GLOBAL SUSTAINABLE OUTCOMES

News & Views Q3 2021

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We're now seeing the economic consequences of shutting down the world and then hitting the restart button. As most economies re-open, demand for goods and services has largely recovered to pre-Covid levels, however supply chains have remained under stress. What is now being referred to as the "Big Crunch of 2021" has broadened across most sectors, with disruption now expected to last well into 2022. In a recent meeting we had with Terrence Curtin, the CEO of TE Connectivity, he compared sustaining operations in this environment to "trench warfare".

It's important to note that this disruption is not solely related to Covid lockdowns – climate change is starting to have a severe impact on supply chains too. In July, flooding across the Rhine basin in Germany smashed all records (148 litres of rain per square metre fell within 48 hours in a region that normally sees 80 litres in the whole of July)[1] and caused widespread disruption to logistics and manufacturing operations in Western Europe. In the US the landfall of Hurricane Ida in August led to severe disruption to logistics and supply chains there as rails and ports were closed. In China, flooding in the Shanxi region (which produces 30% of China's coal supply)[2] has led to coal mines being closed, contributing to a subsequent surge in coal prices. Sadly, the economic impacts of climate change are only going to become more severe as we approach 1.5 degree warming.

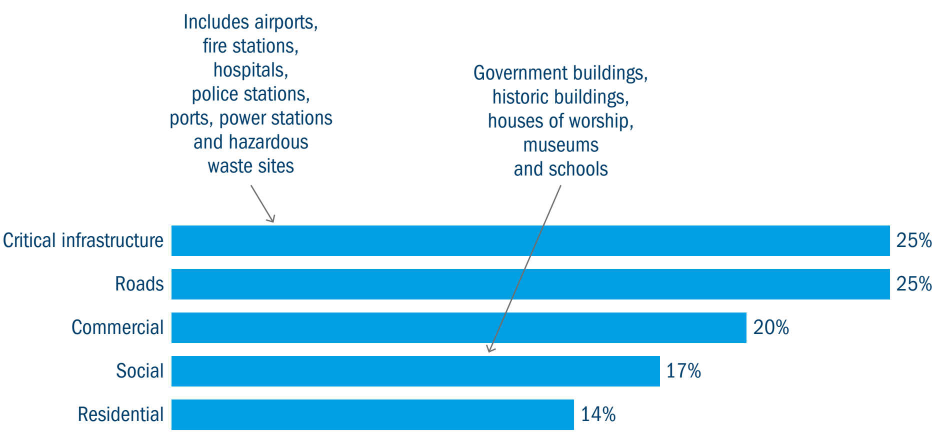
In fact, a recent report published by First Street Foundation[3] shows that nearly a quarter of US critical infrastructure – utilities, airports, ports and more – are now at risk from flooding (Figure 1).

Flooding across the Rhine basin in Germany smashed all records in July 2021. Source: iStock.

The recent surge in energy prices has only added fuel to the inflationary fire with the price of a basket of oil, coal and gas all soaring by 95% since May.[4] This surge in prices along with blackouts in several countries including China and India is the first big energy crisis of our transition to net zero. We expect this transition to continue to be bumpy given the enormity of the task ahead.

There have been several factors behind this current energy crisis, but at the core is that the supply and demand for fossil fuels is becoming increasingly difficult to predict. Variable renewables are now an increasingly significant part of our energy systems but one of the pitfalls of renewables is that the wind doesn't always blow and the sun doesn't always shine. In the past three months there has been

Figure 1: Around 25% of US critical infrastructure is at risk



Source: First Street Foundation, 11 October 2021.

little wind in Europe and the UK (the latter has been at its slowest in 70 years) while in Latin America droughts have cut the region's hydropower output (hydropower is the main source of electricity generation in Latam accounting for around 45% of all electricity generated)[5]. As a result, these regions have all had to increase their consumption of natural gas. However, investment in fossil fuels has been cut in recent years, dropping 40% since 2015,[6] due to a combination of investor and government regulatory pressure and more recently by Covid-related supply chain challenges. The result has been a severe demand versus supply mismatch.

But this is not the first time the world has undergone the challenges of transitioning to new energy technology; for example our transition from whale oil to petroleum during the mid-19th century. Previous transitions have been equally disruptive and inflationary in the near term but successful over the long term.

We believe that this crisis if anything highlights the urgency to further accelerate investments in renewable energy and the technology needed to make them more reliable – namely battery storage and hydrogen. In the short term, these huge investment requirements will be inflationary but over the longer term the energy transition will be deflationary in nature as the bulk of renewable energy investment needs to be in upfront capex, but after construction operational costs are much lower due to the lack of dependence on commodities. In fact, BNEF has found that currently 90% of the world (by energy supply) have solar or wind as their cheapest new electricity source.

In addition, the economic cost of unabated climate change, which the IEA estimates at about $20 trillion or 25% of global GDP, should provide a strong incentive for governments and wider society to push forward the clean energy transformation.

With concerns that inflation may not be as transitory as first thought – possibly resulting in interest rate hikes – the market reversed the strong start to the quarter in September. Some economists even started to utter the dreaded S word (Stagflation – a period of persistent high inflation combined with stagnant economic growth), as the supply chain crisis risks taking the economic recovery down with it. Over the third quarter several of our holdings delivered positive sustainable updates:

- **Intuit**[7] announced its commitment to helping 30,000 small businesses in the UK tackle climate action in partnership with the UK government's #TogetherforourPlanet initiative. Small businesses traditionally do not have the resources to invest in climate-positive business practices. Now through their engagement with Intuit QuickBooks, these businesses will be encouraged to cut their carbon emissions in half by 2030 and seek net-zero emissions by 2050 with Intuit providing them with practical guidance and resources to achieve these goals.
- **Cooper**[8] finally received approval for its MiSight myopia (short-sightedness) treatment lens in China for children ages 8-12 years. This will expand Cooper's positive health impact as it helps treat what is being referred to as China's myopia epidemic. According to a recent study[9] nearly 60% of students aged six to 18 in China are now myopic which is largely a result of them spending most of their time indoors depriving them of the sunlight that allows their eyes to develop.

Over the quarter two of our holdings had their emission reduction targets validated by the Science Based Targets initiative (SBTi), a partnership whose objective is to ensure that best practices are used to set emission reduction targets and are in line with climate science (ie, what the latest climate science deems necessary to meet the goals of the Paris Climate agreement, namely limiting global warming well below 2 degrees centigrade).

- **Nomad foods**[10] (parent company of frozen food brands including Birds Eye) had its emission reduction targets covering both its own operations (scope 1 and 2) and supply chain (scope 3) approved by the SBTi. In addition, Nomad Foods said it would work with its partners to ensure that the top 75% of its suppliers by emissions will have their own science-based targets by 2025.
- **AkzoNobel**[11] announced carbon reduction targets for its full value chain which subsequently received approval by the SBTi. This makes AkzoNobel the first paints and coatings company to receive this endorsement.

This now means 21 holdings in the Sustainable Outcomes Global Equity strategy (or **48%**) have net-zero targets that have been validated by the SBTi. It is preferable that our investments develop decarbonisation targets that are developed with and approved by the SBTi.

Through this market and economic volatility, we retain our long-term focus on our sustainable themes and the advances our companies are making towards delivering sustainable outcomes for our investors. If anything, we believe these themes will only accelerate as government environmental and social targets shift from rhetoric to policy response and actions.

[1] Climate scientists shocked by scale of floods in Germany, guardian.co.uk, 16 July 2021.
[2] China Coal Futures Surge to Record as Flood Swamps Mine Hub, Bloomberg.com, 10 October 2021.
[3] Nationwide Resilience Report Finding 25% of All Critical Infrastructure and 23% of Roads Have Flood Risk, firststreet.org, 11 October 2021.
[4] Economist, 16 October 2021.
[5] Climate Impacts on Latin American Hydropower, IEA.org, January 2021.
[6] Economist, 9 October 2021.
[7] The mention of specific stocks is not a recommendation to deal.
[8] The mention of specific stocks is not a recommendation to deal.
[9] Shanghai East China Normal University study
[10] The mention of specific stocks is not a recommendation to deal.
[11] The mention of specific stocks is not a recommendation to deal.

Cape Town's water crisis was caused by extreme drought from 2015-2017 and infrastructure investment that failed to keep up with population growth. Source: iStock.

Sustainable theme focus: Water, water everywhere but not a drop to drink

In March 2018 I visited my family and friends in Cape Town, a city amid an unprecedented water crisis. Locals were fearful of "Day Zero", the day when the water levels of the major dams supplying the city could fall below 13.5% and municipal water supplies would be switched off.[1] This would have made Cape Town the first major city in the world to run out of water...

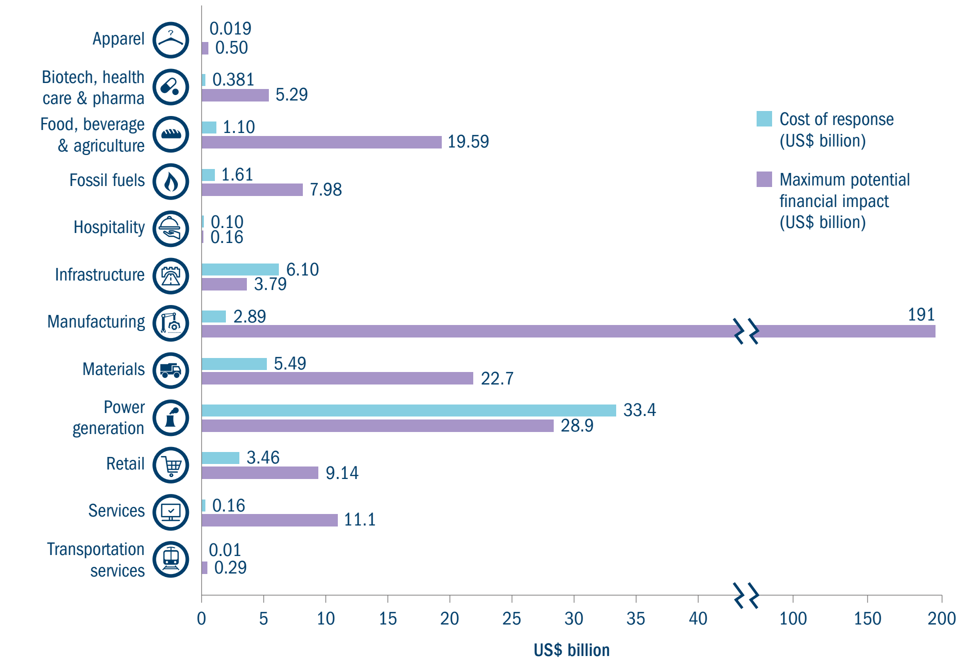
On this trip I learnt the true value of water as I was limited to just 50 litres consumption per day, which is minimal when considering a standard shower uses 10 to 12 litres of water per minute.[2] In fact, Cape Town residents were forced to recycle every drop of water used in their day.

With the community working together, Cape Town succeeded in reducing its daily water usage by more than half to around 500 million litres per day which, combined with strong rains in winter 2018, helped dam levels to recover. A close escape.

But what led to this water crisis? There was a confluence of factors but mostly it was caused by a combination of extreme drought from 2015-2017 and infrastructure investment that failed to keep up with high urban population growth (Cape Town's population increased 71% in 20 years while dam water storage only increased by 17% over the same period)[3].

Sadly, water scarcity is on the rise globally and is becoming one of our biggest environmental challenges. Like in Cape Town, climate change, population growth and rapid rates of urbanisation that outpace infrastructure developments are placing strain on our water resources. It is estimated that demand for fresh water doubles every 20 years owing to increasing population,[4] while less than 1% of water available on earth is fresh water and only 0.007% is both useable and accessible.[5] In addition, rising rates of water pollution and seawater intrusion (from rising sea levels) are further placing pressure on useable water. It is forecast that by 2025 more than 30% of the

Figure 2: Sectoral water risk impacts vs the cost of action



Source: CDP Global Water Report 2020.

world's population will live in areas without adequate water supply, rising to 40% of the world's population facing absolute water scarcity by 2050.[6]

Increasing water scarcity comes not just with social impacts, including displaced communities, but severe economic costs that are already starting to be felt. In fact, the CDP (Climate Disclosure Project) reported that water-related risks cost corporates $301 billion in 2020 while just $55 billion of investment would have been sufficient to mitigate those risks (Figure 2).

The loss of supply of clean water to most companies can be devastating, especially when it is a crucial part of the production process. For example, the technology sector is heavily reliant on water both for semiconductor production but also for data centre cooling. The most common way in which these water risks materialise is via supply chain disruption. Water is also hugely important for commodity markets, particularly agricultural products which are responsible for 69% of global water use.[7]

What are the solutions?

First, we need to address the huge amounts of water loss in global urban water distribution systems, so called "non-revenue water", which can reach 345 million cubic metres per day.[8] This is equivalent to around 30% of water system input volumes across the world and would be enough to provide water to an additional two billion people![9] Much of this water is lost through pipe leakages, wasteful water practices and out of date technology.

The solution is not just about upgrading our ageing water infrastructure but also the adoption of smart water technology solutions to better manage water loss as well as improved productivity and efficiency at water utilities.

The government obviously has a key role to play in upgrading our water systems, but corporates and investors play a crucial part too. Corporates need to address their own water management practices especially if they operate in regions facing acute water shortages. This involves not just upgrading their own infrastructure to limit water loss but also implementing solutions to safely reclaim and reuse their wastewater – ie, making water usage more circular. As investors we need to engage with management teams to ensure that they are promoting sustainable water practices in their operations while limiting water pollution.

In our strategy, we are invested in several companies that are helping to solve for the world's water challenges, including:

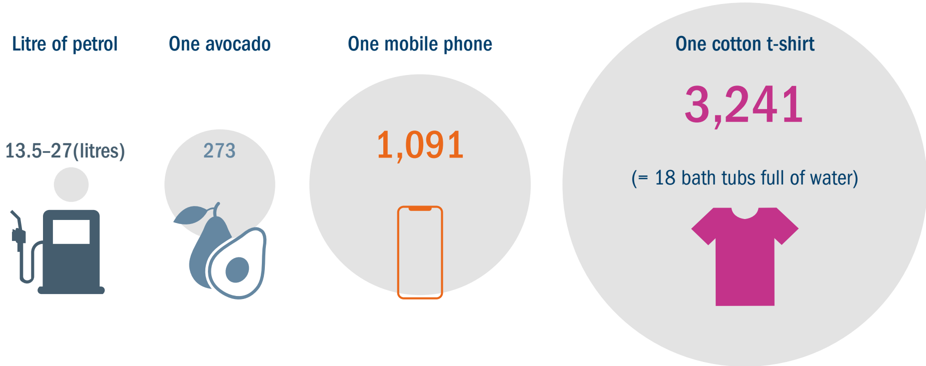
- **Xylem**[10], the world's largest listed water infrastructure equipment provider with 90% of its sales aligned with Sustainable Development Goal #6: clean water and sanitation. Xylem is focused on investing in and innovating for smart water solutions that combine water technologies with sensing, monitoring, and analysis to enable the use of data to improve sustainable outcomes. In fact, it has set a goal to save more than 16.5 billion cubic metres of water using these advanced technologies that both avert water loss and enable water reuse.[11]
- **Ecolab**[12] is a business services company that helps its customers manage one trillion gallons of water annually. It provides water solutions for its commercial customers, including digital tools such as Smart Water Navigator, that helps it to identify and implement water reduction, reuse and recycling programmes. This helps customers both reduce their water usage but also improve their water quality. Ecolab has set a target of helping customers save 300 billion gallons (1.1 billion cubic metres) of water each year, equivalent to the annual drinking water needs of one billion people.[13]
- **Trimble**[14] offers precision agriculture technology solutions that help its customers, both farmers and contractors, to maximise water-use efficiency for farmland while improving crop yields. In fact, its solutions help improve crop yields by 30% with up to 20% higher water efficiency.[15]

In addition, Columbia Threadneedle Investments engages with companies around their water management programmes, particularly those in sectors that are water intensive. This is not only vital from an environmental perspective but from a financial perspective too – especially if a company has operations in regions that are facing acute water shortages. One of our holdings on the global equities desk, TSMC[16] (the world's largest third-party semiconductor manufacturer[17]), has faced a severe water crisis this year as Taiwan has experienced its worst drought in over 50 years. TSMC managed to sustain operations through this crisis but it was a challenge, with the company resorting to trucking in tanks of water from the island's greener south side to maintain chip production, which is very water intensive.

But TSMC also managed to navigate this crisis through its focus on environmental sustainability in its business practices. TSMC had not only diversified its water supply but also promoted greater rates of water recycling. In 2019, TSMC's average recycling rate of the wastewater used in its production processes reached 87%,[18] having built a comprehensive wastewater classification and resourcing system integrated with treatment equipment to effectively decompose pollutants in the recycled water.

Figure 3: Virtual water – the invisible export trade affecting emerging and frontier nations

Virtual water is the amount of water 'embedded' in a product. As water-scarce countries trade goods and services, water in their local region is exported to another part of the world – ultimately reducing water levels available to the local community. Amount of water required for these everyday products:



Source: EMDAT database/Water Footprint Organisation/HSBC, December 2020.

But we as consumers of water also need to change our behaviour and address our culture of overconsumption. This means both understanding what we can change in our personal water consumption but also being more aware of the high amounts of "virtual water" embedded in the everyday products we consume (ie, the water that has been used at some point in the production of products). This is particularly vital when the water used to produce these items reduces the level of water that is available to local communities for sanitation and drinking purposes.

Although water is designated a low monetary value, it is the one resource that is vital to all aspects of our life. The true value of water is in fact immeasurable, something that Capetonians learnt when their taps started running dry. This is a lesson we all need to learn if we are to tackle the growing water scarcity crisis.

[1] Why Cape Town Is Running Out of Water..., nationalgeographic.com, 5 March 2018.
[2] www.waterwise.org.uk/save-water/
[3] Bohatch, Trevor (16 May 2017). *"What's causing Cape Town's water crisis?"*. Cape Town: Ground Up. *Retrieved 1 June2017; "Cape Town Population 2019"*. World Population Review.
[4] globalwaterintel.com, 3 April 2018.
[5] Clean Water Facts and Information, nationalgeographic.com.
[6] UNESCO Water climate report, 22 March 2020.
[7] Food & Agriculture Organisation of the Untied Nations, globalagriculture.org, November 2016.
[8] Non-Revenue Water Reduction Programmes, Global Water Intelligence, 1 May 2021.
[9] Non-Revenue Water Reduction Programmes, Global Water Intelligence, 1 May 2021.
[10] The mention of specific stocks is not a recommendation to deal.
[11] Xylem 2020 Sustainability report.
[12] The mention of specific stocks is not a recommendation to deal.
[13] Ecolab 2020 Sustainability report.
[14] The mention of specific stocks is not a recommendation to deal.
[15] Trimble 2020 Sustainability report.
[16] The mention of specific stocks is not a recommendation to deal.
[17] TSMC retains third place in global IC supplier ranking, Taipei Times, 31 May 2021.
[18] TSMC CSR Report 2019, tsmc.com.

Company 3Q21 engagement highlights

We have had a very busy quarter, meeting with several of our holdings' management teams. We highlight three of these responsible investment company meetings below:

Company	
SIG	We met with SIG Combibloc,[1] which is a systems and solutions provider for aseptic carton packaging used in a range of food and beverage products. It is benefitting from the shift away from plastic packaging to more sustainable packaging solutions (the lifecycle carbon footprint of a carton pack is typically between 28% and 70% lower than other packaging solutions such as PET plastic or glass bottles)[2] but we wanted to meet with management to gain more clarity around recycling rates of SIG products and increased usage of recycled content within its products. Management noted that all SIG's products are technically 100% recyclable, but that recycling is heavily dependent on the infrastructure available in each region. In areas where recycling rates are low, SIG works with communities to help build local infrastructure to promote higher rates of recycling. In addition, it sees a huge opportunity to further scale its eco ranges such as EcoPlus (aluminium free) and SIGNATURE (plant-based renewable materials). The company is looking to set targets around recycled aluminium and currently uses recycled or bio-based polyethylene, but is hesitant to use recycled board as this would need to be imported which could undermine the environmental benefits – a topic the company is currently investigating. Although we were impressed with the progress management has made to make its packaging more sustainable and recyclable, we will continue to engage with management to monitor further progress.
HDFC BANK	HDFC Bank[3] is India's largest private sector bank by assets and by market capitalisation and has a clear focus on promoting financial inclusion in India, which has high rates of unbanked population. We engaged with management because rates of staff turnover have been relatively high when compared with other banking peers, ranging from 19% to 25% in recent years. With such a high staff turnover rate, especially in the salesforce, it was important to understand how the bank ensures that staff have enough training and experience to operate efficiently and to mitigate mis-selling risks. HDFC informed us that high turnover is a known phenomenon in Indian banks (we were able to verify this) but it is still inefficient and costly to train new staff so regularly. It is looking into the issue but believes the bank is at the lower end of the spectrum relative to the industry (we were not able to verify this). Columbia Threadneedle Investments encouraged the company to consider further staff retention initiatives. To mitigate mis-selling risks HDFC operates both functional (ie, role specific) and behavioural training programs. HDFC has a large distribution footprint for third-party products. When HDFC sells one of these products there is a separate call centre which conducts a follow up call to confirm that the customer understands the product and that it is suitable for their needs. This seems effective as HDFC bank disclosed that it received less than 20 mis-selling complaints last year and it hasn't had any major scandals related to the topic. Overall, we were reassured by the stringent training and lack of related complaints, but will continue to engage on this topic.
EQUINIX	Equinix[4] offers one of the world's largest global digital infrastructure platforms with key offerings across data centre and interconnection solutions. However, our insatiable demand for data comes with an environmental toll as datacentres are both energy and water intensive. In addition, we noted how our consumption of data can be very water intensive as water is used to cool datacentres. In fact, the average hyperscale data centre uses more than 400 million gallons of water per year (equivalent to the annual drinking water needs of 2 million people)[5]. We engaged with Equinix to find out what it is doing to meet this growing demand for data while limiting its environmental impact. Decarbonisation actions: ■ Management has set a rigorous goal to attain 100% renewable energy (vs 90% currently) and to be carbon neutral for both operations and supply chain by 2030. ■ Established SBTi in June to help investors monitor their annual progress towards these decarbonisation goals. ■ Noted some regions are easier to decarbonise than others – top priority is to connect directly to a green grid but this is currently only really possible in Europe (37% of energy stack). In the US they use PPAs with renewable energy providers such as Nextera, another core holding in our portfolio. ■ It is harder to find green energy solutions in APAC and Africa but it is engaging directly with local governments and investing in fuel cell technology as a long-term replacement for diesel generators. Water management is now also an increasing area of focus for Equinix, given rising water scarcity issues in its global footprint. As a result, it has established the Equinix water management programme and will be releasing metrics around this programme from 2022 onwards. This will be a focus of our engagement going forward. Overall, we were comforted by how much of Equinix's investments have a focus on environmental sustainability. In turn we view this as key in strengthening its competitive advantage as its customers increasingly focus on ESG.

[1] The mention of specific stocks is not a recommendation to deal.
[2] SIG Combibloc 2019 sustainability report
[3] The mention of specific stocks is not a recommendation to deal
[4] The mention of specific stocks is not a recommendation to deal.
[5] Ecolab investor presentation 2021.

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