REPORT

Accounting for Water in Active Ownership

Integrating assessments of water risks and impacts into equity portfolio management

SIWI

SWESIF
SVERIGES FORUM FÖR HÅLLBARA INVESTERINGAR

POWERED BY CDP DATA

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Fiona Hugosson-Miller

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Contact
Stockholm International Water Institute
Box 101 87 • SE-100 55, Stockholm, Sweden
Visiting Address: Linnégatan 87A
Tel. +46 8 121 360 00 • www.siwi.org

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Key Findings and Recommendations

This report explores the linkages between water risks, water impacts, and financial markets. It showcases how water risk and impact analysis at portfolio and security level could be conducted and proposes recommendations for financial institutions on how to engage with water risks moving forward.

The report takes a practical approach and offers a sample portfolio analysis of three equity portfolios of differing size and nature. It proposes a 3-step methodology where a portfolio is narrowed down to a shortlist of companies belonging to high risk/high impact sub-industries. This allows for prioritised engagement. Based on this analysis, key findings and recommendations for financial institutions seeking to work with water include:

Engage with companies to improve water management, either directly or indirectly

The primary aim is to communicate the need for companies to understand their water risks and work strategically to minimise impact.

Focus engagement on a number of key areas

While water risks and impacts as experienced across economic activities are complex and multi-faceted, the analysis demonstrates that similar challenges across high-risk, high-impact companies exist. Weak water management, limited value chain engagement, and a failure to recognise water quality issues are some key areas identified here.

Present a strong business case to companies

Engagement with companies needs to be grounded in a strong business case for action. It also needs to be combined with an understanding of the operational challenges that companies are facing in terms of transforming practices, and that such shifts may take time.

Advocate strengthening of corporate disclosure

The data currently available contains shortcomings, inconsistencies, and gaps. Become a signatory to CDP to support enhanced water disclosure, and engage with policymakers to ensure increased public transparency, enabling improved data sets from ESG risk rating firms.

1. Introduction

Water is at the core of human life, thriving ecosystems, and prosperous economies. However, the world's water resources are under immense pressure. In many places, it is already scarce, and competition for the resources available will intensify in the coming decades. Furthermore, climate change will affect availability, and lead to more frequent droughts and floods. Poor management and failure to adequately invest in water-related infrastructure adds additional pressure, affecting companies, ecosystems, and entire economies. Responding to this challenge, Sweden's Sustainable Investment Forum (Swesif) together with Stockholm International Water Institute (SIWI) and CDP initiated a water project, exploring how to understand and integrate water risks and impacts into portfolio analysis. This report, written and published by SIWI, is a result of this collaborative project between SIWI, Swesif and CDP.

Accounting for water in financial analysis is no longer a choice; legislation is starting to recognise the link between economic activities, water risks, and water impacts. One of the most prominent examples is the upcoming third environmental objective of the EU's classification system around environmentally sustainable activities, the Taxonomy Regulation, which promotes '*The sustainable use and protection of water and marine resources'*. Taking practical steps to meet upcoming demands will be critical.

Water is a complex resource that flows through a global hydrological system. Pressures materialise in diverse ways in different water basins, determined by geographical contexts and local demand trends. Water risks are, therefore, always context specific. For companies, water risks may significantly affect production. A common oversight is to consider only quantity-related water risks (scarcity and flooding). However, quality-related risks (pollution) can also have substantial impacts through higher treatment costs, for example. Combined, these are understood as physical risks. Water risks must also be understood in regulatory terms (as a resource subjected to political decision-making) and as a potential reputational risk as failure to safeguard it may impact human livelihoods (Figure 1).

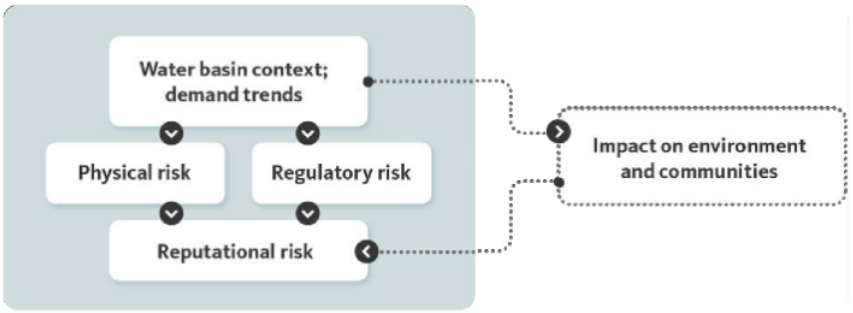


Figure 1: Water Risks

While the relationship between business risks and water risks has been thoroughly investigated, the exploration of the links between water risks and financial institutions is still in its infancy. This report explores the linkages between water risks, impacts and financial markets. Specifically, it:

1. Introduces what water risks are, how they intersect with corporate value chains, and how they interlink with other ESG issues.
2. Offers an overview of the tools, methods, and guidance that financial institutions can use to understand the impacts of water risks on individual securities and portfolios.
3. Showcases how water risk and impact analysis at portfolio and security level could be conducted.
4. Proposes recommendations for financial institutions on how to engage with water risks moving forward.

Image from Shutterstock

2. The Materiality of Water Risks

2.1 Water: The connector among ESG issues

The most common corporate reporting standard for water metrics is the Global Reporting Initiative (GRI). This standard guides companies on how to report on **water withdrawal** (focusing on the total amount of water taken from a catchment area, including what is returned), **water discharge** (focusing on the quality of the water that is returned to the environment succeeding production), **and water consumption** (focusing on the quantity of freshwater used and not returned to the same catchment area from which it was abstracted) for direct operations as well as suppliers with significant water-related impacts.[1] So, in addition to quantitative metrics, companies are encouraged to report on qualitative metrics as well.

While these water metrics are important, not least in relation to SDG 6 'Clean Water and Sanitation for All', they also relate directly to other sustainability issues. Water acts as a connector between sustainability issues; it is vital for economic prosperity, thriving environments, and human health. As a connector, water can be viewed as an entry point into a wider ESG analysis. It provides an opportunity to conduct a holistic analysis of sustainability, contrary to thematic silos where issues are considered separately.

Water and Human Rights

Water management is closely linked to safeguarding the human right to water. When company water withdrawals compete with domestic needs, they pose a threat to the right to sufficient water supply, defined as an ample amount for drinking, sanitation and domestic use.[2] Similarly, water effluents can threaten the human right to both 'safe' and 'acceptable' water, defined as free from substances that can harm human health and is of acceptable colour and odour.[3] By monitoring corporate water withdrawals and effluents, especially in areas of scarcity and poor water quality, financial institutions can mitigate the reputational risk of the holding company infringing on the human rights of local communities.

Water and Climate Change

As noted in the IPCC Sixth Assessment Report which was published in 2021, climate change fundamentally alters the water cycle. Climate change will thus largely be experienced through water: too much (flooding), too little (droughts),

[1] GRI, 2018
[2] UN-Water, 2021
[3] *Ibid*

and in more unpredictable patterns. As the water cycle is increasingly affected, adopting a plan to become more water resilient is key to ensuring climate mitigation and adaptation. Efforts taken by companies to reduce water withdrawals, address water pollution, and invest in nature-based solutions mitigate climate risks as operations become more resilient to operating in a changing climate.

Water and Biodiversity

Freshwater is part of the natural capital upon which biodiversity depends.[4] Water withdrawals and effluents therefore have an impact on biodiversity since all ecosystems depend on water. Unless managed properly, companies' water-related activities can jeopardise the ecosystem services provided by the surrounding environment. For example, unsustainable land and water practices can, in some cases, lead to desertification, even in areas with naturally high precipitation.[5] Apart from exacerbating biodiversity loss, this also impacts economic productivity.[6]

Image by Dari Poomipat

[4] Cambridge Conservation Initiative, 2020: 5
[5] Pereira, L. S., 2005: 4
[6] IPPCC, 2018

2.2 Interconnections between water and corporate operations and supply chains

Water is material to investors not only because of its interconnection with other sustainability issues, but also because water risks are deeply intertwined in most corporate operations and supply chains. The materialised impact of water risks on value chains is already being felt. According to the 2,934 companies that reported to CDP in 2020, the total potential financial impact of reported water risks was US$301 billion[7]. Figure 2 demonstrates how different types of water risks are translated to companies.

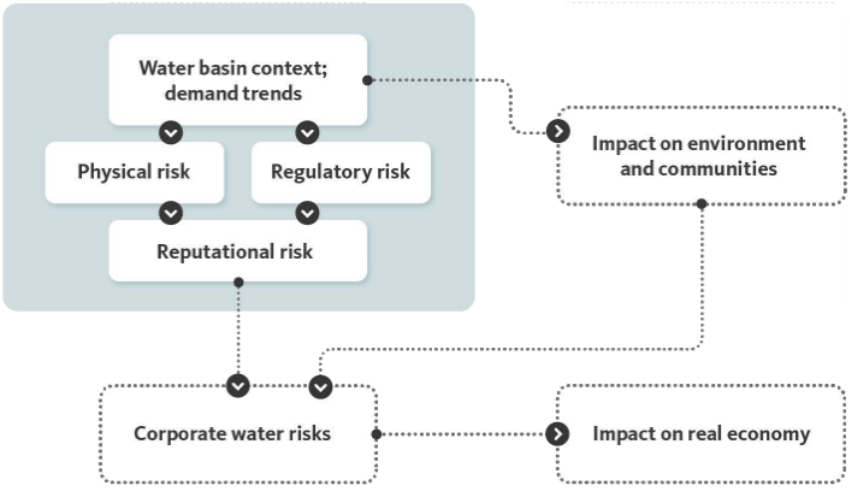


Figure 2: Water risks and companies

The way water risks intersect with business depends on economic activity. It is, therefore, necessary to have a thorough understanding of how different industries operate to understand where and why water is, or can become, a material risk. Two industry examples, chosen because of the diametrically opposite way their value chains are driven, illustrate this point. Understanding the whole value chain is critical because water risks can become material in supply chains as well as in direct operations.

Textiles & Apparel

Garment production is a highly water intensive practice. However, most of the water risks are embedded deep within the value chain. Most of the textile industry is set up through buyer-driven value chains, where brands operate through decentralised production networks. In these networks, brands design and/or market

[7] CDP, 2021: 12

products but they are essentially manufacturers without factories, which leaves them with little control over production processes (Figure 3).[8]

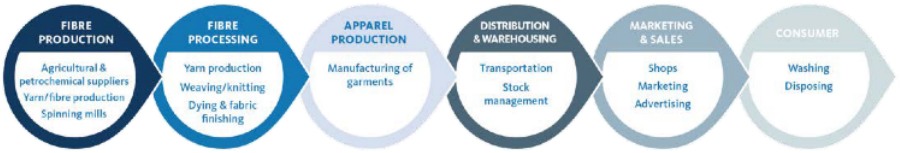


Figure 3: Textile & Apparel Value Chain

Water demand is at its highest at the fibre production stage (e.g., cultivation of cotton), and fibre processing. Fibre production typically occurs in semi-arid areas, which means that the industry is heavily irrigation dependent.[9] Substantial water use is also associated with product use as consumers wash the products. Textiles are also associated with water pollution: cotton is the highest user of pesticides globally, large quantities of wastewater containing toxic chemicals are discharged as a by-product of fibre processing, and washing detergents and plastic microfibres end up in water systems.[10]

Metals & Mining

Mining is water intensive. In contrast to the textile industry, mining is characterised by a producer-driven value chain, which means that much of the decision-making power sits with the company rather than being dispersed across the value chain. In such a system, the company's control extends backwards to raw material and component suppliers, and forward to distribution and retailing (Figure 4).[11]

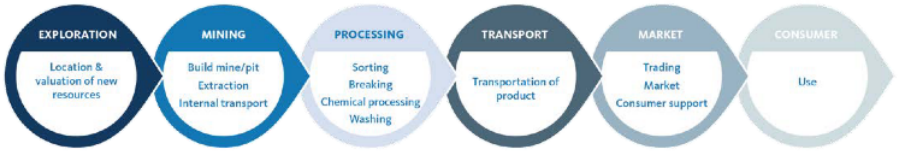


Figure 4: Metals & Mining Value Chain

To a higher degree than in many other industries, water risks are centralised at the operational level. Both mining and processing, where the raw material is transformed and refined into the final product, are highly water intensive. A majority of mining operations are located in areas of high water stress, which exacerbates the risk.[12] Mining is also an invasive industrial practice that could, if not

[8] Gereffi, G. & Memedovic, O., 2003
[9] Chapagain et al., 2005
[10] WWF, 2014
[11] Gereffi, G. & Memedovic, O., 2003
[12] Moody, 2013. For a detailed analysis of basin water risks of all 3,714 active mining sites across the world, see WWF, 2020.

conducted with environmental safeguards in mind, have detrimental pollution effects on the surrounding environment, including water resources.

River pollution from copper mining. Image by Mikadun

Asset stranding is perhaps the most significant financial risk for an investor. Stranded assets are defined as assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities.[13] This can emerge due to a combination of factors, including social conflict and regulatory pressure that emerges due to the degradation of a regional water source, as well as low probability, high impact events like unanticipated long-lasting drought, failure of tailings dams, cumulative effects of pollution, and failure of site remediation and pollution controls. When water risks manifest for mine sites, they can be costly for companies and their shareholders. CDP highlights that the extractives industry reported over US$20 billion in financial impacts in 2018 alone.[14]

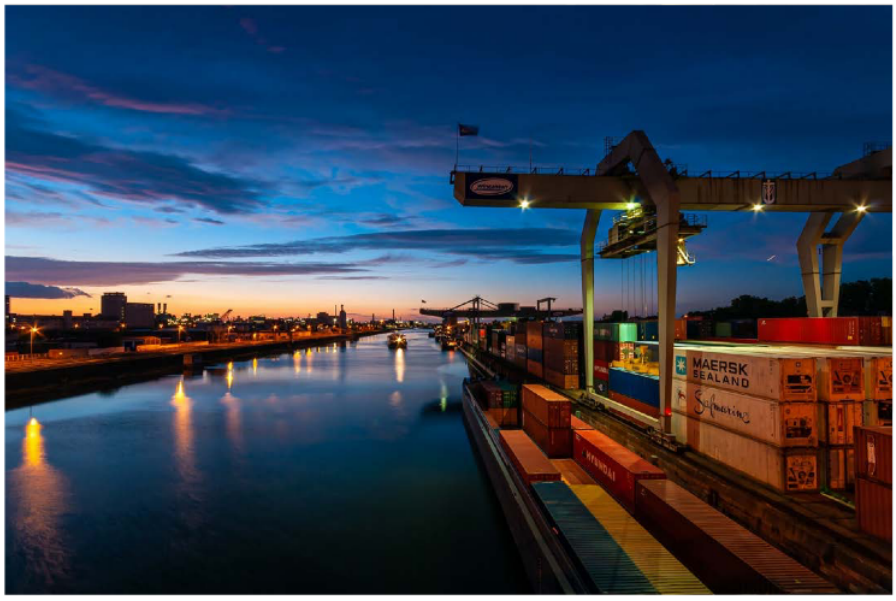
The water risks companies face cannot be understood in isolation. To understand how water risks are intertwined in individual corporate supply chains, it is also necessary to understand the wider systems' perspective, and how water risks are affected through the interconnections of different supply chains in a basin. For example, if a company operating upstream pollutes, this can result in higher water treatment costs for those companies operating further downstream. Similarly, if a company upstream withdraws excessively, it may cause other companies downstream to experience water stress. Understanding these linkages, as well as the local context, is critical not only when identifying risks, but also when engaging with portfolio companies to find solutions.

[13] Caldecott, B. et al., 2017
[14] CDP, 2019. For detailed analysis of financial water risks associated with mining, see Columbia University & NIBM, 2017

3. Integrating Water Analysis in Portfolio Management: Existing tools

To date, most tools to assess and respond to water risks target corporate users. However, guidance for financial institutions is emerging. This section reviews the key tools, methods, and guidance that investors can use to understand the impacts of water risks on individual securities and portfolios.[15]

Figure 5 provides an overview of instruments that can be used to explore risks at three levels: at the water basin level, in the real economy, and on financial markets. Broadly, the figure illustrates how impacts on a water basin, driven by the geographical water basin context, demand trends, and corporate activities, can result in water risks for companies. These risks, in turn, influence company operations and thus economic activities, which in turn affect individual securities and equity portfolios, which can impact financial markets.



Industrial area on the Rhine river, Mannheim, Germany. Image by Alessandro Tortora

[15] For a comprehensive database covering over 100+ tools and approaches, see the WWF Valuing Water Database.

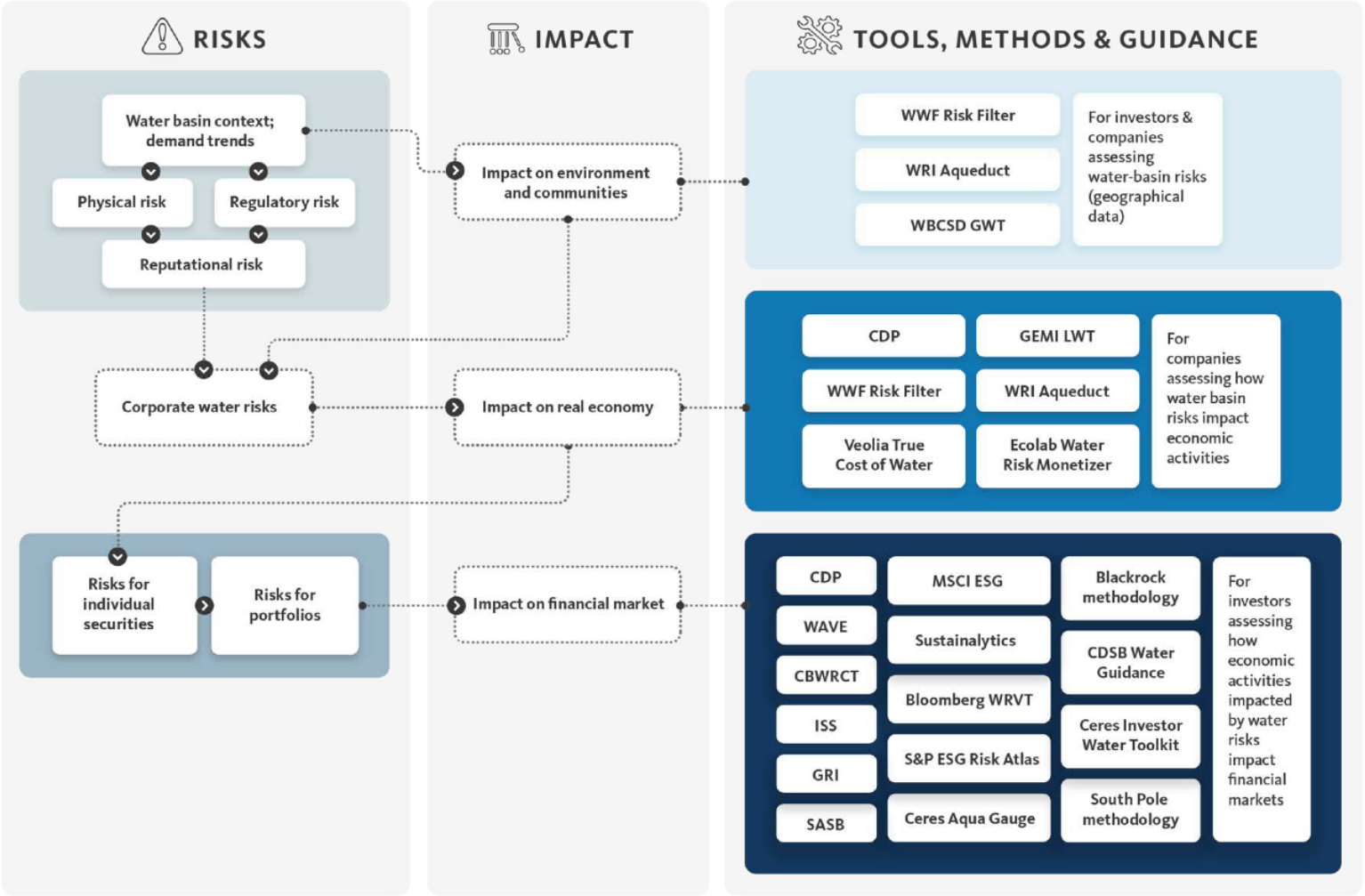


Figure 5: Overview of existing tools

3.1 Assessing water risks at the basin level

World Resources Institute (WRI) Aqueduct can be used to spatially map current and projected water risks. It is a global water risk atlas that shows regional exposure to several indicators such as a regional water stress metric highlighting the amount of competition for freshwater flows. Via Bloomberg Terminal's BMAP function, investors can also chart company locations (operations to offices) against the regional water stress indicator.

WWF's Water Risk Filter is another valuable mapping tool, where users can apply risk layers at different scales from global to local. Users can also use the map links between water risks and other factors, such as protected areas. Since 2020, users can also do scenario-analysis (Optimistic, Current Trend and Pessimistic) for 2030 and 2050. The scenarios are aligned with the Task Force on Climate-related Financial Disclosure (TCFD) recommendations.

The World Business Council for Sustainable Development (WBCSD) Global Water Tool (GWT) is a free, publicly available resource used primarily by companies to identify corporate water risks and opportunities. The tool provides easy access to and analysis of critical data. It includes a workbook (data input, inventory by site, key reporting indicators, metrics calculations), a mapping function to plot sites with datasets, and a Google Earth interface for spatial viewing.

3.2 Assessing water risks in the real economy

Apart from being mapping tools, WRI Aqueduct and WWF Risk Filter are excellent tools to use to assess how basin conditions interlink with corporate risks.

The Water Risk Monetizer is a financial modelling tool that enables businesses to translate water risks into monetary impacts. The tool can be used to calculate the monetary value of the impacts of incoming water use on human health and ecosystems and the future costs of incoming water treatment, the monetary value of the impacts of outgoing water pollution on human health and ecosystems and the future costs of water treatment, and the monetary value of the impacts of water availability based on water required to do business.

Veolia clients can also access True Cost of Water to assess the costs of managing water, including capital and operating expenditures as well as unforeseen costs resulting from water risks.

CDP's Water Security database includes disclosure on the total financial value resulting from water-related detrimental impacts and constitutes the world's most comprehensive database on corporate water risk.

The GEMI Local Water Tool™(LWT) is a tool that enables its users to assess impacts, risks, management plans and opportunities related to water use and discharge at a specific corporate site or operation.

3.3 Assessing water risks and impacts in financial markets

ESG data is a good starting point for investors to assess the materiality of water risks. Reviewing three large ESG rating firms – Sustainalytics, a Morningstar Company, ISS-oekom, and MSCI ESG – demonstrates that they all consider a firm's water use.

Several organisations have also produced detailed overviews mapping ESG risks for different industries in relation to their materiality. Noteworthy examples include the Value Reporting Foundation's (former IIRC and SASB) SASB materiality maps, the S&P ESG Risk Atlas and Water Watch - CDP Water Impact Index, where an extended version is set to be published in 2021. Several disclosure frameworks also collect valuable data on corporate water risks, which can be used by investors to assess risk exposure. These include, among others, the Global Reporting Initiative (GRI), and the Climate Disclosure Standards Board (CDSB) and its framework application guidance for water-related disclosures in mainstream reporting, called the CDSB Water Guidance, which was launched in 2021. CDP's Water Security database provides investors with the most comprehensive assessment on the market of a company, industry, and regional exposure to water risks, impacts and their mitigation.

The Ceres Investor Water Toolkit is a comprehensive resource designed for investors, including guidance on how to understand water risks, establish priorities, buy/sell analysis, portfolio and asset class analysis, and investor engagement. It guides assessment, valuation, and response and includes assistance on how to include water risks at the level of single securities, such as public equities, corporate bonds, private equities and municipal bonds as well as portfolios.

The Ceres Aqua Gauge allows investors to scorecard a company's water management activities against detailed definitions of leading practice. Its primary aim is to help equity investors interpret and evaluate the information provided by companies on their management of water issues.

Powered by WRI Aqueduct, the Bloomberg Water Risk Valuation Tool (WRVT) can be used to incorporate water risks into company valuation for companies in the mining industry.

Also powered by WRI Aqueduct, the Corporate Bond Water Credit Risk Analysis Tool (CBWRCT) uses a shadow price for water as a proxy for exposure to potentially increasing costs for water resulting from water stress. The calculation of these shadow prices is based on a total economic value (TEV) framework. The model calculates company credit ratios before and after integrating the shadow price of the water used at their production locations. For some firms, the integration of the full value of water use that takes account of scarcity and population factors has the potential to have a significant impact on their credit ratios, which could lead to a rating downgrade and an adjustment in the value of their bonds.

Powered by CDP's data, WWF is developing the Water and Value (WAVE) Tool with the ambition to integrate it into the Water Risk Filter. It will explore how a portfolio's water risk exposure may potentially affect financial value. It will be an offline, Excel-based, user-guided calculator that allows users to stress test financial information under different water-related scenarios and generate a discounted cash flow analysis.

Some organisations have also started to develop methodologies for how to integrate water risk analysis in equity analysis and portfolio management. BlackRock has developed a methodology specifically applicable to the Real estate investment trust (REIT) market. Powered by WRI Aqueduct data to assess the financial implications of water risks, BlackRock suggests that to integrate environmental factors such as water stress into the investment process, one possibility would be to include an environmental, social and governance (ESG) risk premium when calculating REITs' cost of equity – a key input for estimating potential returns of individual companies.

South Pole has developed an alternative guide for water risk assessments of equity portfolios. Following the steps of the methodology allows investors to assess the exposure of their equity portfolios and equity stocks to regional water risks. The methodology is unique in that it integrates a geographical component triangulating data from Bloomberg Terminal, Value Added based on industry average data from "inter-country Input-Output" tables from the OECD, and Aqueduct. Combined, the method enables investors to analyse water risks of equity portfolio in terms of the holdings' geographical distribution.

Water Watch - CDP Water Impact Index is the only tool assessing water impacts rather than water risks. It ranks over 200 industrial activities according to their potential impact on water resources – both water quantity and water quality and scores their impact. It also provides links to references that can be used to deepen the understanding of industry impacts.

4. Integrating Water Analysis in Portfolio Management

This section outlines one approach which can guide financial institutions when exploring and responding to water risks in equity portfolios. Before starting a portfolio analysis, it is helpful to consider the following:

Acknowledge that water risks and impacts materially affect individual securities and portfolios

Recognise the nature of water risks, and that these risks may affect portfolios and individual assets now and/or in the future.

Build on existing expertise and investment strategy within the firm to grow water-related capacity

Leverage existing knowledge and portfolio focus. For instance, if the firm has managers specialising in real estate investments, the material water risks for that specific industry ought to be identified. The same applies for geographically focused funds – the analysis can start by looking at the water risks and opportunities in that specific region and/or country. In terms of shareholder dialogue, presenting a strong business case for sustainability to corporates is a large success factor, which is all the more likely if there is a pre-existing level of expertise.[16]

Identify water as an issue of significance within the firm

Develop investment guidelines and/or strategy documents explicitly stating the importance of water and anchor the decision with the board. The Ceres Investor Water Toolkit provides good guidance. For this to be effective, it is important that the strategy is communicated throughout the organisation. A study from 2016 found that 80% of boards at investment firms were under the impression that their firms took part in ESG investments while the number for middle managers was 73% and 62% for front office workers.[17] To give individual investors the leverage needed to spend resources on collating available water metrics on their financial product, the statements need to be embedded at all operational levels of the firm. When investors are informed of the board's priorities and make it clear to holding companies that water is prioritised, corporate executives can in turn form strategies that align with this.[18]

[16] Sjöström, E., 2020: 9
[17] Unruh, G. et al., 2016: 5
[18] Ceres Investor Water Toolkit, (Establish Priorities - step 4)

4.1 Methodology & Data Sources

Water analysis is relevant for any portfolio as most industries face water risks. The overarching objective of this section is to provide a guide for financial institutions to analyse water risk and impact of holdings in the portfolio at industry, sub-industry, and company level. For investors seeking to practice active ownership in the water space, it also provides guidance on where to focus engagement with companies to mitigate risks and alleviate impacts.

The assessment has examined three portfolios of differing natures (Figure 6). Water risk assessments can be done using several different tools and data sources (Figure 5). This example has utilised three different data sources aimed at investors assessing how economic activities affected by water risks impact financial markets, and systematically applied these. Data from other providers than those listed here could be utilised to conduct a similar assessment. To assess the portfolios, analysis has been done at three levels.

Portfolio 1	Portfolio 2	Portfolio 3
• 850 holdings • Global index fund, with some exclusions based on ESG criteria	• 250 holdings • Passively managed, global sustainability fund	• 32 holdings • Actively managed, focused on the Nordic market

Figure 6: Portfolio overview

Materiality assessment at industry level, utilising SASB Materiality Map

At the first level, all holdings in the three portfolios were screened against the Value Reporting Foundation's SASB Materiality Map. This encompasses a high-level assessment of a portfolio's exposure to water risk at the industry level, and results in a general overview of for what industries water is considered a material risk. Conducting analysis at this level means that an assessment can be made even for those companies currently not disclosing water metrics. The data source applied – the SASB materiality map – is an interactive tool, which identifies what ESG issues, including 'Water & Wastewater Management', are likely to affect the financial performance of companies within a particular industry as well as sub-industry.

Materiality assessment and impact assessment at sub-industry level, utilising Sustainalytics ESG Risk Ratings data, and CDP Water Watch

At the second level, the holdings where water was flagged as a material risk in the first step were further analysed, and water risks and impacts were assessed at the sub-industry level. Moving from industry to sub-industry allows for further

granularity in the approach and facilitates more detailed analysis. Two sources of data were applied at this stage.

To assess water risk at the sub-industry level, Sustainalytics' ESG Risk Ratings research and data on water was utilised. Sustainalytics is a Morningstar company and a global provider of ESG research, ratings, and data. At a high level, Sustainalytics' ESG Risk Ratings provide an overall ESG Risk Rating score for companies, based on in-depth research of publicly available information. The rating score is made up of several components, of which identified Material ESG Issues (MEIs) per each sub-industry, is a core building block. For Sustainalytics, an issue is considered material within the rating if it is likely to have a significant effect on the enterprise value of a typical company within a given sub-industry, and its presence or absence in financial reporting is likely to influence the decisions made by a reasonable investor. To arrive at an MEI score, Sustainalytics assesses both risk exposure, reflecting the extent to which a company is exposed to the risk, and management, reflecting how well a company is managing its exposure. Prior to assessing risk exposure at the more granular company level, Sustainalytics assesses risk exposure at the sub-industry level, giving an indication of the exposure of the sub-industry as a whole. These MEI scores given at the sub-industry level are referred to as Default Exposure Scores. This analysis draws specifically on the Default Exposure Scores for Resource Use MEI that primarily focuses on how efficiently and effectively a company uses its raw material inputs, primarily water (excluding energy and petroleum-based products) in production and how it manages related risks. In sub-industries where the issue is considered material, companies are assessed on their exposure based on their business model, geographic location of assets, and financial health as well as on their management, including their water risk assessment, water management programmes or water intensity as measured against industry peers.

As per Sustainalytics ESG Risk Ratings methodology, not all MEIs are considered for all sub-industries, as only those MEIs (minimum 2, and maximum 10) that are considered most material to the sub-industry are covered. The exception is the Corporate Governance MEI that is applied across all industries. Thus, a lack of data coverage on the Resource Use MEI for some of the holdings in the portfolios does not mean that the issue has not been assessed, only that there are other ESG issues which are considered more material at the sub-industry level. ESG Exposure Scores are given in the range 2-10 (low, medium, high categories), resulting in the following risk categories:

- 0-2 (Negligible)
- 2-4 (Low)
- 4-6 (Medium)
- 6-8 (High)
- 8+ (Severe)

To assess water impact, CDP Water Watch was utilised. This tool ranks over 200 industrial activities according to their potential impact on water resources – both water quantity and water quality. Based on scientific sources, the tool makes a qualitative assessment of the impact different economic activities have on freshwater resources at different stages of value chains (direct operations, supply chain and product use). For each stage, the tool ranks: 1) the dependence of the activity on freshwater withdrawal or consumption; 2) the water pollution potential of the activity. In total, each industrial activity gets six different impact rankings, ranging from 0 "no impact" to 3 "high impact", which are then added to provide an overall impact rank for the industrial activity between 0 and 18, divided into the following categories:

- 0-4 (Low/not relevant)
- 5-7 (Medium)
- 8-10 (High)
- 11-14 (Very high)
- 15-18 (Critical)

Assessing impact as well as risk is critical for two reasons. Firstly, if the objective is to create change on the ground, it is critical to examine impacts as well as risks. Secondly, risks and impacts are strongly interlinked as companies with large impacts are often exposed to high risk.

A selection of sub-industries was made both on risk exposure and impacts.

Materiality assessment and impact assessment at company level, utilising Sustainalytics ESG Risk Ratings data and CDP scores

At the third level, companies belonging to sub-industries which were flagged as high risk and high impact in the second step were assessed further. Moving analysis to the company level allows for further granularity, and identification of points of engagement for those investors seeking to actively engage through strategy, dialogue or engagement. Two sources of data were applied at this stage.

Sustainalytics ESG Risk Ratings data was applied to assess corporate water risk and management. Here, analysis was done using two levels of scores. First, the Resource Use MEI company scores were compared to the Default Exposure Scores at the sub-industry level to assess the extent the company deviates from the sub-industry, and give a clearer idea of risk exposure at the company level. For instance, a lower company score than the sub-industry Default Exposure Score indicates that the company's risk exposure is estimated to be lower (due to e.g., geographic location) than the sub-industry. Then, the MEI management score was applied to assess how well the risk exposure is being managed. The score ranges between 0 (indicating no management) and 100 (indicating strong management). Combined, the MEI exposure and management scores result in an overall MEI risk score and category,

where scores are given between 1-10, and higher scores indicate higher unmanaged risk. Second, to further understand management of risk exposure, the analysis also applied management indicators and event indicators. These include datapoints on Effluent Management,[19] Water Intensity, Water Risk Management, Water Intensity Trend, Water Management Programmes, and Water Use and Water Use – Supply Chain event indicators.

CDP scores are applied to further assess the companies' risk exposure and management. On behalf of investors, CDP issues an annual questionnaire to assess the state of action taken on water by companies. Based on the information disclosed through the CDP questionnaire, CDP scores companies to incentivise them to measure and manage water risks and impacts. To score, CDP assesses the disclosing company's progress towards water stewardship objectives, including assessment of the company's awareness of water issues, its management methods, and progress made. Scores range from A (Leadership), B (Management), C (Awareness), and D (Disclosure),[20] with companies scoring A being featured on an annual 'CDP A-list'. All scores are publicly available.

Effluent discharge into a river. Image by NetPix.

[19] The Effluent Management indicator does not fall under the Resource Use MEI, but under the Emissions, Effluents, and Waste MEI. Whilst the Effluent Management indicator can provide useful insight in this context, the more comprehensive Emissions, Effluents, and Waste MEI level score was not applied since it is not primarily water driven.

[20] CDP also gives score F, which indicates a failure to provide sufficient information to CDP to be evaluated for this purpose.

4.2 Portfolio 1

Step 1: Materiality assessment at industry level.

Applying the SASB Materiality Map to Portfolio 1, 235 out of 850 companies were flagged as belonging to industries where water is assessed as a material risk by SASB. In total, 19 different industries were flagged (Table 1).

Table 1: Industries in Portfolio 1 with high water risk exposure according to the SASB Materiality Map

Industry	Number of companies
Beverages	6
Chemicals	17
Containers & Packaging	7
Electric Utilities	4
Electronic Equipment, Instruments	23
Equity Real Estate Investment Trusts (REITs)	42
Food Products	16
Hotels, Restaurants & Leisure	9
Household Products	9
Independent Power & Renewable Electricity Producers	22
Industrial Conglomerates	3
Metals & Mining	17
Mortgage Real Estate Investment Trusts (REITs)	3
Paper & Forest Products	4
Personal Products	10
Semiconductors & Semiconductor Equipment	25
Trading Companies & Distributors	8
Transportation Infrastructure	2
Water Utilities	8
Total:	**235**

Step 2: Materiality and impact assessment at sub-industry level.

The 19 industries flagged in step 1 are examined more closely using Sustainalytics ESG Risk Ratings Resource Use MEI scores and CDP Water Watch to assess which sub-industries have the highest risk and impact scores.

First, each of the 235 companies were screened using Sustainalytics 'Resource Use MEI - Default Exposure Score'. Based on Sustainalytics' research, this score indicates the default exposure score given to a company based on it belonging to a sub-industry with a particular considered exposure to water risk. This screening, where default exposure scores of 4 and above were considered, flagged 209 companies, belonging to 24 different sub-industries. Second, the 24 sub-industries were checked against CDP Water Watch to assess the water impact of the economic activities undertaken by the companies belonging to these sub-industries.

This screening highlights 12 sub-industries with 'critical' water impact. Cross-checking those sub-industries for which Sustainalytics has given a default risk exposure score of 6 or higher (High or Severe), and where CDP has ranked the impact as 15 (Critical) or higher, flags the sub-industries that, as a priority, demand further analysis from a water perspective. These are the companies belonging to sub-industries where water is considered a highly material risk, and where economic activities have critical water impact. These sub-industries are highlighted in red in Table 2.

Table 2: Sub-industries with high default water risk exposure and critical water impact

Sub-industry	Sustainalytics Issue - Resource Use-Default Exposure Score	CDP Water Watch Impact Score
Agricultural Chemicals	5	17
Agriculture	8	12-16 depending on crop
Aluminium	7	15
Conglomerates	5	Not scored
Construction materials	6	12-13 depending on material
Diversified Metals Mining	8	16-17 depending on metal
Electric Utilities	6	4-11 depending on energy source
Electronic Components	4	15
Forestry	6	12
Gold	8	17
Household Products	5	16
Metal and Glass Packaging	6	14 (metal); 7 (glass)
Multi-Utilities	6	4 (electric); 11 (gas); 4 (waste management); 8 (wastewater management)

Packaged Foods	5	10-15 depending on food
Paper and Pulp	6	12
Paper Packaging	5	10
Personal Products	6	16
Precious Metals Mining	8	17
Semiconductor Design & Manufacturing	7	16
Semiconductor Equipment	4	16
Soft Drinks	6	12
Steel	7	16
Travel, Lodging & Amusement	5	9
Water Utilities	5	7 (water supply networks) 8 (wastewater management)

Step 3: Risk and impact assessment at the company level.

While all companies belonging to the sub-industries highlighted in red in the table ought to be analysed, this report will focus on the sub-industry Semiconductor Design and Manufacturing to exemplify what such an analysis could look like. This sub-industry was selected to exemplify analysis because, unlike the other highlighted industries, relatively little has so far been written about Semiconductor Design and Manufacturing in relation to water. For Portfolio 1, this sub-industry group includes 13 companies out of the original 25, for which Sustainalytics has given a default risk exposure score of 6 or higher (High or Severe), and where CDP has ranked the impact as 15 (Critical) or higher. The steps taken are outlined below:

1. Utilising Sustainalytics ESG Risk Ratings data, the companies' Resource Use MEI Exposure Score is compared to the Resource Use MEI Default Exposure Score given at the sub-industry level.

2. Next, still drawing upon Sustainalytics ESG Risk Ratings data, the companies' Resource Use MEI Management Score is checked to investigate the extent they are managing the ESG risk they are exposed to.

3. After this, the companies' overall Resource Use MEI Risk score and category as per Sustainalytics ESG Risk Ratings data is assessed. This overall risk score is a joint assessment of exposure and management, indicating how efficiently and effectively a company uses its raw material inputs, primarily water (excluding energy and petroleum-based products) in production and how it manages related risks.

Table 3: Sustainalytics MEI Scores for Sub-industry Semiconductor Design and Manufacturing

Company	Issue - Resource Use-Default Exposure Score	Issue - Resource Use-Exposure Score	Issue - Resource Use-Management Score	Issue - Resource Use-Risk Score	Issue - Resource Use-Risk Category
1	7	-	-	-	-
2	7	2,80	7,13	2,64	Low
3	7	-	-	-	-
4	7	-	-	-	-
5	7	-	-	-	-
6	7	6,65	91,38	1,79	Negligible
7	7	6,65	57,65	3,58	Low
8	7	7,35	99,38	1,51	Negligible
9	7	7,00	27,38	6,01	High
10	7	10,00	67,02	4,87	Medium
11	7	6,65	83,28	2,22	Low
12	7	7,70	50,90	4,56	Medium
13	7	-	-	-	-

4. Three out of 13 companies received overall Resource Use MEI Risk scores by Sustainalytics indicating medium to high risk, highlighted in red in Table 3. For these companies, the analysis was deepened by assessing Sustainalytics Water Use and Water Use – Supply Chain event indicators to see if there was evidence of any controversies with regards to water. However, for these companies, no evidence of relevant controversies in operations or supply chains was found. Sustainalytics Management indicators were also assessed (Table 4) to identify the reason behind the estimated high risk and distinguish areas of improvement. Based on this analysis, Company 9 is of particular interest, seeing that it has water intensity above the industry median, and lacks a water risk management programme.

5. For the three companies assessed in detail, CDP scores were also applied to get further insight into water risk exposure and management (Table 5).

Table 4: Sustainalytics Management Indicators for medium and high-risk Semiconductor Design and Manufacturing companies

9	19	-	25	The company's water intensity is above the industry median	0	Based on available evidence, the company does not have a programme	-	-	50	The company has an adequate programme
10	-	-	-	-	-	-	-	-	-	-
12	-	-	100	The company's water intensity is well below the industry median	66	The company has an adequate programme	-	-	25	The company has a weak programme

Table 5: CDP scores for medium and high-risk Semiconductor Design and Manufacturing companies

9	B-	A	D	C	C	B-	B	B-	B-	B-	B	B-
10	B	B	A-	C	B	A	A-	A-	A-	B-	A-	B-
12	C	C	C-	C	C	C	C	C	D	C	D	C

Based on the CDP Scores, both company 9 as well as company 12 are of particular interest for further engagement. It is noteworthy that management –when it comes to strategy, governance, targets and goals, engagement, and policies – is weak, indicating that in terms of company engagement, it will be key to focus on strengthening management. Referring to the CDP Water Watch used in the previous step of the analysis, the largest water impacts of Semiconductor companies relate to water quality. The research assembled by CDP indicates that the main challenge across direct operations as well as supply chains relates to the fact that manufacturing relies on a wide range of slurries and chemicals, which, without proper management, are released through wastewater. So, improvements in management are critical, both when it comes to water use as well as effluents and waste.

4.3 Portfolio 2

Step 1: Materiality assessment at industry level.

Applying the SASB Materiality Map to Portfolio 2, 91 out of 245 companies were flagged as belonging to industries where water is assessed as a material risk by SASB. In total, 10 different industries were flagged (Table 6).

Table 6: Industries in Portfolio 2 with high water risk exposure according to the SASB Materiality Map

Industry	Number of companies
Construction Materials	23
Electric Utilities	22
Equity Real Estate Investment Trusts (REITs)	11
Food Products	15
Hotels, Restaurants & Leisure	2
Household & Personal Products	8
Semiconductors & Semiconductor Equipment	10
Total	**91**

Step 2: Materiality and impact assessment at sub-industry level.

As above, the industries flagged in step 1 are examined more closely using Sustainalytics ESG Risk Ratings MEI scores and CDP Water Watch to assess which sub-industries have the highest risk and impact scores.

By using Sustainalytics 'Resource Use MEI- Default Exposure Score', filtering exposure scores of 4 and above, 64 companies belonging to 16 different sub-industries were flagged. These sub-industries were then checked against CDP Water Watch to assess the water impact of the economic activities undertaken by the companies belonging to these sub-industries. Cross-checking these sub-industries for which Sustainalytics has given a Resource Use MEI - Default Exposure Score of 6 or higher, and where CDP has ranked the impact as 15 (Critical) or higher flags four sub-industries that, as a priority, demand further analysis from a water perspective. These are highlighted in red in Table 7.

Table 7: Sub-industries with high default water risk exposure and critical water impact

Sub-industry	Sustainalytics Issue - Resource Use-Default Exposure Score	CDP Water Watch Impact Score
Commodity Chemicals	4	12-18 depending on chemical
Conglomerates	5	Not scored
Construction Materials	6	12-13 depending on material
Diversified Metals Mining	8	16-17 depending on metal
Electric Utilities	6	4-11 depending on energy source
Household Products	5	16
Independent Power Production and Traders	6	Not scored
Multi-Utilities	6	4 (electric); 11 (gas); 4 (waste management); 8 (wastewater management)
Packaged Foods	5	10-15 depending on food
Paper and Pulp	6	12
Personal Products	6	16
Semiconductor Design and Manufacturing	7	16
Semiconductor Equipment	4	16
Soft Drinks	6	12
Steel	7	16
Tires	6	11

Step 3: Risk and impact assessment at the company level.

For Portfolio 2, this analysis focuses on Diversified Metals and Mining, as this sub-industry has the highest 'Resource Use MEI - Default Exposure Score', combined with one of the highest CDP Water Watch water impact scores. However, as noted above, all the sub-industries marked in red ought to be analysed further. The same steps, as outlined for Portfolio 1, are applied to Portfolio 2 as well:

1. Utilising Sustainalytics ESG Risk Ratings data, the companies' Resource Use MEI Exposure Score is compared to the Resource Use MEI - Default Exposure Score given at the sub-industry level.

2. Next, still drawing upon Sustainalytics ESG Risk Ratings data, the companies' Resource Use MEI Management Score is checked to investigate the extent they are managing the ESG risk they are exposed to.

3. After that, the companies' overall Resource Use MEI Risk score and category as per Sustainalytics ESG Risk Ratings data is assessed.

Table 8: Sustainalytics MEI Scores for Sub-industry Diversified Metals and Mining companies

Company	Issue - Resource Use-Default Exposure Score	Issue - Resource Use-Exposure Score	Issue - Resource Use-Management Score	Issue - Resource Use-Risk Score	Issue - Resource Use-Risk Category
1	8	6,00	42,63	3,95	Low
2	8	7,60	56,03	4,19	Medium
3	8	7,60	56,03	4,19	Medium

4. All three companies belonging to the sub-industry Diversified Metals and Mining in Portfolio 2 have received overall Resource Use MEI Risk scores from Sustainalytics, indicating that all companies are exposed to a medium to high risk (Table 8). The analysis was then deepened for all companies by assessing Sustainalytics Water Use and Water Use – Supply Chain event indicators to see if there was evidence of any controversies with regards to water. For companies 2 and 3, Sustainalytics flags events at the operational level, where the events for both companies are classified as 'Category 2'. Sustainalytics categorises events on a scale from 0-5, where 5 is the most severe, indicating that impact and risks

are severe and irreversible. The presence of such events is important to note as they provide a signal about a potential failure of management as reflected by an involvement in controversies. Sustainalytics Management indicators were also assessed (Table 9). Of the three companies assessed, several of the management indicators suggest that Company 1 is at high risk, especially since its water risk management and water management programmes are considered weak in combination with a water intensity well above the industry median. However, companies 2 and 3 have, despite strong water risk management and adequate water management programmes, been involved in controversies. Moreover, it is noteworthy that both companies 2 and 3 are assessed as having weak effluent management, indicating that wastewater management is a particular area of concern. Overall, based on these assessments, all three companies should be considered in engagement dialogues.

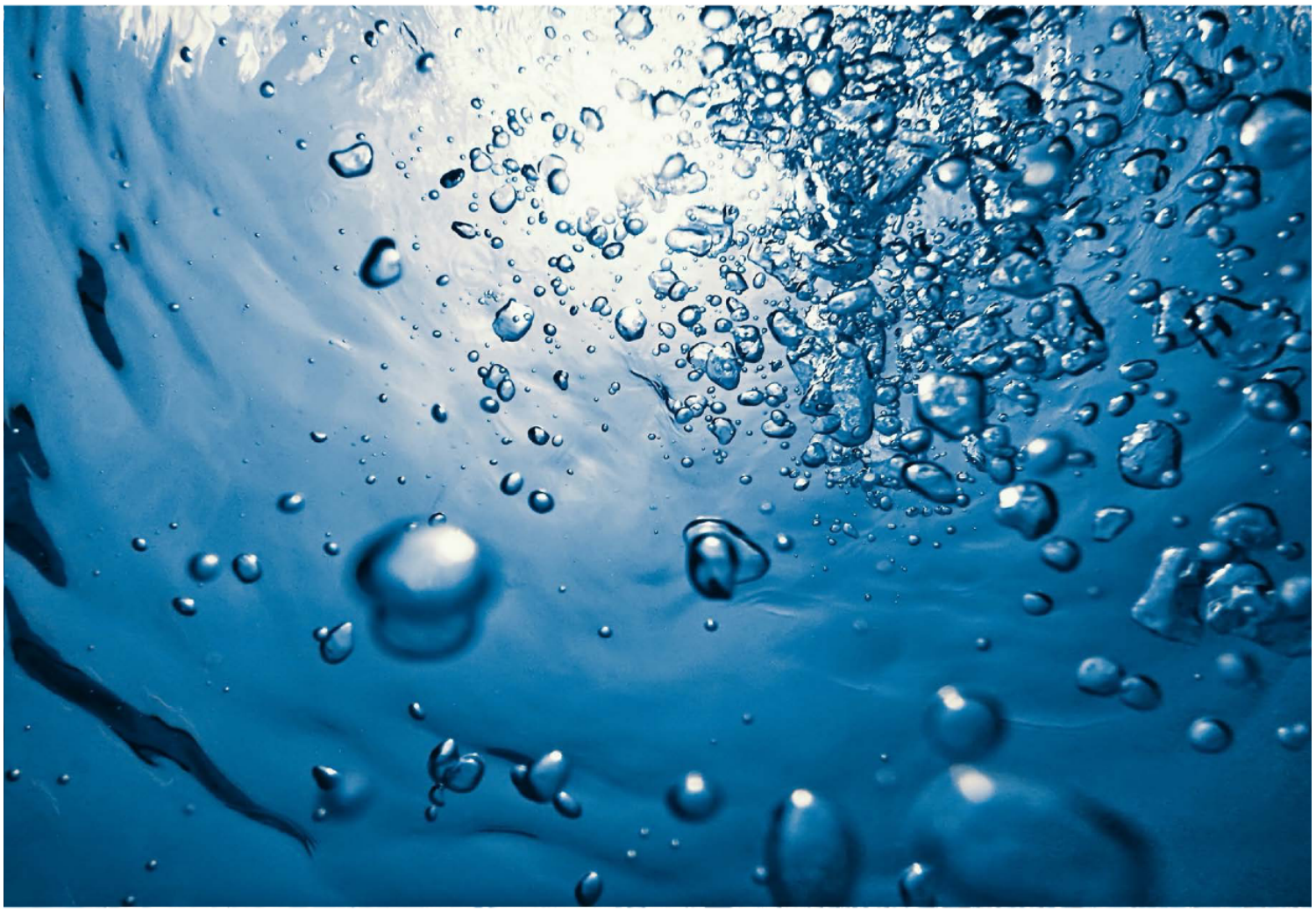


Image from Shutterstock

Table 9: Sustainalytics Management Indicators for medium and high-risk Diversified Metals and Mining companies

5. CDP has not scored these companies. However, looking at CDP Water Watch, the assembled evidence highlights that polluted water is a by-product of production, often containing toxic amounts of various metals or other pollutants. This reinforces that for companies belonging to this sub-industry, water quality is a key concern that should be taken into account.

4.4 Portfolio 3

Portfolio 3 differs significantly from Portfolios 1 and 2; it is actively rather than passively managed, is considerably smaller in terms of number of holdings, and has a specific geographical focus rather than a global investment scope. Due to its smaller size and narrower geographical scope, indicating the inclusion of holdings representing a narrower set of industries than a global fund, there is less data from both Sustainalytics ESG Risk Ratings and CDP on these holdings. As a result, the approach is adapted to accommodate for this.

Step 1: Materiality assessment at the industry level

As for Portfolios 1 and 2, the first step encompasses a materiality assessment at the industry level using the SASB Materiality Map. This screening highlights 6 out of 32 companies, which belong to industries where water is assessed as a material risk by SASB. In total, 2 different industries were flagged (Table 10).

Table 10: Industries in Portfolio 3 with high water risk exposure according to the SASB Materiality Map

Industry	Number of companies
Materials	2
Real Estate	4
Total:	**6**

Step 2: Materiality and impact assessment at sub-industry level

As above, materiality was then assessed at sub-industry level using Sustainalytics ESG Risk Ratings MEI scores. This analysis also highlights those companies categorised as Materials by SASB, flagging two companies belonging to the sub-industries Paper and Pulp and Steel with high Resource Use Default Exposure Scores. For the rest of the sub-industries, there are no Resource Use Default Exposure Scores to draw upon. This does not mean that there is no data for these companies, but as outlined in Section 4.1, the Sustainalytics ESG Risk Ratings methodology means that not all MEIs are covered for all sub-industries. MEI assessment is done at the sub-industry level, and the Resource Use MEI was not

selected for deeper analysis for the other sub-industries included in this portfolio as other issues were assessed to be of higher materiality. This, however, does not mean that water is not a material risk, solely that it may not be the most material risk facing companies belonging to these industries.

Because of the limited number of holdings in this portfolio, the analysis used CDP Water Watch to examine the water impact of all holdings, including those where water was not flagged as a material risk by SASB or Sustainalytics (Table 11).

Table 11: Sub-industries with high default water risk exposure and critical water impact

Sub-industry	Sustainalytics Issue - Resource Use-Default Exposure Score	CDP Water Watch Impact Score
Communications Equipment	-	12
Diversified Banks	-	18
Electrical Equipment	-	12
Food Retail	-	8
Heavy Machinery and Trucks	-	13
Home Appliances	-	9
Industrial Machinery	-	12
Internet Software and Services	-	-
Non-Residential Construction	-	10
Paper and Pulp	6	12
Pharmaceuticals	-	15
REIT	-	18
Retail Apparel	-	12
Steel	7	16
Technology Hardware	-	12

As above, sub-industries that Sustainalytics has given a default risk exposure score of 6 or higher (High or Severe), and where CDP has ranked the impact as 15 (Critical), are considered to be a priority. In this case, Sustainalytics ESG Risk Ratings does not assess these sub-industries on Resource Use MEI as per its methodology. However, cross-referencing the scores provided by Sustainalytics with the SASB industry-level analysis as well as the CDP Water Watch impact scores, companies of particular interest are those belonging to the sub-industries Diversified Banks, Pharmaceuticals, REIT, and Steel. This includes 10 of the 32 companies in the portfolio.

Step 3: Risk and impact assessment at the company level

Assessment of risk and impact at the company level for the companies in this portfolio is a challenge as water-related risk data is sparse from both Sustainalytics and CDP on the holdings included. However, some information is available with regards to the two pharmaceutical holdings. While no Resource Use MEI level data is available through Sustainalytics ESG Risk Ratings for this sub-industry, Sustainalytics Water Use and Water Use – Supply Chain event indicators display that no evidence of relevant controversies is present for the companies' operations or supply chains. Moreover, CDP scoring data show that while both companies have received relatively high scores – A and B respectively – the companies have received lower scores for individual indicators such as Business Strategy and Value Chain engagement, pointing to where improvements can be made. However, overall, the general absence of data indicates that the most fruitful pathway for engagement for investors in this situation is to advocate wider corporate disclosure amongst holding companies, both publicly and through CDP.

Following this 3-step methodology and narrowing down a portfolio to a shortlist of companies belonging to high risk/high impact sub-industries is an effective strategy to prioritise engagement – whether such engagement is envisioned to encompass more granular risk/impact analysis or act as a starting point for more active engagement.

The analysis of the companies belonging to the sub-industries Semiconductor Design and Manufacturing (Portfolio 1), Diversified Metals and Mining companies (Portfolio 2), and Pharmaceuticals (Portfolio 3) highlights the diverse set of challenges that need to be considered when assessing water risks and impacts. However, the analysis also pinpoints some commonalities among the challenges faced across sub-industries. In particular:

- Companies with high risk/high impact are typically characterised by **weak water management** practices. Among most of the companies analysed in detail, and which were flagged as high risk, both Sustainalytics ESG Risk Ratings data and CDP Scoring indicate that management –when it comes to strategy, governance, targets and goals, engagement, and policies – is weak.
- Companies with high risk/high impact are typically characterised by **limited value chain engagement**. For most sub-industries, the largest water risk and impact is embedded in the value chain rather than in direct operations, so addressing these risks is key.
- Companies with high risk/high impact are typically characterised by limited awareness and/or strategy regarding **water quality** issues. Water quality is an area which is typically overshadowed by the water quantity discussion, but it is of vital importance both from a risk and an impact perspective. Most of the

identified high risk/high impact companies here are characterised by having weak effluent management programmes while also belonging to sub-industries where water pollution is generally a major concern.

Identifying these common areas for improvement allows synergies for engagement to be built not just across sub-industries, but across portfolios, and empowers investors to build a strong business case around their importance, impact, and financial materiality.

Sample taking for water quality assessment. Image by Aleksey Kurguzov

5. Pathways for Better Water Accounting

It is a common saying that 'you can only manage what you measure'. In the case of water, it is critical that the level of transparency is improved as well as the quality of the information disclosed to ensure that what is measured helps investors to manage water resources sustainably.

Tackling data gaps & inconsistencies

The data available is not yet sufficient for investors to assess water risks and impacts across portfolios ***easily*** and ***consistently*** as seen in the example portfolios in section 4.

- The current level of disclosure (public and non-public) is insufficient. Investors need to put pressure on companies to ramp up their disclosure on water risks and impacts.
- The current level of disclosure is inconsistent. Investors need to put pressure on companies to ensure that disclosure is holistic and consistent across reporting.
- There is a lack of consistency across disclosure frameworks. More work is needed to ensure consistency across accounting methodologies to improve comparability. Progress towards a comprehensive reporting framework in the climate space is currently being driven by CDP, the Climate Disclosure Standards Board (CDSB), the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC) and the Value Reporting Foundation. A similar initiative among key actors driving disclosure is needed in the water space.

Understanding the contextual nature of water

The data available is not yet ***granular*** enough for investors to assess water risks and impacts across portfolios in a manner that accounts for the contextual nature of water.

- Water risk and impact is contextual: unlike carbon, water is more complex meaning that the risk and impact of an investee company's freshwater use is always directly linked to the local landscape in which the company in question is operating. If a company is operating in a water-abundant river basin, it can have a low water risk even though it uses a lot of water. In contrast, a company operating in a water-scarce river basin can face substantial water risk (physical, regulatory and reputational) even though it uses relatively little water. Water

use and impact must be understood within the local context to understand the risks.

- Asset-level data is currently difficult to obtain. To assess the local nature of risk as tied to operational business risk, asset level data is required. More work is needed to improve transparency at the asset level.

Integrating the appropriate indicators

The data available is not yet ***rich*** enough for investors to assess water risks and impacts across portfolios in a manner that accounts for the multifaceted nature of water risks.

- Water data needs to reflect the complex nature of water risks and impacts. Many data providers only look at physical water risks (e.g., quality and quantity indicators), and a limited number of risk responses (e.g., management response and water effluent treatment). Effort is needed to drive disclosure that accounts for the multiple forms of basin risks, including flooding, governance context and state of infrastructure.

Paper mill in New Brunswick, Canada. Image by Serge Yatunin

6. Water and Active Ownership: How can investors play a role moving forward?

Having considered the water risks embedded in a portfolio, and the impact on water resources resulting from the holding companies' economic activities, several steps can be taken to drive change.

Present a strong business case to companies

Engagement with companies is most impactful when it is grounded in a strong business case for action. It should also be combined with an understanding of the operational challenges that companies are facing in terms of transforming practices, and that such shifts may take time.

Engage with the companies, either directly or indirectly

Engagement with companies differs greatly between firms. The primary aim is to communicate the need for companies to understand their water risks and work strategically to minimise impact. Examples of engagement include, but are not limited to:

- Bringing up identified improvement areas in direct dialogue with holding companies.
- Voting in annual meetings according to sustainability criteria.
- Advocating the election of board members who will drive organisational change to reduce the impact of the company.
- Becoming part of multilateral engagement coalitions. Legitimacy is often considered the most important aspect of corporate-investor engagement, above shareholder size. Investor coalitions often serve to add legitimacy.

Align investment strategies with sustainability targets

Form a strategy for how to act if portfolio companies do not reach targets. When setting up new funds, water criteria should be considered, making underperformers less likely to be included in new funds. The sustainable management of freshwater resources would, in this way, be considered in the administration of financial products.

Push for improved data

The data sets still contain shortcomings, inconsistencies and gaps. Become a signatory to CDP to support enhanced water disclosure and put pressure on

companies for increased public transparency to ensure improved data sets from ESG providers, especially the gaps that have been identified when conducting this analysis.

Engage with policymakers

Support more stringent disclosure regulation, especially regarding publicly available disclosure. This would mean the data sets are likely to become more consistent over time.

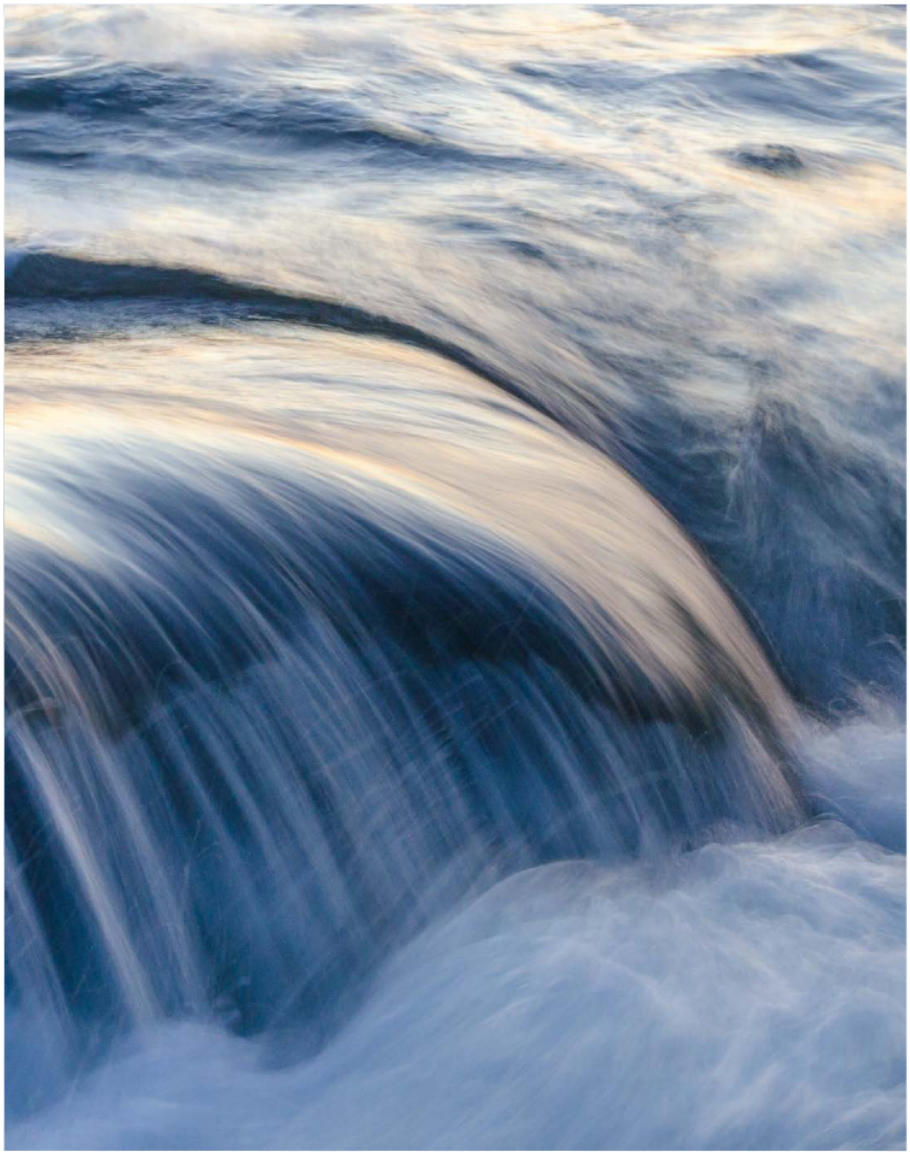


Image by Erik Wollo

7. Conclusion

This report has explored the linkages between water risks and financial markets and served as a springboard for further analysis.

It has **introduced what water risks are, how they intersect with corporate operations and value chains, and how they interlink with other ESG issues**. It has shown that water is a highly contextual resource that faces local challenges but has global impacts. Therefore, improving water management is in the interest of our societies, economies, and ecosystems, and must be understood in relation to other issues such as human rights, climate change and biodiversity.

It has also **offered an overview of the tools, methods, and guidance that financial institutions can use** to understand the impacts of water risks on individual securities and portfolios, showing that there are a lot of tools and frameworks readily available for investors and other members of the financial community who are ready to embark on their water journey, many of which have been listed in this report.

Critically, it has **showcased how water risk analysis at portfolio and security level could be conducted**. By narrowing entire portfolios down and identifying the highest-risk holdings, looking more closely at companies that provide sufficient data, the analysis can often identify common challenges for these holdings. These improvement opportunities provide a solid foundation upon which action can be taken from the investor side, by engaging with holding companies and monitoring their progress as well as aligning investor strategies with water metrics.

Finally, it has **proposed recommendations for financial institutions** on how to engage with water risks moving forward, encouraging engagement, alignment with strategy, and improvements in disclosure. When investors recognise the paramount importance of sustainable water management and signal this to holding companies, this can provide an added push to corporate practices in the direction towards a world where water resources are managed equitably.

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Authors
For more information please contact either:
Therese Rudebeck (Lead Author), SIWI
Sarah Breslin (Lead Author), SIWI

Our sincere thanks are extended to our project partners:
Sweden's Sustainable Investment Forum (Swesif)
Torun Reinhammar, CDP
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Stockholm International Water Institute
Box 101 87 • SE-100 55, Stockholm, Sweden
Visiting Address: Linnégatan 87A
Tel. +46 8 121 360 00 • www.siwi.org