

Water, water everywhere... except it's not everywhere any more. Water is life. It is a precious and a common resource for all mankind and all living beings. How we are able to utilize and preserve this resource to the best of our ability is a fundamental question that concerns our present and future generations.

Water is something that most of us tend to take for granted. However, as demand for water continues to rise, more and more companies are learning that water is a finite resource and that water scarcity may have a big impact on the bottom line. The world over, industry operations require water: to run machinery and equipment, for use in the manufacturing of products and packaging, and for human consumption. Corporates are starting to take notice of how water scarcity is affecting their business. In some cases, it can even threaten a company's ability to operate, as well as its reputation.

In India, the industry uses about 6% of available water. The demands of a rapidly industrialising economy and urbanising society pose serious concern and challenge of limited potential for augmenting supply, falling water tables and severe water quality issues as groundwater gets contaminated with fluoride, arsenic and uranium while rivers are polluted by untreated effluents and sewage.

Water: The New Corporate Risk

Among the most significant emerging risks for companies is water risk. Water is vital to many different industry sectors. It is used in heating, cooling and cleaning and as a raw material in production, or along supply chains. It has no cost-effective replacement, and its accessibility and quality underpin the stability of ecosystems upon which businesses are dependent. Furthermore, water is critical for the health and wellbeing of employees, suppliers, workers and customers alike. Water-related risks have the potential to limit production, disrupt supply chains, resulting in asset write-downs, create conflict with other water users and harm corporate reputations. Water disruptions potentially can have a significant effect on a company's supply chain. As a result, money managers, fund managers and individual investors are putting more weight on the potential for water shortages as a risk factor for investments.

Water and Business nexus



In a world where demand for water is looking to outstrip supply, many companies are struggling to find the water they need to run their businesses. Companies everywhere could face similar challenges during the next few years. Water is a quintessential part of various business activities across sectors.

Agriculture

Farming accounts for 71 percent of global water withdrawals, a proportion that is projected to decline only slightly, to 65 percent by 2030. Water scarcity is tied not only to grow but also to the trading of food. India, for instance, is just left with half of the water it will need in 2030, and agriculture will account for about half of the growth in water demand over the next two decades. water availability presents a key material risk to agricultural assets and the supply chains reliant on agricultural products.

Thermal Power

Thermal plants use water to cool steam during electricity production and for the disposal of ash waste, hence reduced water supplies resulting from drought or from increased competition among water users can cause forced disruptions leading to tangible financial losses. Water scarcity contributes to lost revenue, higher operational costs (due to lower capacity utilization), and higher capital expenditures for upgrades to more water-efficient technologies.

Commercial Real Estate

Water availability can significantly affect the viability and profitability of commercial and residential real estate projects. Regulatory and legal action on projects coming up in river flood plains or reclaimed lakes, wetlands and groundwater stressed regions, can also be a risk as flood risks represent one of the largest forms of asset loss.

Chemicals & Chemical Products

Availability of sufficient, clean water is typically critical for the production of chemicals. Any disruptions in water availability can affect the operations. Besides, the physical risks the industry has also, on several instances, been affected by regulatory and reputational risks due to pollution impacts.

Other Infrastructures Other infrastructure investment such as urban utilities (water supply & sewage treatment), Irrigation project are subject to water scarcity, flooding and pollution risk.

Cement & Cement Products

Another industrial sector with large water abstractions where both water scarcity and pollution impacts are potential risks. Mining and Quarrying- Water poses a significant regulatory and reputational risks for the mining projects. Dewatering of mines-water pumped out of mines to enable mining operation reduces groundwater levels for surrounding water users and can cause pollution and high flows downstream.

Tourism, Hotels & Restaurants



The hospitality industry is highly dependent on water not only for the physical needs of the tourists but also for the recreational and spiritual value that the water offers. Water scarcity or damage to the ecology of the water bodies can pose a significant risk to the tourism industry.

Paper & Paper Products

Availability of sufficient, clean water is critical for Paper production with the commodity accounting for more than 90% total inputs used for production. Any changes in water availability can affect the operations. Besides the physical risks, the industry has also, on several instances, been affected regulatory and reputational risks due to pollution impact

Sugar Availability of sufficient, clean water is critical for the production of Sugar. Any changes in water availability can affect the operations. The industry is also subject to water risks through its Sugar supply chain, which is a water-intensive crop.

Beverage & Tobacco

The industry is also subject to water risks through its Agri-supply chain for sugar, fruits, dairy etc.

Leather & Leather Products

Availability of sufficient, clean water is critical for the production of leather. Any changes in water availability can affect Nearly every business sector will face the challenge of managing water efficiently. Few companies, however, look beyond short term water constraints, as important as they are, to a more comprehensive assessment of the longer-term business risks associated with water scarcity.

Water-related business risks can be classified in broadly three categories:

- a) Physical Risks** - Water quality and quantity issues related to the performance of the company and its supply chain largely arising out of the quality and the quantity of water available to the company;
- b) Regulatory Risks** - Stemming from the consequences of Government policies and enforcement in the context of a company's operations;
- c) Reputational Risks** - Perceptions around water use, pollution and operational behaviour that may have negative impacts on the company brand and influence purchasing decisions. Public perceptions can emerge rapidly when the actions of the company are not properly communicated to the stakeholders and as a consequence, the reputation of the company suffers.

While there is a growing awareness among companies on water-related risks, water is not yet widely integrated into the corporate agenda of companies in India. Focus is desired on **a) operational integration** -the extent of inclusion of water within the day-to-day asset allocation decisions of the company, and **b) strategic integration** - availability of broader and long-term evaluation and support framework within the company on water risks and opportunities.

Intertwining water into corporate agenda

Businesses can start to develop an understanding of water-related business impacts by scrutinizing how their internal operations use and manage water compared to current and projected water availability. But in order to see the true picture, companies should analyse their entire value chain. How much water do suppliers use? How much do customers use when consuming their products? Also, it is useful and imperative to consider the potential financial impact of water-related concerns. A bottom-line perspective provides the CEO, COO, and CFO with a tangible understanding of the business value at risk and how best to allocate capital to mitigate any current or projected water-related risks.

To effectively lower your company's water footprint, it takes employee engagement, top-down commitment and a methodology for routinely measuring water use.

Following steps are proposed to improve a company's water management:

- 1. Define water issues and the desired outcomes:** The first step towards effective management and reduction in the company's water use is to develop a problem statement with the goals the company wants to achieve. Some examples include decreasing the risks associated with water scarcity, increasing an organization's competitive advantage or achieving cost savings. In any water management program, a water use baseline is an essential element, particularly one that accompanies a quantitative target for water use reduction.
- 2. Measure water consumption:** Next, a water management plan needs to be created. Start with a review of how much water the company is using. To paraphrase the old management adage, "If you can't measure it, you can't improve it." Therefore, it is imperative to measure water consumption and set tangible targets. Make sure that the meter is installed and that you take regular readings to find the areas of greatest water use.
- 3. Know your water costs:** This is another key aspect of the measurement and target-setting phase. A water management plan grounded in potential cost and environmental savings will help generate due buy-in from key stakeholders. Often the actual cost to purchase and discharge a volume of water does not provide the complete costs associated with water use at a facility. For example, energy is required for the pumping systems to move the water, and chemicals may be required to treat the water (as is the case with water used in cooling towers). The "true cost of water" captures all costs associated with water use such as energy costs to operate pumps, treatment costs, and water discharge costs



4. Conducting a water audit: Hiring a professional to conduct a water audit would provide a better understanding of how much water facilities use and which processes require the most water, it also enables the company to set a baseline for average water consumption and provides detailed information on opportunities for using less. A professional audit can be too costly sometimes, creating an internal team to examine your water consumption can help. This is a great opportunity for employees to volunteer and become part of the water-saving process.

5. Analyse water consumption results: After the overall water consumption has been measured by your company, assess where water use is most significant and then compare it to the industry benchmarks. This will help you in identifying opportunities for improvement. During the analysis step, seek answers to the following questions:

- Who monitors and manages your organization's water system?
- Have you assessed the efficiency and age of your equipment, such as faucets, water dispensers, toilets and irrigation systems?

- If you have an irrigation system, is it optimally set for the time of day, frequency and run time-based on the season, geographic location and need?
- If your facility has a cooling tower, how efficient is it and what steps can be taken to upgrade its water use efficiency?
- For industrial and manufacturing facilities, do you measure water use? If so, have you ever benchmarked optimal requirements for the various processes such as cooling, wash down and lubrication?

6. Improve current water consumption: With the information gathered during the measure and analysis steps, the company can develop and implement a water management plan. It is suggested to start small with a few quick wins or realistic goals that each area of the organization can easily achieve. Some water-saving tactics that are simple to implement and relatively inexpensive include:

- Detecting and fixing leaks in pipes, fixtures, appliances and equipment
- Making sure restroom faucets and break room are fitted with low-flow restrictors, which emit 1.5 gallons of water per minute instead of 2.2 gallons for standard faucets
- Replacing older toilets with newer, higher efficiency models can reduce gallons of water per flush from 5 to 2
- Reducing of outdoor water use by creating a landscape that unifies native plants or other less water-intensive plants
- A more involved, yet highly sustainable solution is reclaiming wastewater to meet water needs such as irrigation, cooling towers or other non-potable uses After executing these quick solutions, a larger strategy and timetable for implementing and assessing more comprehensive water-saving measures can be developed as a part of the company's overall water management plan.

7. Sustain ongoing water-reduction efforts: Once a company has implemented water-saving practices, the work is far from over. To ensure ongoing success, it is important to regularly measure how the business is performing against the desired outcomes established at the outset. To do so, develop and employ a monitoring and control protocol to report progress, recognize and reward successes, and most importantly, keep employees engaged. You can also sustain engagement by promoting your company's commitment to reducing water consumption, sharing relevant updates and publicizing when key goals have been

achieved to increase awareness among employees and make them mindful of their daily water use. It is also a good idea to periodically ask employees for their suggestions on how to save water and reduce water costs. Doing so will give them a sense of pride and ownership in the program. To ensure your organization is being a good water steward, revisit your water conservation plan often to measure and evaluate the success of current efforts, and consistently develop and execute new water-saving strategies to further lower your water use footprint.

Water management action recommendations



Waste Water Recycle Plant

Recycle/reuse: Eliminate once-through cooling, including installing closed-loop chillers, recycle non-contact cooling water, modify existing equipment to eliminate non-contact water cooling, Clean and recirculate treated contact water, install semi-closed loop water system, use recycled water for process water, Reuse process water, including capturing formerly discharged cooling tower wastewater for use in a recirculating chilled process water loop system

Substitute water: Replace water with other coolants (i.e. air and antifreeze in a closed-

loop circuit), Replace water-cooled compressors with air-cooled compressors, replace water-cooled chilled water system with the air-cooled system, install air-cooled systems in place of non-contact cooling water, replace water-cooled vacuum pumps with air-cooled units, Install waterless urinals throughout the facility.

Monitoring and controls: Adjustment on control valves to improve water efficiency, automate controls on continuous flow streams, Change faucets to auto type faucets, install low flow fixtures, install thermal proportioning valves, install automatic shutoff valves, Implement procedures to monitor and adjust the flow on water-cooled equipment, Monitor water quantity and quality, Monitor cooling tower cycle of concentration

Training: Increase water usage awareness throughout the facility Train operators in the most water-efficient procedures

Water balance map: Cummins and Saint-Gobain have reported that performing a water balance at their facilities led to the identification of a number of water reduction actions, including many low-cost actions such as repairing leaks. A water balance maps the water flows into, stored in, and out of a facility. If there are unaccounted water flows, the facility will not be able to reconcile its water balance. Unaccounted water flows can indicate that there is an unknown water use (perhaps a leak) within the facility.

Water storage: Design of rinse tank overflow systems, install rainwater harvesting system, Capture and store water during facility shutdowns for future use instead of discharging to sewers.

Effective communication for water: We need to communicate to the people that water is essential to everything we do and have in our lives, and then educate them about the criticality of water. As the industry shifts its operational strategies it must also shift its communications strategies. It is time to lift the veil and bring the public along on the journey. Transparency and public engagement have to be built into every plan, not an afterthought. Projects thrive when they have community support and stakeholder buy-in, from public officials to environmental groups.

Water stewardship: is the use and treatment of water in ways that are socially equitable, environmentally sustainable, and economically beneficial. It can be adopted by businesses, as well as by growers, communities, and others. Ultimately, stewardship is a key practice to address these crucial water challenges, drive sustainable water management, and then achieve the Sustainable Development Goals. WWF's Water Stewardship Ladder consists of the following five sequential steps that indicate activities businesses can take in their

journey to become good water stewards

- **Awareness of Water** - High-level understanding of water-related risks and opportunities
- **Knowledge of Impacts** - Systematic knowledge of impacts of water risks
- **Internal Action** - Optimizing internal water governance
- **Collective Action** - Engaging with multi-stakeholder platforms to address water issues
- **Basin Governance** - Effort to influence policy and institutional performance at the basin level

Conclusion

In the past businesses have often viewed water as a minimal operational cost and hardly as a strategic issue. However, water has now emerged as a crucial issue for both the public sector and corporations in response to increased water demand, climatic risks and potentially negative impacts on brand value. Better management of water resources is a growing interest for many manufacturers as they seek to cut costs, mitigate risks, and reduce their environmental impact. Companies are continuously developing water management programs for a variety of reasons. More efficient use of water resources results in lower operating costs, a more reliable water supply, and improved water quality.

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