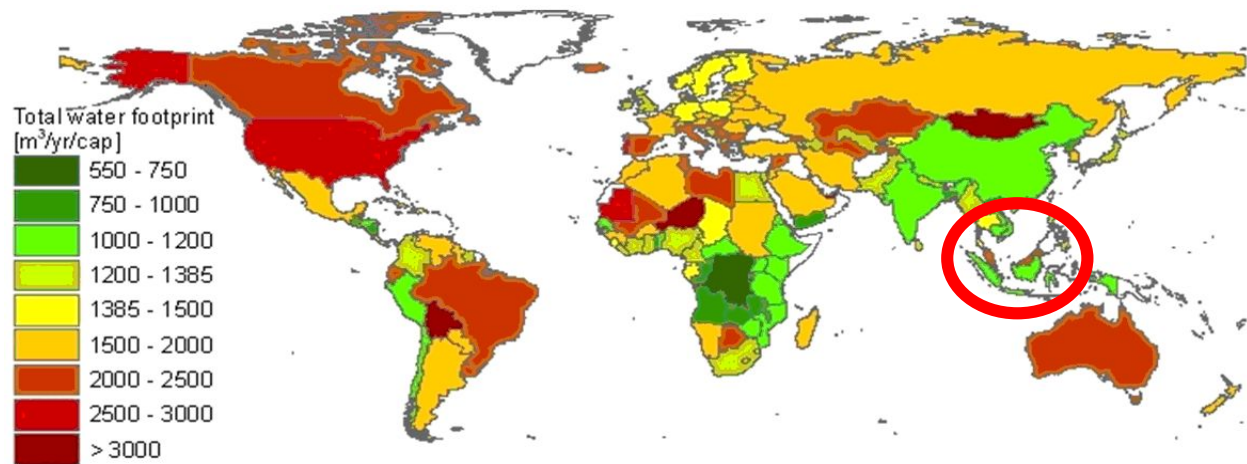


Creating Resilient Businesses through Sustainable Water Management: Rising Needs for Business Water Footprint Accounting

Water is taking the centre stage alongside with carbon emission to be preeminent environmental risk facing the planet in 21st century. In Malaysia, there has been tremendous news on water scarcity in Klang valley and the need for cloud seeding to avoid pro-longed water shortages. We can never forget the floods in December 2006 and January 2007 as they were considered to be the worst in the area for 100 years, resulting in evacuation of over 100,000 people in the worst-hit state of Johor at its peak. Both the events were highly costly and are powerful reminders of the strategic importance that water to the country and global business.



Source: Water Footprint Network

The National Water Resources Policy has indicated that five states in Malaysia will face water deficiency and many other states heading towards water scarcity by the year 2020. Water Footprint Network has calculated Malaysian national average water footprint as **2103** m³/yr per capita compared to the global average of **1385** m³/yr per capita. 32.3% of the footprint is acquainted to operations outside Malaysia.

Water risk poses a threat at all levels scaling down from global, national, industries wide, individual business boiling down to individual consumption. In a manner similar to the early response to carbon risk, the private sector has begun to prepare to face the challenges posed by the era of limited supply of the blue gold – the world's most precious and finite resource.

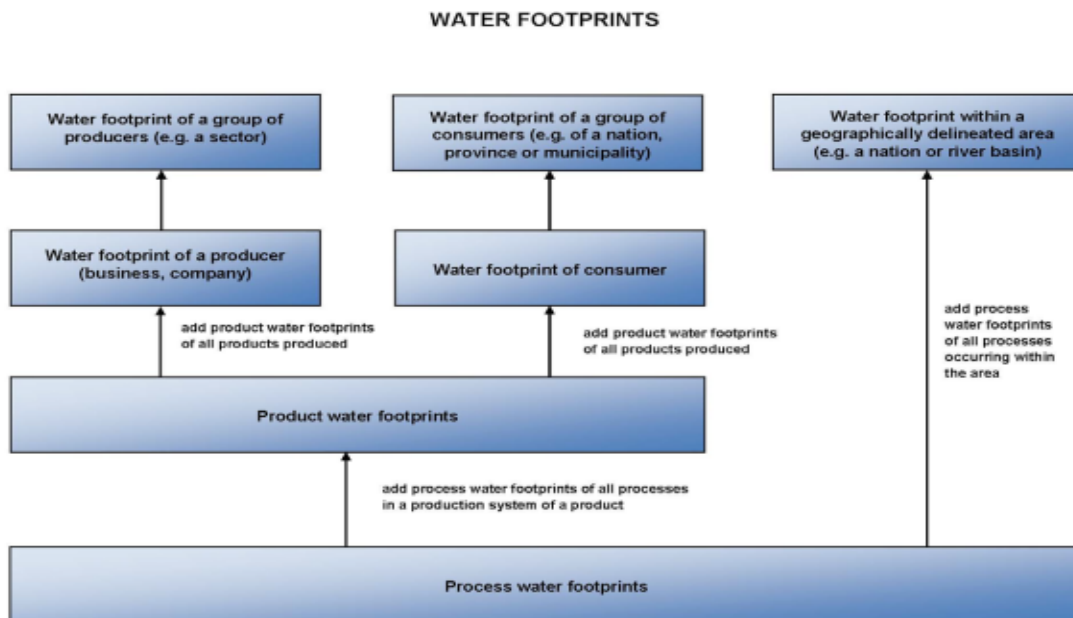
Water risk varies significantly across different industries and geographies, however few companies will be unscathed by water challenges at some point. The first step to managing these risks is by understanding and quantifying the risk. There are three major types of water related business risk as follows;

- Physical Risk – limitation on business activities, raw materials supply and product usage which may undermine industrial operations in a wide scale
- Reputational Risk – Water availability constraints within the area which the business operates may increase the tension and pose conflicts between businesses and local communities. This will damage the brand name

- Regulatory and Litigation Risk – Business should anticipate more stringent local and national water policies which will eventually increase the cost and limit licenses. In water scarce geographies, companies have faced growing risks from lawsuits and legal actions.

Pacific Institute reviewed corporate sustainability and corporate social responsibility reports of 139 companies from 11-water intensive industry sectors in 2007 (Apparel, Automobile, Beverage, Biotech / Pharmaceutical, Forest products, Food Manufacturing, High-technology / Electronics, Metal/Mining, Refining and Utility) to understand the patterns and gap in corporate water reporting as to evaluate methods to make these reports more effective and valuable to the corporation especially in understanding water related risk. The companies reviewed were the largest in the specified industrial sector and it is worth mentioned that one of the key findings of this study revealed that there has been inconsistency in measurement methods and lack of context in water reporting.

Thus the term 'Water Footprint' was introduced by Hoekstra and Hung (2002) as an outcome to create an indicator in mapping the impact of human consumption on global water resources. Water footprint accounting has since been diversified along the years to cater for the different level of consumption i.e national, business or individual consumptions. Figure 2 shows the linkages of the various types of water footprint. The Water Footprint Network defined water footprint as a way to measure both an entity's direct and indirect water usage. The footprint includes 'blue water' (surface or groundwater as water source), 'green water' (rainwater stored in the soil) and 'grey water' (polluted water).



Reference: Water Footprint Network, University of Twente, The Netherlands

Figure 2: Water Footprint Progression

The most recent development within this subject matter is the Carbon Disclosure Project (CDP)'s commitment to catalyzing improvements in corporate water stewardship amongst the

business and investment communities by calling for Water Disclosure Report as part of CDP programmes. The increasing constraint to companies to collect and disclose water usage data is strongly supported by the various tools developed.

Water Footprint Accounting Tools for Businesses

Emerging tools include the development of water footprints by corporate entities delineated by usage and business sector in addition to watershed footprints addressing supply, public health, use, and discharge. One big step is the creation of ISO 14046 standards on 'Water footprint requirement and guidelines' consistent with carbon footprint and other Life Cycle Impact categories.

The Alliance for Water Stewardship (allianceforwater-stewardship.org) is leading efforts on a voluntary international water stewardship standard through a multi-stakeholder process to develop an International Water Stewardship Standard. A few commonly used sources of water metrics and supporting tools include:

- Global Reporting Initiative (GRI; globalreporting.org). The GRI is a generally accepted framework for reporting on an organization's economic, environmental, and social performance. The disclosures include a number of key water performance indicators, including total water withdrawal by source, sources significantly affected by withdrawal, percent and total volume recycled and reused, and total water discharged by quality and destination.
- Water Footprint Network (WFN; waterfoot-print.org) and Water Footprint Working Group. The WFN's goals are to develop and apply water footprint methodologies in water management practices. Calculations are made by defining water volumes using the following three components: Green (rainwater evaporated during the production process; e.g., agricultural products, including crops and trees), Blue (volume of surface and groundwater evaporated as a result of production or service), and Grey (wastewater associated with production of goods and services; quantified as the volume required to dilute pollutants to meet water quality standards).
- National Council for Air and Stream Improvement (NCASI; ncasi.org). This water inventory tool tracks water use for the Forest Products Sector by including surface and groundwater inputs in fiber and non-fiber raw materials, use in processes, and water fate, including discharge to surface and groundwater, evaporation, water in residuals, and products. It considers the contribution of forests to freshwater supply.

Two valuable open-source water risk analysis tools which can be used by corporations / companies are;

- Global Water Tool developed by the World Business Council for Sustainable Development (wbcsd.org). This tool allows companies to map water use and assess risks to global operations and supply chain. This tool uses an online spread sheet calculator, including a water inventory with elements addressing water use, discharge, recycling, and consumption. This tool also compares water use to water availability along with other stress information available globally and presents a risk analysis for facilities or entire companies.
- Global Environmental Management Initiative (GEMI) provides a water sustainability planner which incorporates two online tools which assess a company's relationship to water and the local communities the company operates in to identify risk and methods for improvement.

This water reporting module includes three water profile forms: water use, impact, and source reliability.

Global Best Practices on Sustainable Water Management

Currently in Malaysia, there are fragmented activities on water footprint such as the effort taken by Malaysian Palm Oil Board (MPOB) in researching on the water footprint within the activities of oil palm industry. SIRIM, an agency under the Ministry of Science, Technology and Innovations (MOSTI) has also embarked in conducting studies on water footprint of a specific agricultural produce, industrial product and building services i.e shopping mall.

There are many global best practices which can be highlighted to manage water as well as to create new water opportunity which is invaluable doctrine to be adapted and adopted by our local industries be it small medium industries or the multinational companies operating in Malaysia.

IBM led the way in Armonk, New York by reusing water to clean semiconductor chips, contributing towards decreasing water purchase by almost 30% which translates to more than USD 1.5 million per year saving on energy cost because reduced water usage leads to reduced energy usage for pumping, cooling and treating water. IBM turned this efficiency into business opportunity by developing the water management experience into information system beneficial to governments and businesses to track and manage water usage in their premises.

In the arid US Southwest, Arizona Public Service Company (APS) formed a dedicated department to manage water resources for its nine power plants. This is the only US utility to use treated city wastewater for nuclear power generation, processing about 21 million gallons of treated effluent for use at its Palo Verde nuclear facility, which translates into preservation of water for supply to 75, 000 homes.

In cases where water is an essential part of business such as the beverage, agricultural or oil and gas industries, companies has started going beyond the individual actions. The most renowned is the Coca-Cola's pledge to lead its global beverage operations, including franchise bottlers, to replace the water it uses in its beverages and their production. Coca-Cola announced a goal to reduce 20% of its worldwide water use by 2012 against a 2004 baseline. The company has also announced a partnership with World Wildlife Fund (WWF) to promote sustainable agriculture and help conserve seven of the world's most important freshwater basins.

Nestle as the world leading bottled water company has collaborated with Nature Conservancy in United States for many years to protect rivers, lakes and wetlands across the country. The list can be topped up with specific initiatives by companies which includes Pepsi Co. for its approach of human rights to water; Local scarcity footprint and targets initiatives by SAB Miller and Levi's; Leadership & Stewardship approach used by M&S and DEG and Swiss Re and the CDP looking into investor's risk on water.

Will corporations have the wherewithal to meet the often-daunting water management and reporting requirements increasingly demanded not only by legislation but also by the investment community? The answer is that they will have little choice. There is an intrinsic link between the challenge we face to ensure world rapidly growing energy and food demand as to balance this with water security and other global issues, most notably climate change. Therefore, the need

for a holistic water footprint effort within the industries to mitigate water related risk is crucial. The business community increasingly recognizes the water challenge, but to respond effectively it needs guidance, tools, standards and schemes to enable change to more sustainable practices. Some of the important conditions for efficient water use by businesses in Malaysia may include water pricing, regulatory framework, increase awareness and also incentives such as evaporation credits or reduced cost of water treatment. Regulatory authorities as well as individual state operators should play a leading role in communicating and education businesses on water reporting and accounting.

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