

By Re_Generation

Ecological Wellbeing

1.4 Water, Effluents, and Pollution

Description

Water scarcity is sharply on the rise worldwide, a situation which will only be exacerbated by climate change. By 2030, it is estimated that [50% of people will be living with water stress](#), and global demand for water will outstrip supply by 40%. At the same time, air and water pollution continue to greatly imperil the health of the biosphere and of human beings. Air pollution [kills up to seven million people every year](#), and WHO data demonstrates that 99% of people breathe air every day that exceeds the recommended concentration of pollutants. 80% of the world's wastewater is [left untreated and dumped back into the environment](#), and contaminated water kills more people each year than war and all other forms of violence combined. To learn more about water risk, water footprint analyses, and pollution reduction, continue reading this PDF guide.

Acknowledgements

Written by Gareth Gransauil, Associate Director of Re_Generation, with review by some of Canada and North America's most influential sustainability leaders.

About Re_Generation

[Re_Generation](#) is a Canadian youth movement that seeks to build a regenerative, sustainable, and just economy. We aim to reimagine our schools, repurpose our careers, and remodel our companies to be aligned with regenerative principles. In particular, we provide resources for individuals to launch impact-driven careers and advocate for change within their companies and schools. We also aim to advance public policies that promote regenerative and sustainable business practices.

Our successful 'Our Future, Our Business' Manifesto campaign received the support of 65 youth organizations, 130 high-level executives, and 100 civil society organizations recognizing the need for reform in business education on sustainability. After three years of existence as the Canadian Business Youth Council for Sustainable Development, we have changed our name to Re_Generation to become more inclusive of all youth, not just business youth.

We believe that the ideal society is a [regenerative](#) one. Regeneration to us means putting human and ecological [well-being](#) at the centre of every decision. It means restoring relationships, both within nature and within society, while helping all communities to thrive. Read more about our history and vision at our [About Us](#) page.

Issue Summary

Although it receives less attention than other environmental issues, the global water crisis is a major threat to human civilization. Water scarcity is sharply on the rise worldwide, a situation which will only be exacerbated by climate change. By 2030, it is estimated that [50% of people will be living with water stress](#), and global demand for water will outstrip supply by 40%. Global water withdrawals have increased 50% over the last several decades, but despite this high degree of extraction it is still estimated that two-thirds of people face water scarcity at least one month every year. Agriculture alone is responsible for [70% of freshwater consumption](#), a sum made all the more alarming by the fact that global meat production is expected to double by 2050.

At the same time, air and water pollution continue to greatly imperil the health of the biosphere and of human beings. Air pollution [kills up to seven million people every year](#), and WHO data demonstrates that 99% of people breathe air every day that exceeds the recommended concentration of pollutants. 80% of the world's wastewater is [left untreated and dumped back into the environment](#), and contaminated water kills more people each year than war and all other forms of violence combined. In low-income nations, [only 8% of industrial and municipal water](#) receives treatment, leading to a context in which [two billion people](#) live without a source of water that is free from contamination. Agriculture is the [leading cause of water degradation](#), primarily through the runoff of excess nutrients that leads to eutrophication in freshwater ecosystems, a situation which will only be exacerbated by population pressures and changing diets.

There is a growing international movement to recognize the need for water and sanitation services as a [basic human right](#). However, the increasing scarcity of water, coupled with decades of [water privatization](#) driven by decades of neoliberal reforms, are threatening the foundations of this human right, as recognized explicitly by the [UN Office of the High Commissioner on Human Rights](#). In a world where scarce water becomes more valuable, some speculators are beginning to [invest in water as a new asset class](#), an insidious process that will raise the cost of water and exacerbate its unavailability for the world's poorest. At the same time, large companies like Nestle and others have spent years [perpetrating 'water grabs'](#) by stealing water from communities, while the [privatization of local water supplies intended for extractive mining or agricultural projects](#) frequently occurs at the expense of the needs of local stakeholders. Sustainable companies will be required not just to reduce their water consumption and effluent pollution, but also responsibly engage with the communities in which they operate and refrain from enclosing commonly-owned water resources.

Key Considerations

The business case for action on water issues has never been clearer. One study demonstrated that the total losses associated with water risks could be \$301 billion, while the cost of mitigating these risks is approximately five times less. There is a growing movement of corporations looking to invest in greater water stewardship, or what is sometimes called 'integrated water resources management', in order to attenuate these risks. The International Union for the Conservation of Nature has written a [summary of these efforts](#) so far, developing a categorization of corporate water behaviours that range from extractive to inclusive. There is also a growing number of corporations that are reporting on their water usage and governance processes. In somewhat positive news, the 2020 CDP Water Analysis report indicated that of all companies which disclose their water use, [two-thirds reported a reduction or maintenance in their overall water withdrawals](#). Far less reassuring, however, was the finding that only 59% of companies are reporting on the quality of their wastewater, and only 4.4% of companies are setting or

reporting progress against pollution targets. The deterioration of water quality, and the lack of reporting on it, has led to the creation of an invisible crisis that is endangering human and ecological well-being.

The Future-Fit Benchmark has developed a [series of questions](#) for corporations beginning to consider taking action on water-related issues. Some of these issues include:

1. For each region the company operates in, what information is known about the availability and characteristics of the local watersheds? Are they known to be under water stress?
2. Which facilities are located in water-stressed locations? Of those, which withdraw the most water? Which consume the most water?
3. Does the company withdraw water directly from a surface water body or groundwater source? If it obtains water from a third-party supplier, where does that water originate?
4. Does the company take steps to ensure it adheres to all water-related laws and regulations in those regions?
5. Does the company have an understanding of the other users of water in the relevant watersheds, including individuals, organizations, and ecosystems?
6. How are water related risks likely to evolve over time due to population, climate, or economic trends in the area?
7. Does the company discharge water directly back into nature? If so, does the company analyze the characteristics of the water before discharging it?
8. Where water discharges are indirect (e.g. managed by third parties), and where is the discharged water ultimately released? Does this treatment take into account the state of the receiving water body or soil?
9. Do any company facilities produce other types of liquid waste besides effluents and wastewater (e.g. toxic waste generated by production processes)? If so, how is this type of liquid waste handled?
10. Do opportunities exist to collaborate with local groups or other companies to tackle shared water challenges?
11. Has the company already implemented targets and action plans to reduce water-related impacts? If so, are existing commitments sufficient? What is the expected timeframe for this transition? If the current commitments or plans are not sufficient, how might they be adjusted or supplemented?

Tools

Before beginning to develop a water conservation strategy, firms should first perform a comprehensive self-assessment to obtain a holistic picture of their own water needs and performance. The Carbon Disclosure Project has an [annual questionnaire](#) with ten modules that focus on risk assessment procedures, water dependence, accounting metrics, business impacts, governance and strategy, and other issues.

Firms are also recommended to conduct [water footprint analyses](#) to determine the embedded water usage contained in all of their products and processes. Many items have water footprints that are extremely large; a bar of chocolate requires 1,700 litres of water, while a single mobile phone requires a staggering 12,000. The Water Footprint Network has developed this [assessment tool](#), and the Global Environmental Management Initiative has developed its own [local water tool](#) for analysis of water usage at the local level. The World Resources Institute has developed its own tool called [Aqueduct](#), a set of geographic tools that includes information about water risks, including water stress, seasonal variability, pollution, and specific tools linking water risk to food requirements and flood risk. Another prominent risk management tool is the WWF's [Water Risk Filter](#).

Firms should also aim to improve their disclosure and reporting on water use, water risk, and related issues. The Alliance for Water Stewardship has developed the most [comprehensive disclosure standard](#). The [Future-Fit Benchmark](#) recommends that firms report on water consumption and water discharge, and also evaluate the number of water-stressed locations on which they depend (where water stress is defined as any source where the total annual withdrawal is 40% of the available renewable supply). The [disclosure standards](#) developed by the CEO Water Mandate include metrics relating to the:

1. Total and percentage of withdrawals located in water-stressed or water-scarce areas;
2. Percentage of facilities with a water-related regulatory compliance violation;
3. Percentage of facilities adhering to relevant water quality standards;
4. Average water intensity in water-stressed or water-scarce areas (as appropriate);
5. Number of “hot spots” where risks and impacts are most likely.

Following disclosure, firms should aim to set and implement targets according to context-based indicators that reflect the hydrological needs of local water supplies. Context-based indicators are important because, unlike with emissions targets, the capacities and requirements of specific local water basins vary significantly depending on their geography. Firms should work to establish targets based on the concept of a [‘sustainable basin threshold’](#), and adopt water consumption patterns that do not threaten the long-term viability of the source. The CEO Water Mandate has a [specific target-setting guidebook](#), as well as a [guidebook for volumetric water benefit accounting](#) that specifically instructs firms on how to develop water replenishment targets aimed at restoring local water supplies.

Firms should aim to develop a comprehensive strategy related to water management, one that incorporates conservation techniques as well as governance approaches, stakeholder relations, data management, and other concerns. The World Business Council for Sustainable Development (WBCSD) has a guide to [circular water management](#), as well as a [new framework](#) specific to the management of wastewater. In terms of stakeholder engagement, the CEO Water Mandate has developed a [toolkit for responsible water policy](#), which highlights in particular the need to respect differentiated public and private roles and refrain from water grabbing privatization tactics.

There are also tools and frameworks available specific to particular sectors. The Food and Agriculture Organization released a report [outlining the negative impacts](#) of the agricultural sector, which is the most responsible for global water degradation. The WBCSD has a [guide for the food and agricultural sector](#) to improve its water management practices and reduce agricultural pollution. The Beverage Industry Environmental Roundtable also has a guide [specific to bottlers and beverage companies](#), while the Alliance for Water Stewardship has a [knowledge hub](#) dedicated to water use in the global fashion industry.

For investors looking to minimize water risk across their portfolio, and engage with companies on water management issues, Ceres has developed an [investor water toolkit](#) which includes guides for [analyzing sectoral risks](#) using stress-testing and scenario analysis, as well as frameworks for engagement.

When it comes to tackling the issue of air pollution, there are significantly fewer resources. The Stockholm Environment Institute, in collaboration with the Climate and Clean Air Coalition, is currently in the process of developing a [practical guide for businesses](#) to develop their own air pollutant inventories, and to track pollution across entire value chains. This guide will be published in 2022. The Government of Canada has a [guide to pollution reduction](#) for businesses, while the Environmental Protection Agency in the United States also has a [compilation of resources](#). For more information, see the World Economic Forum’s [Alliance for Clean Air](#).

Case Studies

Technological innovations, as well as smarter management practices, have allowed many companies to conserve water while also saving money in the process. The candy-manufacturer Mars has introduced a [wet-dry irrigation technique](#) for rice cultivation which has reduced water consumption by 30% and increased farmers' incomes by 30%, in addition to reducing carbon emissions. This reform helped save \$60-180 million as a result of reducing supply shortages. The Brazilian company EDF has also made use of a [rainwater harvesting system](#) installed over one of its major gas turbine power plants, a system designed to recycle rainwater for use in its cooling tower, thus saving money and limiting water withdrawals in the process.

Organizations/Initiatives

For more information about the global water crisis, water scarcity, air pollution, and the role of pollution prevention in sustainable development, check out the following organizations:

- [UN Water](#)
- [Charity: Water](#)
- [Water.org](#)
- [Water for People](#)
- [WaterAid](#)
- [Climate and Clean Air Association](#)
- [Pollution Probe](#)
- [International Union of Air Pollution Prevention and Environmental Protection Associations](#)
- [The Council of Canadians](#)
- [Alliance for Water Stewardship](#)
- [Water Footprint Network](#)
- [CEO Water Mandate](#)
- [Water Resilience Coalition](#)