain.”

Mint, which is grown by 1 million farmers in parts of the US and Canada as well as in India, is another key ingredient that is threatened by water stress. In India, Mars is working with its partner Agribusiness Systems International to train more than 20,000 smallholder farmers in Uttar Pradesh to implement good agricultural practices that can improve soil health, raise yields, and improve incomes. It is also funding scientific research into developing plants that can resist disease, produce higher yields, adapt to climate change and use water efficiently.

Such interventions, however, may not be enough to relieve the company’s impacts in all locations. Mars’s Water Stewardship Action Plan, introduced in 2016, spells out that it is taking a “context-based” approach. “Where we can’t reduce water use to sustainable levels, we may engage in activities, such as landscape restoration, to recharge water levels to the point necessary to meet our targets. These recharge activities will be in the same watersheds as those within which we operate/source and they will be independently verified,” Mars said.

And where this fails to relieve stress on a local watershed, Mars is prepared to change the location of where it sources.

With agriculture responsible for 70% of water usage, water is a material risk for a food company like Mars, said Dawson. “Addressing water scarcity isn’t something that is nice to do. It is a business imperative.”



MARS INC

Mars is helping to train mint farmers in better agricultural practices

Terry Slavin

[View online](#)

Mahindra plots green revolution in central India

India is in the grips of an unprecedented water crisis, with 600 million people facing high to extreme water stress, three quarters of households lacking access to drinking water in their homes, and the country ranking 120th among 122 countries in water quality, according to an [alarming report](#) published this year.

According to the Asian Development Bank, about 84% of all water withdrawals are used for agriculture in India, but average efficiency of irrigation water use is only 38%, with productivity further hampered by low crop yields and the cultivation of low-value crops.

When Mahindra Group, the vast Indian conglomerate whose businesses include the world's leading tractor manufacturer as well as drip-irrigation systems, looked at how it would spend the 2% in profits mandated under India's CSR law, it did not have to think hard.

In an interview at the Global Climate Action Summit in California in September, Anirban Ghosh, Mahindra's chief sustainability officer, explained that the company decided to devote its CSR budget to developing an integrated watershed management programme in the central Indian state of Madhya Pradesh.

"We thought there was no better way to use it [the money] than on water availability in India," he said.

In the Damoh district of the state, which comprises 20,000 people in 32 villages, and covers an area of over 10,000 hectares, the company collaborated with the state government to implement a programme that combined the construction of water and soil conservation infra-



Tractor manufacturer Mahindra is developing a watershed management programme in Madhya Pradesh

structure like dams, trenches and bunds, with tree planting, the introduction of improved seed varieties, drip irrigation systems, tractors, and even Grameen fridges, which keep vegetables fresh for five days without any use of electricity.

The growing season was extended, the water table of the district rose two feet, and farmers who previously could only irrigate one or two acres, even if they owned 10, were able to irrigate all the land they owned, according to a [video of the project](#) available on YouTube. Improved seeds, the introduction of tractors on some farms, and the selection of some farmers to be trained at the regional farming science centre to become “agri doctors”, equipped with tablets and software, boosted productivity. Ghosh said average per capital income of households rose 235% over five years.

Asked what value Mahindra has got out of the watershed management partnership, Ghosh said it had increased the potential market for the company’s tractor business and its Agri Solutions subsidiary, providing valuable lessons in how it can reach its target to positively impact the lives of 75 million farmers by 2025.

“It told us what works, and what doesn’t work, which triggers are more impactful in the steps we are taking in our agriculture business,” Ghosh said.

Terry Slavin

[View online](#)

WWF

Apparel brands join forces to clean up their act

Angeli Mehta reports on how collaborative platforms such as the Partnership for Cleaner Textile in Bangladesh are pushing for improvements in one of the world's most polluting industries

The textile industry is one of the world's biggest consumers of water, with the washing, dyeing and finishing processes all using copious amounts – not to mention the high water requirements of cotton, a crop that is twice as thirsty as major food crops such as rice, according to PwC.

The industry is also a huge polluter, with textile treatments and dyeing responsible for 20% of all freshwater pollution globally. In the watershed area of Dhaka in Bangladesh, for example, industrial pollution accounts for 60% of water pollution – with textiles the second largest contributor after tanneries. The International Finance Corporation (IFC) estimates that in 2017 more than 700 washing, finishing and dyeing factories were discharging 200,000 litres of wastewater per tonne of fabric.

Western fashion brands are beginning to see how they can have an impact on water use and pollution. Collaborative approaches are being developed with the likes of WWF in China and Turkey, and the International Finance Corporation and NGO Solidaridad in Bangladesh, bringing together brands, factories and finance to kickstart cleaner production.

Indeed [European research](#) suggests that this is exactly the type of action that consumers want to see. A survey for Fashion Revolution found that 75%

In Dhaka in Bangladesh industrial pollution accounts for 60% of water pollution – with textiles the second largest contributor after tanneries



of those questioned say brands should be required by law to protect the environment at every stage of making their products. Almost 90% said it was important that brands tackle climate change and environmental protection. While those figures don't entirely appear to translate into consumer action, 37% said it was important that the clothing they buy is produced in a way that is not harmful to the environment.

In Bangladesh, H&M, Inditex, and C&A are sponsoring the [Partnership for Cleaner Textile](#) (PaCT), whose aim is to tackle water, energy and chemicals use in the entire textile industry.

Programme manager Nishat Shahid Chowdhury is leading the factory outreach effort, and advising on best practice. "Thirteen international brands all joined hands to push a common sustainability agenda," she explains.

The first phase of the programme concentrated on cleaner production, and has involved 250 factories. Brands subsidised initial audits of their nominated supplier factories to get the programme going, and in the five years since they've implemented various methods of best practice. Factories are seeing returns on their investments. In one trouser-making facility, replacing steam dryers with thermal oil heaters cut water consumption by over 70%, as well as saving energy.

A few months after PaCT was set up in 2013 came the Rana Plaza disaster, in which more than 1,100 textile workers were killed. "When Rana Plaza happened, everything shifted," says Chowdhury. Brands saw results from implementing fire and safety recommendations and at the same time factories joining the PaCT programme were seeing that they could save money by implementing best practice for energy and water, which in turn they could invest in improving safety measures.

Brands also have a lot to learn. PaCT has been educating designers on the impact of their decision making – for example, which dyestuffs cause the most pollution – in an effort to encourage them to consider sustainability at the design and sourcing stage. "The next logical step," says Sebastian Taylor



30 SECOND READ

- The textile industry is one of the world's biggest consumers of water. Washing, dyeing and finishing use copious amounts – as do crops such as cotton. Textile treatments and dyeing are also responsible for 20% of global freshwater pollution.
- Western fashion brands are waking up to their impact. In Bangladesh 13 international brands have joined PaCT to push for a common sustainability agenda. The programme educates designers, mobilises finance and is working on developing solutions to wastewater and sludge management.
- The WWF's [Water Risk Filter](#) helps companies tackle water risk. Companies receive detailed advice based on 130 indicators, enabling them to set targets and build an action plan.
- In China WWF has been working with H&M to push for governance. Another WWF project is aiming to clean up the water tanneries flush into India's Ganges.

In Bangladesh, H&M, Inditex, and C&A are sponsoring PaCT, whose aim is to tackle water, energy and chemicals use in the entire textile industry



of Solidaridad, which worked on developing a decision support tool, “is for them to realise the impact of their specifications”. For example, stipulating a particular colour of fabric and then asking for a lighter shade requires fading, and that demands chemicals, energy and water.

Enabling environment

Adopting cleaner production methods requires an enabling environment, meaning regulation and access to finance. PaCT advocated to get taxes cut on expensive equipment such as energy-saving LED lighting. And tax and VAT have been increased from 5% to 25% on three toxic chemicals that the programme for Zero Discharge of Hazardous Chemicals (ZDHC) says should be banned.

When PaCT was set up, no bank was providing finance for resource-efficient technology. “It was a case of educating the banks,” says Chowdhury. This meant “providing benchmarking tools, and a resource efficiency calculator, so that the bank can see whether it makes sense to offer loans to a factory”.

She adds: “It’s only been possible because all 13 brands, and Bangladesh’s textiles association, pushed for change.”

PaCT has been able to mobilise \$975,000 from its financial partners to support investment in technology upgrades. Factories also have access to a \$200m export development fund, and a one-stop shop for advice on new technologies.

But factories don’t work in isolation. A water footprint assessment of the textiles cluster in one part of Dhaka revealed that it was consuming the bulk of the area’s available freshwater – some 13 billion litres a year.

Now PaCT is working on developing centralised solutions to wastewater and sludge management and encouraging factories to implement sustainable practices. PaCT also has to grapple with failures of regulation: “You can make a business case for technology to reduce effluent costs, but it’s completely



STEVENK/SHUTTERSTOCK

In Bangladesh textile dyes are a major contributor to water pollution

‘It’s only been possible because all 13 brands, and Bangladesh’s textile association, pushed for change’



negated by low penalties for regulatory failure. And in Bangladesh, factories do directly discharge effluent,” says Taylor.

H&M was one of the first companies to use the [Water Risk Filter](#) tool, launched six years ago by WWF and German development finance institution KfW DEG to help companies tackle water risk both in their own operations and collectively at a basin level.

“It was only a database at the start,” explains Charlotta Järnmark, programme manager for water stewardship at WWF. “The idea was that investors would be able to test whether companies were aware of the material risks in the areas they were operating. Now it’s a mitigation toolbox.”

Companies get detailed advice based on 130 indicators, from which they should be able to set targets and build a comprehensive action plan to address water risk, says Järnmark. This can take up to three years, and involves mapping the supply chain. A new section will shortly be added, enabling companies to “begin to calculate value potentially affected by water risk”.

WWF wants the brands it works with to “step up to become water stewards, to encourage others in better management of water, and engage local and national decision makers,” says Järnmark. If engagement is working, the baselines of river basin health should improve.

Most recently, H&M has been working with WWF on projects in China. A third of its suppliers there and in Bangladesh and India, which are involved in wet processing, are operating in areas that are, or will soon be, water-scarce.

In China, Järnmark points out, H&M has a lot of suppliers, so a lot of influence. WWF and H&M have pulled in Tommy Hilfiger and US home textiles group Target. They are pushing the China National Textile and Apparel Council (CNTAC), to promote better policies, and engaging national and local government on governance.

H&M has fewer suppliers in Turkey, where a new project aims to cut pollution in one of the country’s most important river basins, the Büyük Menderes. Having an impact there will depend on getting more brands to join. Inditex,

WWF wants the brands it works with to ‘step up to become water stewards, to encourage others in better management of water’



VENTURELLI LUCA/SHUTTERSTOCK

H&M has been working with the WWF to promote better governance



SK HASAN ALI/SHUTTERSTOCK

Effluent from tanneries includes toxic chemicals and animal flesh

another of PaCT's backers, has confirmed that it, too, will work with WWF on the programme.

Kim Hellström, strategy lead for climate and water at H&M Group told Ethical Corporation: "We recognise such collaboration is required not only within [the] textile industry but also beyond, for other basin users. It's not about cleaning one single brand's supply chain but securing long term sustainability for the business."

H&M's ambition is to expand cleaner production beyond the Büyük Menderes region. Helpfully, one of Turkey's private banks, Garanti Bank, sees clean production technology as "bankable" and is, according to WWF, ready to provide favourable loans to manufacturers who want to revamp their production processes.

Another WWF project is aiming to clean up the water that Kanpur's tanneries flush into the highly polluted river Ganges in India. Funded by HSBC, 10 companies, including John Lewis, Arcadia, Tesco and New Look, have joined the [Ganges Leather Buyers Platform](#).

Again, the strategy is benchmarking, and demonstrating financial, environmental and social benefits of implementing clean technologies, says Lucy Lee of the WWF water stewardship team in the UK.

Examples include recovery and reuse of chromium (a toxic chemical used to tan leather); preventing animal flesh being dumped in the river; and developing effluent plants at the tannery level, while making efforts to improve a city-wide effluent processing system that currently doesn't work well. Progress

'Collaboration is required not only within the textile industry, but beyond for other basin users. It's not about cleaning one single brand's supply chain'



is sufficiently encouraging for the platform group to plan to scale up to other leather clusters in India.

Global impetus required

H&M and WWF have called for a global platform to increase collaboration on water stewardship. It's clear that efforts have to move beyond the same European and North American brands who partner WWF and others, and start to tackle the big volume producers.

The question is how? Last year, a highly critical report from NGO Changing Markets Foundation on dirty practices in the viscose industry did have an impact amongst some brands and encouraged ZDHC to look beyond chemicals used in dyeing and finishing to raw materials production.

A joint working group has been set up to develop the criteria. China's top producers developed a roadmap to meet international standards on both wastewater and sustainable sourcing of wood pulp, which is used to manufacture viscose.

However, when [Changing Markets](#) followed up on actions taken by both brands and viscose fibre producers, it found that the world's biggest, India-based Aditya Birla Group, had not acted to stop discharge of untreated waste water at two of its major plants. (See, [Fashion brands 'failing to heed warnings on viscose production'](#))

Ways also have to be found to pull in the small factories, which aren't the strategic suppliers brands usually support.

"Working with brands gives you leverage," says Solidaridad's Taylor, "but it's inherently limited ... opening up a greater gap between the top layer of best-performing factories and those where there is no help."

Solidaridad is working on self-assessment tools that could be offered by local textile associations to offer at least some support, he suggests.

In Bangladesh, PaCT is now in phase two, expanding to cover renewable energy, chemical management, and energy efficiency. Chowdhury wants factories to nominate themselves, rather than being chosen by brands. So far 49 have signed up, although there may be as many as 3,500 to reach across the whole country. ■



Fish killed by pollutants from textile factories discharging effluent

WWF



Angeli Mehta is a former BBC current affairs producer, with a research PhD. She now writes about science, and has a particular interest in the environment and sustainability.
@AngeliMehta



‘Water-less’ manufacturing and new cotton irrigation techniques spell hope for jeans brands

A pair of Levi Strauss 501 jeans has a water footprint of an estimated 3,781 litres of water, from growing the cotton, through manufacturing, consumer use and end of life disposal. And although manufacturing accounts for just 9% of its embedded water, that is the stage where the company has direct control over water use.

The brand has pioneered a range of 21 techniques – so called Water<Less – that cut water consumption in the finishing process by 96%. It has made these techniques open-source, and alongside its water recycling and reuse standard (another industry first) expects that if adopted, the garment industry could save at least 50 billion litres of water by 2020.

The garment company has committed to ensuring that 80% of its own products will be made using Water<Less techniques by 2020.

Levi Strauss has also been working with WWF to assess its own supply chain and identify hotspots of water risk. It expects its supplier factories to report on water consumption and to explore options for water recycling and reuse, as well as complying with wastewater guidelines and limits set by the programme for Zero Discharge of Hazardous Chemicals (ZDHC).

And since 70% of its jeans’ water footprint is consumed in growing the cotton, by 2020 Levi Strauss says it will source 100% of its cotton through more sustainable programmes like the Better Cotton Initiative (BCI), which it helped to found in 2005, and by using recycled cotton. (See [Unpicking the confusion over sustainable cotton](#))

The company says jeans crafted using at least 15% recycled cotton save as much water as the entire manufacturing process consumes.

Meanwhile, the C&A Foundation recently reported that it has had success reducing the water intensity of cotton in India, which produces 40% of the world’s supply.

The C&A Foundation said its drip pool programme, run in conjunction with the Aga Khan Foundation and Aga Khan Rural Support Programme in India, cut water consumption by

almost 80% to 1,191 litres per kilogram of cotton, compared with farmers not using drip irrigation. These figures are for 2016-17, a particularly dry year.

A [case study](#) carried out by PwC reveals the technology is saving 2.5 million litres of water per acre of cotton cultivation. Drip irrigation is also labour-saving, and means nutrients are precisely applied uniformly across the field. As a result, farmers are also reporting better yields – a 24% increase in seed cotton; and 7% less fertiliser use – meaning less soil and water contamination, as well as increased income.

Drip irrigation technology is capital-intensive, but the programme provides interest-free loans to enable small farmers in Gujarat to tap into a government subsidy scheme that provides up to 40% of the cost of installation.

Anita Chester, head of sustainable raw materials for the C&A Foundation, explains: “Whilst the large and medium farmers manage to raise the additional sum required and avail of the scheme, the small and marginal farmers, due to their inability to raise the balance, are left in the lurch. By providing such farmers with interest-free loans to cover the margin needed, the programme is able to help the most vulnerable.”

What’s striking, Chester adds, is that none of the 1,352 farmers so far involved in the scheme has defaulted on their loans, which “debunks the popular belief that small farmers are not bankable. We need to reflect if the products we offer them are innovative enough, or even fit for purpose.”

Farmers repay the loan within two years and the money is returned to a community financing pool run by farmers groups, who are being supported and trained by the programme – so eventually they’ll run it for themselves.

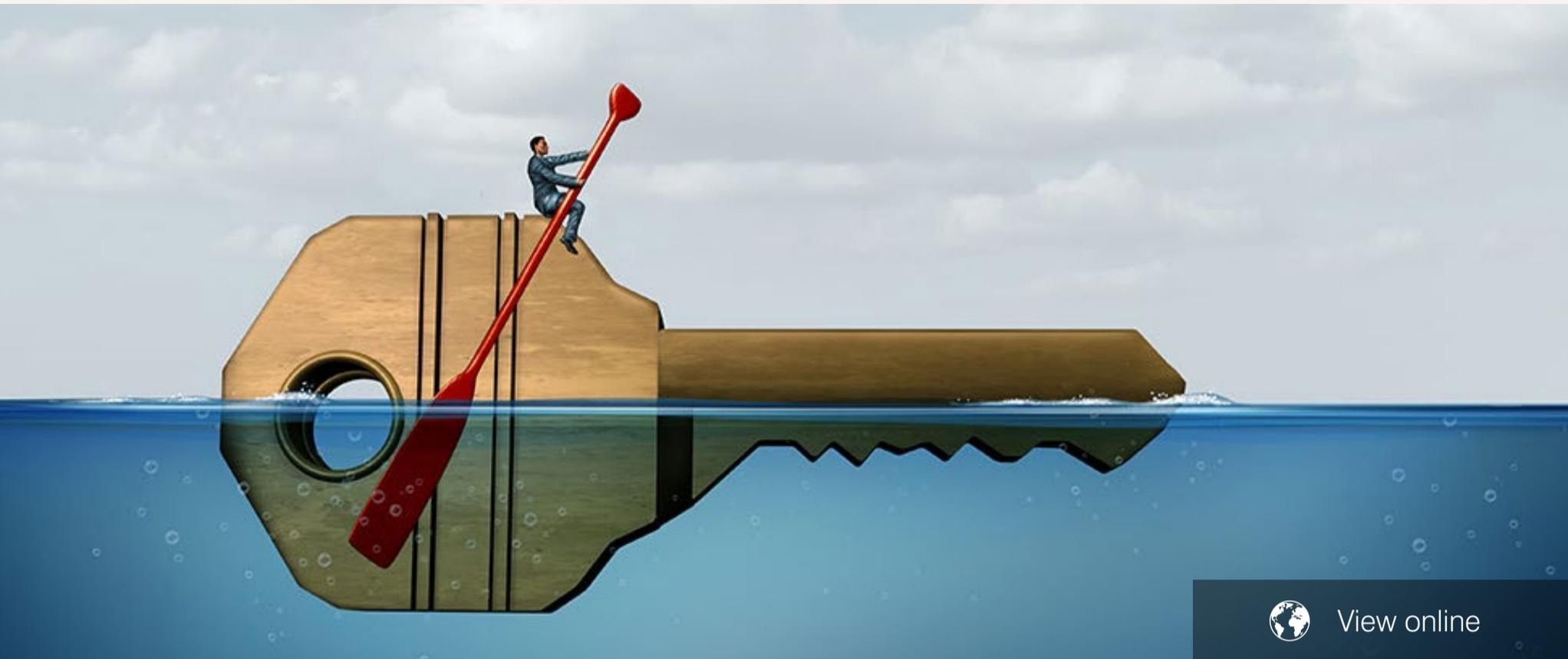
By 2020 C&A Foundation expects to reach over 9,500 farmers and have 22,500 acres under drip irrigation, saving up to 55 million litres of water. Chester hopes that by making the case study public, other brands, manufacturers and donors will learn from the experience and that it will help frame public policy in other cotton-growing states.



C&A FOUNDATION

Farmers in C&A Foundation’s drip pool programme are saving water and increasing yields

Angeli Mehta

[View online](#)

LIGHTSPRING/SHUTTERSTOCK

‘We can’t wait for Al Gore. CEOs have to lean in to the water crisis’

CDP’s Cate Lamb laments that while many companies have made a virtue of fighting climate change, water security is being neglected because it has few C-suite champions

At the recent Financial Times Water Summit, Heineken’s CEO Jean-François Van Boxmeer noted that “water is yet to have its Al Gore moment”. Van Boxmeer’s intervention was welcome, highlighting not only the absence of public champions on water issues, but also, specifically, the absence of public chief executive engagement on water security. I found myself questioning which industry champions could emerge to fill the void.

Having been involved with the issue for over a decade, I can count on one hand the number of chief executive officers (CEOs) that have spoken authentically and competently on the topic and what it means for their business. Yet in the climate arena, in the last month alone, we have seen C-suite engagement from the likes of Interface, EDF, IKEA, Unilever, Starbucks, Salesforce ... you get the picture.

There is anecdotal and empirical evidence that the CEO is a key decision-maker in environmental, social and corporate governance-related decisions. Environmental and sustainability professionals can make incremental improvements, but the actions that truly transform a company’s water performance are tied to strategic decisions taken by the CEO and the board. Decisions, for example, associated with product development, market expan-

‘I can count on one hand the number of CEOs that have spoken authentically on water and what it means for their business’



sion, or resource allocation, all have the potential to significantly reduce or even eliminate a company's negative environmental impacts.

With the UN's [SDG6 Synthesis Report](#) and the Intergovernmental Panel on Climate Change's (IPCC) 1.5-degree [report](#) both warning that the world is not on track to achieve its water and climate goals, it is clear that incremental change is insufficient to deal with our challenges. If there has ever been a time for truly transformational decision-making and leadership, it is now.

CDP launched the concept of corporate water disclosure in 2009, working with shareholders to motivate companies to measure, manage and disclose annually, as a vital step to better water governance. It was the first systemic linkage between water and financial information and that year, 175 companies responded. This number has grown to 2,111 companies today: a record for CDP.

During this time, CDP has sparked a strategic dialogue on water security globally, engaging investors, companies, governments, cities, states and regions on the importance of greater transparency in the pursuit of a water secure future. [Research](#) suggests that our work in securing C-suite commitment is a critical factor for effective engagement in collective water action, both at enterprise and local levels.

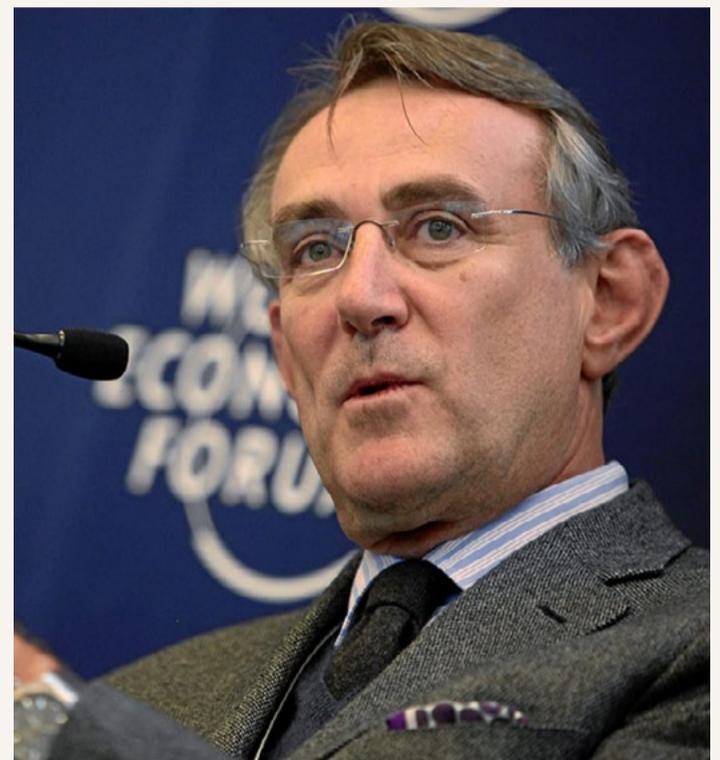
To secure a place on CDP's A-list, companies must demonstrate the highest levels of commitment to water. A large majority of companies (85%) that responded to our investor programme in 2018 report that their boards have oversight of water issues but, arguably, this is an easy win, as corporate boards should have oversight of most things.

To make the A-list, companies need to demonstrate that they are incentivising their boards to take action and ensuring water is on their agenda.

Refinements made to our questionnaires this year allow us and other data users to dig a little deeper into this statistic for companies in high water impact sectors: food, beverage and tobacco; metals and mining; oil and gas; electric utilities and chemicals. Almost three quarters (68%) of companies in these sectors report exposure to water risks that could have a substantive financial or strategic impact on business, revenue or operations, with over half (52%) integrating water issues into business planning processes.

Incentivising performance

However, when it comes to incentivising performance, only a small group of companies have any such structures in place for C-suite executives. On average, just 27% incentivise actual improvements in water withdrawals or



WORLD ECONOMIC FORUM

Heineken CEO Jean-François van Boxmeer: 'Water is yet to have its Al Gore moment'

Companies need to demonstrate a deeper commitment, incentivising their boards and ensuring water is on their agenda



consumption and just 15% have incentives tied to improvements in the quality of wastewater discharges.

For example, German Chemicals company Symrise AG ties 10% of its CEO, chief finance (CFO) and chief strategy (CSO) officers' bonuses to achieving corporate sustainability targets. These include strategic water-related company targets, such as the annual reduction of wastewater loadings by 4%, increasing the number and percentage of strategic suppliers participating in CDP's supply chain programme, and the company's CDP scores for water, climate and forests.

CDP's experience in the pursuit of a low-carbon future suggests that incentives for CEOs play an important role in driving better environmental outcomes. For example, analysis of corporates that reported to CDP last year indicates that companies that have board-level oversight of climate change are nine times more likely to set emissions-reduction targets. Further, when a CEO's remuneration is based on reductions in scope 1 and 2 CO₂ emissions, or with CDP's climate change score as is the case with Mars and Kering, ambition is higher and rates of reduction are much faster.

The world is not managing water well. This is a result of failures in the leadership of governance and markets. Markets are edging forward, but corporate leaders need to seize the reins and pick up the pace. Encouragingly, those that already have are being viewed favourably by the finance community. For example, the recently released Euronext Index, developed in partnership with Goldman Sachs, selects companies based on their CDP water score, as well as climate and forests scores – prioritising those that feature on CDP's A-list. The development of this index sends a strong signal to the market by openly directing capital towards companies that have made a firm commitment to water security.

With more companies than ever disclosing and taking action via CDP we are nearing a tipping point that will mainstream corporate action on water security across the world. Change starts from the top. For many companies, water can often be forgotten in the urgency of day-to-day operations. Corporate leaders with foresight are increasingly placing water security as a core business issue and are attempting to reduce their water-related impacts and risks. Excitingly, they are beginning to be rewarded for this. Why wait for Al Gore? It's time for CEOs to lean in and provide the kind of inspirational, transformational leadership required to deliver a water secure future for all. ■



PRESSMASTER/SHUTTERSTOCK

Change has to be driven from the top



Cate Lamb is global director of water security at CDP

[View online](#)

ABIR ABDULLAH/WATERAID

‘We need to pour money into water infrastructure, or we are all sunk’

WaterAid’s Jonathan Farr says the latest IPCC report highlights the importance of adaptation, and business has a crucial role to play

Last month, the Intergovernmental Panel on Climate Change (IPCC) published its report on the challenges of limiting global warming to a more ambitious 1.5°C rather than 2°C, and the consequences of exceeding it.

It made stark warnings that highlight the need to urgently cut carbon pollution, and spelled out the threat to the world’s water. The regions at disproportionately higher risk include Arctic ecosystems, dryland regions, small-island developing states, and least developed countries. Limiting global warming to 1.5°C could reduce the number of people both exposed to climate-related risks and susceptible to poverty by up to several hundred million by 2050, and reduce the proportion of the world population exposed to a climate-change induced increase in water stress by up to 50%.

This was followed by an even starker warning from China Water Risk. The report [No Water No Growth](#) looked at specific threats to Asia’s 10 mighty rivers, on which 40% of the population depend, such as over-abstraction, pollution, and environmental degradation – all exacerbated by climate change.

And a recent [report from NASA](#) shows that groundwater in many regions – including cities and villages in India, Bangladesh, Myanmar, southern Madagascar, southern Mozambique and parts of California and Australia – is severely depleting as climate change, alongside other factors, takes hold.

Regions at higher risk include Arctic ecosystems, dryland regions, small-island developing states and least-developed countries



The IPCC’s report makes it clear that a minimum of 1.5°C increase is locked in, and some have even dubbed that figure as “magical thinking”. There have been positive signs around carbon reduction, with the breath-taking switch to renewable energy from fossil fuels not only cutting pollution but dramatically reducing water use too, but the cuts still aren’t happening fast enough. We need to see more spending on mitigation, and on top of this it’s time to get serious about spending on adaptation, which in 2016 amounted to \$23bn, just 6% of total climate finance.

We need to see a paradigm shift in political will, combined with unparalleled ambition and urgency, if we are to meet this challenge for a global upgrade in water services and systems.

Business and investors will play a vital role. By 2030, investment in water and sanitation infrastructure will need to be around \$900bn-\$1.5trn per year, roughly 20% of the total investment required for global infrastructure. About 70% of this will be in the global south with a large share in rapidly growing urban areas.

Some companies are already taking action. Last November, HSBC announced renewed targets and commitments to a low carbon future, in addition to other sustainability initiatives. Since 2012, HSBC has worked with Earthwatch, WaterAid and WWF through the HSBC Water Programme to support projects globally that promote and conserve clean water sources. The initiative was built on the reality that water is essential to helping communities thrive and building national economies.

Climate resilience is a core part of WaterAid’s work with HSBC in Bangladesh, building climate-resilient clean water supplies in places like Dacope, where resources are depleting as a result of climate change, while improving the quality and accessibility of water sources. Implementing measures such as raising water points above flood levels and running hygiene promotion to help reduce the spread of waterborne diseases prevalent after flooding can have a huge impact on alleviating the effects of climate change. The security of clean water is enabling children to stay in school, and small businesses to continue growing.

This initiative is reflective of a shift in private-NGO partnerships, in which we are seeing progressive companies changing perspectives from engagement with the charity sector as a philanthropic issue to a core business priority.



WATERAID

A global upgrade in water services is required

By 2030, investment in water and sanitation infrastructure will need to be around \$900bn-\$1.5trn per year



HSBC is embedding sustainability and water, sanitation and hygiene (WASH) management elements within its lending strategies to drive greater action on key issues such as water security and climate change.

Businesses can have potentially negative environmental and social impacts that need to be managed through responsible business practices and standards, for example, by ensuring that businesses ensure adequate WASH in the workplace as a minimum.

It is estimated that every dollar invested in water and sanitation returns \$4 in increased productivity. Diageo, Gap Inc. and Unilever worked with WaterAid to develop a [Business Case for WASH](#), a guide to help companies understand and measure the economic benefits of investing in water, sanitation and hygiene, and thereby make the case for further investment while also encouraging their supply chains to take action.

HSBC and WaterAid are now putting the guide into practice, with the launch of a three-year project to deliver essential water and sanitation services in apparel factories and nearby communities in Bangladesh and India operating within their supply chain.

Future-proofing in a changing climate and ensuring water resilience is important for business continuity; when companies are able to embed WASH considerations within their water strategy, this often facilitates a more holistic water management approach.

Diageo is providing leadership in this area and has developed a [Water Blueprint](#). The strategy aims to reduce water use through a 50% improvement in water-use efficiency, as well as returning 100% of wastewater from its operations to the environment safely, and replenishing the amount of water used in its final products in water-stressed areas. Community water management and WASH considerations are also embedded within the strategy.

The costs of climate change are already with us, but the benefits of taking action are hopefully not too far away. Access to safe water does not just mean avoiding tragedy, it is transformative for communities, potentially bringing healthier lives, massively increased economic prospects, and sustainable cities, towns and communities for hundreds of millions of people. ■



WATERAID/ABIR ABDULLAH

WaterAid is working in India and Bangladesh to build clean water supplies



Jonathan Farr is senior policy analyst for WaterAid

The insights and analysis you'll have access to in 2019

JANUARY

Review of 2018 and future trends for 2019

Insights and ideas from eight thought-leaders on the key impacts and milestones from 2018, and assesses the trends readers should watch out for in 2019.

FEBRUARY

Sustainable tourism

The impacts such as over-tourism, plastics waste, water extraction and pollution and CO2 emissions.

Saving our oceans

How companies and investors can contribute to restoring the health of oceans, addressing plastics waste, over-fishing and pollution.

MARCH

Stepping up to a 1.5-degree world – full issue focus

How companies and investors are increasing action to meet the 1.5-degree target. How companies are implementing the TCFD recommendations, which investors are stepping up and examples of companies that are increasing ambition.

APRIL

Sustainability in the built environment – full issue focus

A look at the ambitious Net Zero Carbon Buildings Commitment. The briefing will look at multi-stakeholder partnerships between companies and cities to achieve zero carbon buildings.

MAY

Circular economy – full issue-focus

A deep-dive on the progress on circular economy in plastics, the garment industry, electronics, the brewing industry and how US Cities and European countries are setting ambitious goals.

JUNE

Modern slavery and forced labour

Progress report on modern slavery legislation around the world.

How are companies responding to the refugee crisis?

What is the need and opportunities for companies to proactively seek to bring refugees into their factories in host countries?

JULY

Future of food – full issue-focus

Looking at work of the Food and Land Use Coalition and Global Agri-business Alliance to make food system more sustainable. Latest developments in agri-tech and precision agriculture.

AUGUST

Carbon pricing

An assessment of carbon pricing schemes around the world, including in the US, Canada, Europe and China.

Reporting the SDGs

A look at how companies are accurately reporting their SDG impacts – both positive and negative. How SDG reporting is being tracked by investors.

SEPTEMBER

Tech for good

The potential for technologies like AI, cloud computing, internet of things and blockchain to bring disruptive change.

Women and tech

We will report on efforts to get more women into the tech sector to drive disruptive change.

OCTOBER

Is “purpose” fit for purpose?

The briefing will look at progress in Future of the Corporation project, work of the Coalition for Inclusive Capitalism.

Inclusive growth agenda

What are the leading companies doing to ensure their growth is benefiting their staff and local communities?

NOVEMBER

Bending the curve on transport emissions

Look at what it will take to speed up adoption to low-emission transport alternatives.

Responsible mining

What investors and brands are doing to address environmental and social risks arising from the mining industry.

DECEMBER

2020 commitments

A year ahead of 2020, how are companies and cities faring on meeting their commitments on energy and deforestation? Interview with Christiana Figueres of Mission 2020.

Progress report on the TCFDs

What companies are using them, what difference has it made in operational and reporting terms?

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The disruptors

How Jeremy Oppenheim is leading the charge for systems change



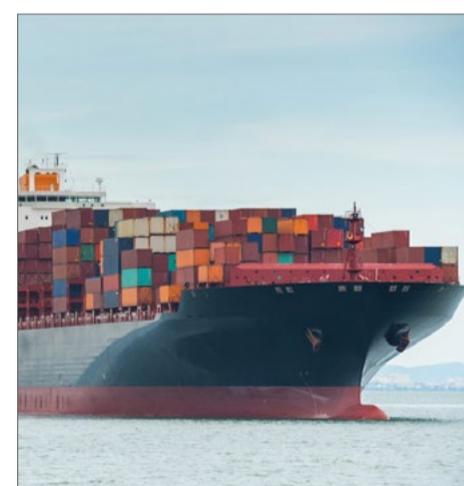
Opinion

New human rights ranking shows most firms have barely left the starting line



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'If UK retailers are to create a better world they have to address consumption'

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Get in touch for next month's issue:
harshi.joshi@ethicalcorp.com

Harshi Joshi
Key Account Manager
Ethical Corporation - Business Intelligence for Sustainability
Direct Tel: +44 (0)207 375 7235
Mail: 7-9 Fashion Street, London, E1 6PX, UK



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