



Beverage Industry Environmental Roundtable

# **Managing Water-Related Business Risks & Opportunities in the Beverage Sector**

*Practical Perspective, November 2012*



**Beverage Industry**  
Environmental Roundtable





## Foreword

The mission of the Beverage Industry Environmental Roundtable (BIER) is to bring together global leaders in the beverage industry to advance the sector's environmental sustainability. BIER seeks to create tools and methodologies, and facilitate the exchange of data and information to accelerate the process from analysis to sustainable solutions.

Although the beverage sector has been recognized as being more proactive than many other sectors on managing water issues, much remains to be done. Among the many challenges ahead are: securing high quality, local data for watersheds where we and our suppliers operate; increasing consistency in identifying and evaluating water risks and opportunities; finding new ways to overcome the inherent complexity in understanding watershed dynamics; and many other challenges that require actionable solutions to advance the state of water stewardship across the industry.

In this document, we share our collective experience and illustrate how the members of BIER and their suppliers are beginning to overcome some of these short- and long-term challenges. Specifically, we discuss our approach to assessing the technical and business aspects of water risks and opportunities, and share our thoughts and experiences on how best to gather data and use the wide variety of tools, resources and guidance available to support such endeavors.

In the end, BIER and its members recognize that managing water-related risks and opportunities is a complex, challenging, and long-term task. We understand the outputs from such efforts are highly dependent upon the approach and the quality of information available to support this work. Experience shows, that understanding and acting on water-related risks and opportunities is a journey and our hope is that this *Practical Perspective* will remove some of the ambiguity and help establish a path forward for the industry as a whole.



## BIER Water Working Group Contributors

<b><u>Member</u></b>	<b><u>Company</u></b>	<b><u>Role</u></b>
Nels Anderson	Ecolab	Reviewer
Roberta Barbieri	Diageo	Core Review Group, Author, Interviewee
Andy Battjes	Brown-Forman Corporation	Core Review Group, Interviewee
Jean-Christophe Bligny	Danone	Reviewer, Interviewee
Paul Bowen	The Coca-Cola Company	Reviewer
Ron Bohlmeijer	Heineken	Reviewer, Interviewee
Carine Christophe	Pernod Ricard	Reviewer, Interviewee
Liese Dallbauman	PepsiCo	Core Review Group, Interviewee
Julia Denham	MolsonCoors	Reviewer, Interviewee
Michael Glade	MolsonCoors	Reviewer, Interviewee
Karen Golmer	Diversey	Reviewer
David Grant	SAB Miller	Reviewer
Steve Harvey	Bacardi	Reviewer
Wouter Joost de Groot	Carlsberg Group	Reviewer, Interviewee
Michelle Kuykendall	Beam Inc.	Reviewer
Nick Martin	Antea Group - GCC	Author
Kevin Mathews	Nestle Waters N.A.	Co-Chair, Core Review Group, Interviewee
Raj Rajan	Ecolab	Reviewer
Bert Share	ABInBev	Core Review Group, Interviewee
John Stier	Antea Group - GCC	Co-Chair, Author
Rudi Sueys	The Coca-Cola Company	Reviewer
Audrey Templeton	MillerCoors	Reviewer, Interviewee
Kristin Thelemaque	Beam Inc.	Reviewer
Herman van de Bergh	Heineken	Reviewer
Jenn Vervier	New Belgium Brewing	Reviewer, interviewee
Kristine Young	Ocean Spray	Reviewer, Interviewee

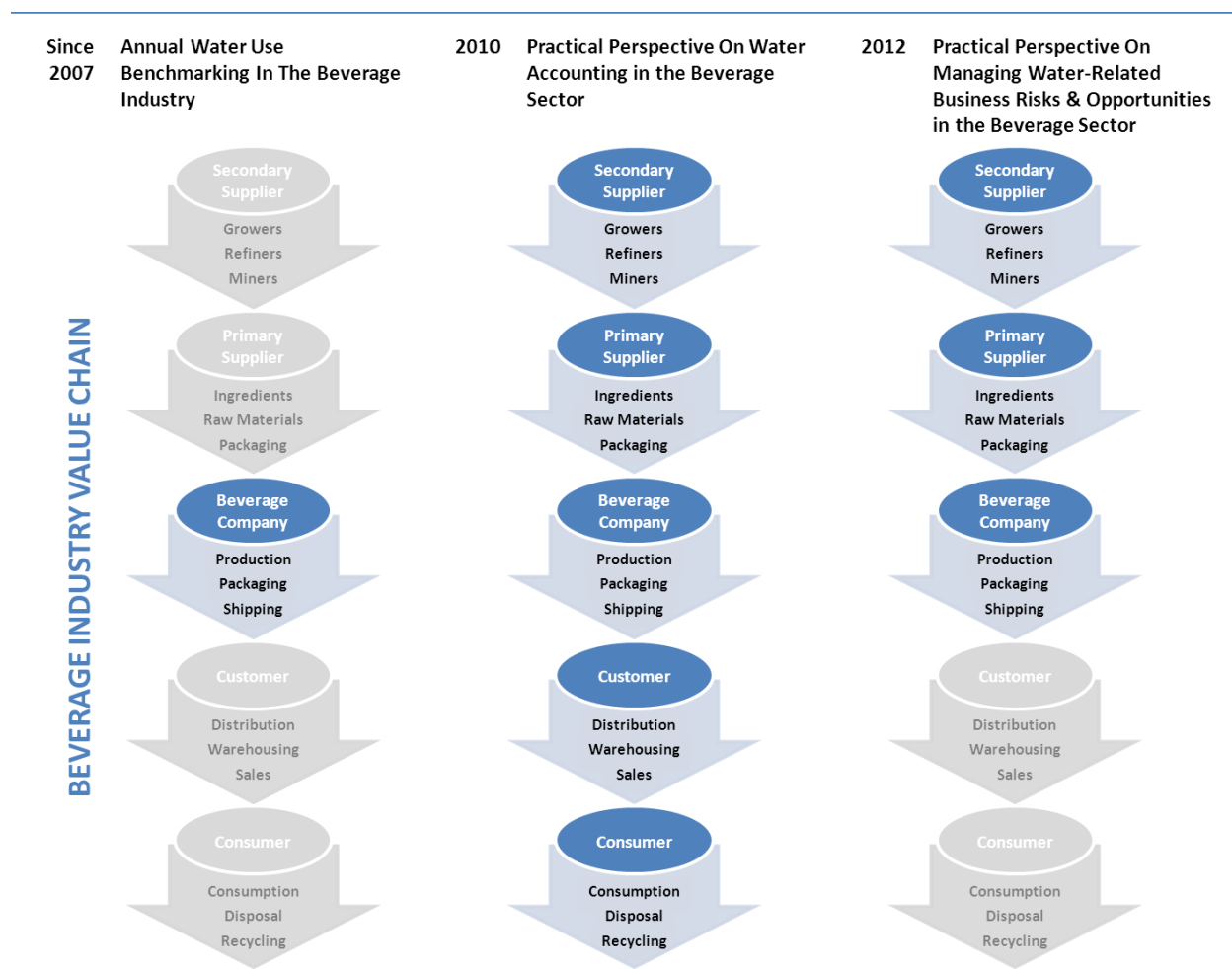
## Table of Contents

INTRODUCTION .....	1
1. FUNDAMENTALS OF MANAGING WATER-RELATED BUSINESS RISKS/OPPORTUNITIES .....	3
IDENTIFICATION .....	4
Step 1 – Scope Determination .....	4
Step 2 – Data Gathering and Verification .....	5
Step 3 – Impact Determination.....	7
PRIORITIZATION .....	8
Step 4 – Risk/Opportunity Prioritization.....	8
MANAGEMENT.....	10
Step 5 – Mitigation and Management .....	10
2. AVAILABLE TOOLS AND RESOURCES.....	12
3. MEMBER EXPERIENCES MANAGING WATER-RELATED BUSINESS RISKS/OPPORTUNITIES .....	15
Getting Started: Launching Water Risk/Opportunity Management Programs .....	15
Implementing The Risk/Opportunity Management Process .....	16
Step 1 – Scope Determination .....	16
Step 2 – Data Gathering and Verification .....	18
Step 3 – Impact Determination.....	20
Step 4 – Risk/Opportunity Prioritization.....	22
Step 5 – Mitigation and Management .....	24
Continual Improvement: Maintaining Momentum Today and Tomorrow .....	25
References .....	28
Appendix A: Typical Facility and Watershed Level 2 Questions .....	29
Appendix B: Impact Registry: Supporting Materials.....	31

## INTRODUCTION

The Beverage Industry Environmental Roundtable (BIER) and its member companies have made significant strides in the realm of water stewardship. Among the organization's accomplishments are various work products which share our members' knowledge and experience. As illustrated in Figure 1, water and water stewardship have been a central theme of our work, not only for beverage manufacturing, but across the industry's entire value chain.

Since 2007, BIER has produced an annual quantitative benchmarking report that evaluates water use efficiency within member production facilities. These benchmarking reports allow members to compare their water efficiency performance with that of peers and competitors, as well as to demonstrate improvements made across the sector over time. Members also use benchmarking data both internally and externally to continuously improve and support broader water stewardship programs across the industry's value chain.



**Figure 1: BIER Publications and The Beverage Value Chain**

In 2010, BIER initiated development of a *Practical Perspective on Water Accounting in the Beverage Sector*. The purpose of this document was to evaluate water footprinting methodologies, particularly as they apply to the beverage sector. At the time, several BIER member companies had developed water footprints using these methodologies and shared their experiences in this publication. Proper water accounting can be accomplished through the use of existing water footprinting methodologies, life cycle assessments, etc., as further described in the [Practical Perspective on Water Accounting in the Beverage Sector](#) published by BIER in December 2011.

Building from these efforts, a *Practical Perspective on Managing Water-Related Business Risks and Opportunities in the Beverage Sector* is designed to guide beverage companies through a step-by-step process for identifying, prioritizing and managing the industry's most important water challenges<sup>1</sup>. The approach described advocates broad use of existing and developing risk tools, methods and resources, and has emerged (and continues to evolve) from the practical experiences of our members.

In summary, this document includes:

**Section 1. Fundamentals of Managing Water-Related Business Risks/Opportunities:** While there are numerous methods for assessing the technical aspects of water risks and opportunities, leaders in the beverage and other sectors are becoming increasingly interested in how these fit within a broader business context. BIER has developed a systematic approach which aims to better identify and manage those risks and opportunities that are truly material for beverage manufactures and their suppliers. In Section 1, this approach is described and discussed.

**Section 2. Available Tools and Resources:** A large and growing number of tools, methods, studies and publications exist to help companies better manage water-related business risks and opportunities. In Section 2, our members share how to effectively leverage this important body of work.

**Section 3. Member Experiences Managing Water-Related Business Risks/Opportunities:** Launching, maintaining and improving processes to manage water-related business risks and opportunities can be a difficult and daunting challenge. In Section 3, we share our members' experiences in deploying such processes, with an aim of providing valuable insight for others engaged in these and similar efforts.

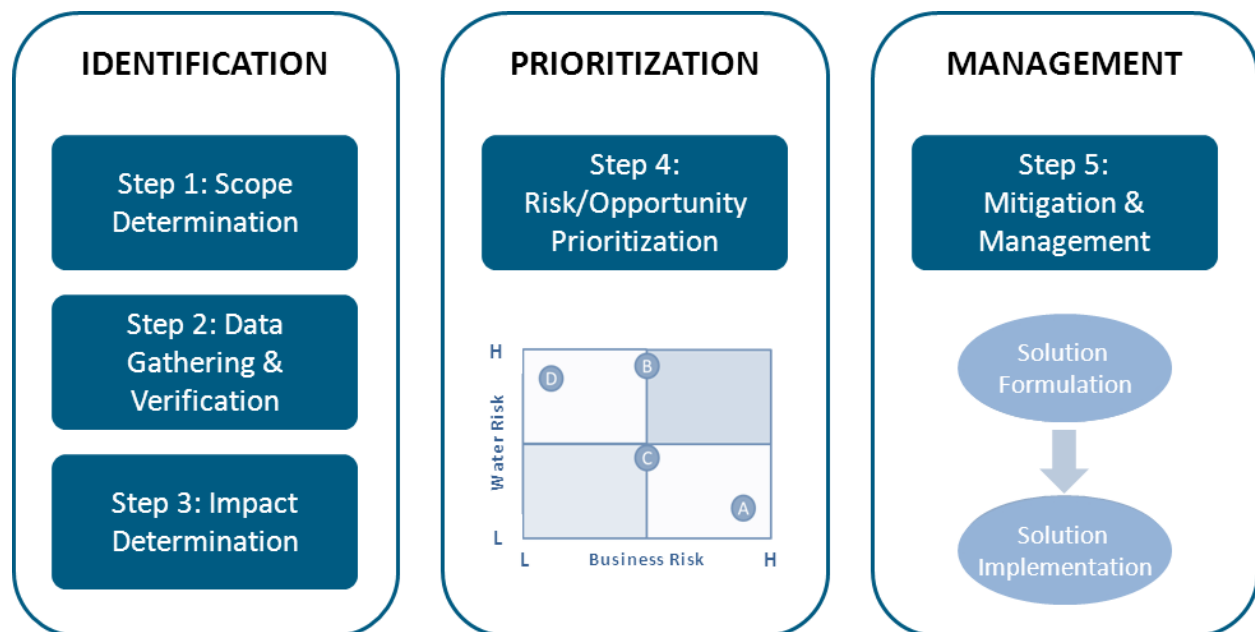
---

<sup>1</sup> Most agree that the industry's greatest water risks and opportunities reside in the supply chain and manufacturing operations, which is the focus of this publication.

## 1. FUNDAMENTALS OF MANAGING WATER-RELATED BUSINESS RISKS/OPPORTUNITIES

There are many emerging concepts and methods for assessing water risks and opportunities. Until recently, most focused solely on the technical aspects, pointing out important physical, regulatory and reputational attributes of water risk. Today, business stakeholders are becoming increasingly interested in adding or overlaying assessments designed to further clarify the importance of identified risks and opportunities within a broader business context. Such overlays include impacts on brand equity and image, ability to enter or grow within a given market, and overall competitiveness. Investors were among the first stakeholders interested in such overlays. But now, similar assessments are increasingly important for any enterprises operating in locations undergoing water-related pressures.

As a result, BIER and its members have developed a logical and straightforward process designed to help identify and manage those risks and opportunities that are material for beverage manufacturers and their supply chain partners. As illustrated in Figure 2, this process includes three distinct components: identification, prioritization, and management.



**Figure 2: Process Overview: Managing Water-Related Business Risks/Opportunities**

Each component of the process and its associated steps are further described in the remainder of this section.

## IDENTIFICATION

### Step 1 – Scope Determination

The process begins by selecting a level of evaluation which delivers appropriate business insight, yet remains practical and realistic, given a company's experience and understanding of water risks and opportunities.

While there are many ways one could evaluate water-related business risks and opportunities, experience shows that most assessments typically fall into one of three categories or “Levels” as described in Table 1.

## IDENTIFICATION

Step 1: Scope  
Determination

Step 2: Data  
Gathering &  
Verification

Step 3: Impact  
Determination

**Table 1: Water Risks/Opportunity Assessment Scope Levels**

Scope Level	Purpose	Generally Involves	Business Value	Limitations
<b>Level 1:</b> Primarily focused on detecting broad water risks.	Gain a high-level, first indication of physical water risk by location.	Use of publicly available water mapping tools that summarize water availability and other information based on general location. A Level 1 Scope can often be completed with little engagement from individual manufacturing facilities or supply chain partners.	Satisfies basic internal and external reporting needs and may establish a fundamental understanding of the potential water issues related to the business.	Insufficient to effectively prioritize or justify business decisions due to: 1) limited site-level inputs; 2) inherent limitations and assumptions included within generic geographic datasets; and 3) general or limited consideration of non-physical (i.e., regulatory and/or reputational) water risks.
<b>Level 2:</b> Aims for a detailed spatial and temporal assessment of physical risk along with a more rigorous examination of the regulatory and social/reputational attributes of water use, consumption, and wastewater discharges.	Dives deeper into location specific watershed conditions, including validation of any less rigorous results from Level 1 assessments (e.g., actual drivers of Level 1 identified per capita scarcity). Uses input from individual activities and additional external data sets as available.	Internal communication of any previous (Level 1) results, followed by facilitated dialogue that confirms physical risk conditions and solicits insight on relevant regulatory or social/reputational conditions which represent risks or opportunities. Often facility-level water resource surveys (reference Appendix A for an example) are used as part of this process.	Adds confidence (by validating or correcting Level 1 results and/or gathering location-specific information) to decisions and investments associated with risk mitigation and/or opportunity pursuits.	Completing a Level 2 assessment will better prioritize risks and opportunities, but could fall short in terms of providing a full business case for action.
<b>Level 3:</b> Uses a robust business overlay to enrich and/or calibrate water risk/opportunity assessments and resulting actions.	Examine risks or opportunities within an appropriate business context, identifying and acting upon mitigation or management actions where the potential to add value for the company is greatest.	Existing quantitative and/or qualitative indicators of business value are used to select or assess the criticality of individual facilities and the overall return on investment to the company and/or community (i.e., shared value) to address selected water risks or opportunities. While there are many techniques that can be utilized to perform this overlay, such considerations as brand, image, market growth/entry and overall competitiveness typically weigh heavily in such evaluations.	The business overlay provides sound justification for addressing specific risks and opportunities. This context can be utilized to build an internal business case and calculate return on investments at the facility, regional and/or corporate level. Furthermore, a Level 3 assessment can provide valuable outputs for communicating the direct connection between water risks and business opportunities.	Many organizations do not fully account for the total cost of water and the apparent cost is relatively low in many areas (compared with other natural resources and utilities). This has made development of a business case more challenging. To address these limitations, many beverage companies have begun implementing processes to more accurately account for the true cost of water (adding measures that consider hidden costs as well as the fundamental importance of this ingredient in beverage products).



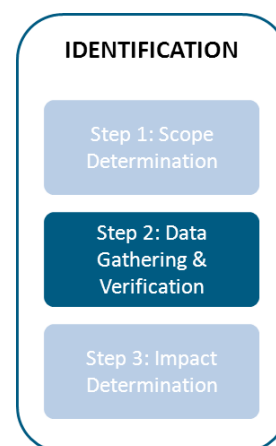
To ensure selection of a practical, yet insightful scope, users must be clear on: 1) why the evaluation is being conducted; and 2) how the results or outputs will be used. In most cases, a progressive approach, which moves systematically through each scope level, is best, allowing users to sharpen their focus on the most material and significant risks and opportunities as they move through each iteration.

While the “progressive” approach is most common, there are certain situations where a different approach may be warranted. For instance, if a company’s overall risk tolerance is low, it may be better to begin at Level 2 (conducting research<sup>2</sup> typical of Level 1, but adding the location-specific details common for this more rigorous scope). There are also situations where an organization may choose to begin at Level 3. While unusual, it is plausible that some companies may choose to assess water risks and opportunities only for those facilities or suppliers the business considers critical (due to size, market/brand considerations, business interruption concerns, etc.).

## Step 2 – Data Gathering and Verification

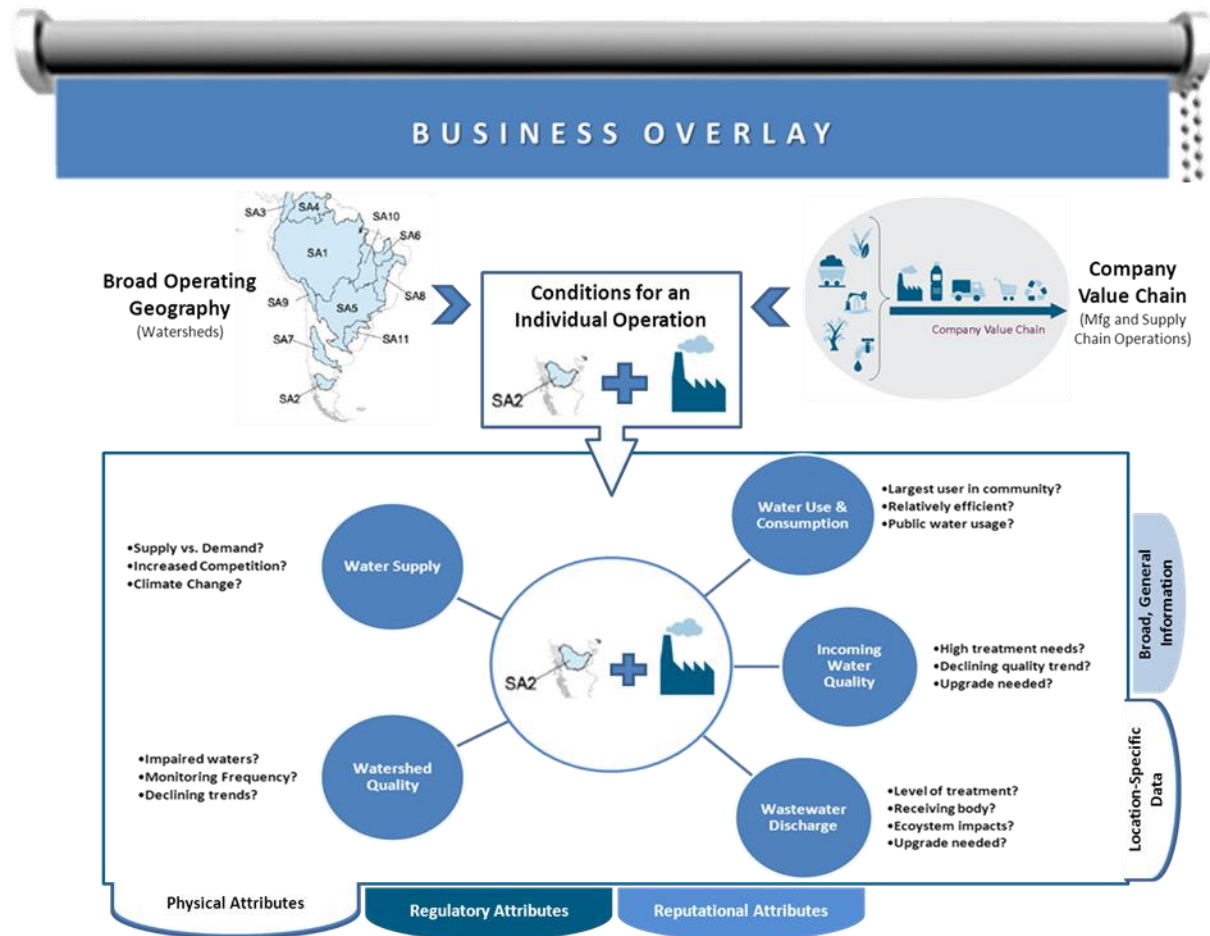
With an appropriate scope determined, companies can begin gathering and verifying information needed to assess water risks and opportunities. While the complexity and magnitude of this step will depend on a number of factors (e.g., scope selection, desired granularity, the extent of past water accounting work completed, etc.), there are certain dimensions or matters that require consideration at the onset and during the course of carrying out this task. As illustrated in Figure 3, these include:

- **Staying Organized and Systematic:** Clearly the ways in which water risk and opportunity data can be gathered are limitless. As depicted in Figure 3, the most efficient and effective data collection efforts begin by gathering information based on pairing *key supply chain or manufacturing operations* with the *characteristics of the watershed* in which those activities are performed. By collecting data in this manner, users start and stay organized and are better prepared to systematically and consistently understand and prioritize the importance of water risks or opportunities revealed by their assessments.
- **Gathering Data Efficiently:** Data gathering efforts should be designed based on the anticipated availability and utility of the information sought. Understanding the extent and usefulness of data in the public domain is generally an initial step in this process<sup>3</sup>. In addition to publicly available information, users also need to consider collection of primary data (i.e., data obtained directly from a company or supplier). Primary data may be particularly important for key points in the supply chain such as agricultural supply.



<sup>2</sup> As previously noted, Section 2 will include selected resources and references that can be used to support scope level 1, 2 and 3 risk/opportunity assessments.

<sup>3</sup> This document includes an entire section (Section 2) designed to help readers locate, use and understand selected resources and data sources related to water risk and opportunity assessments.



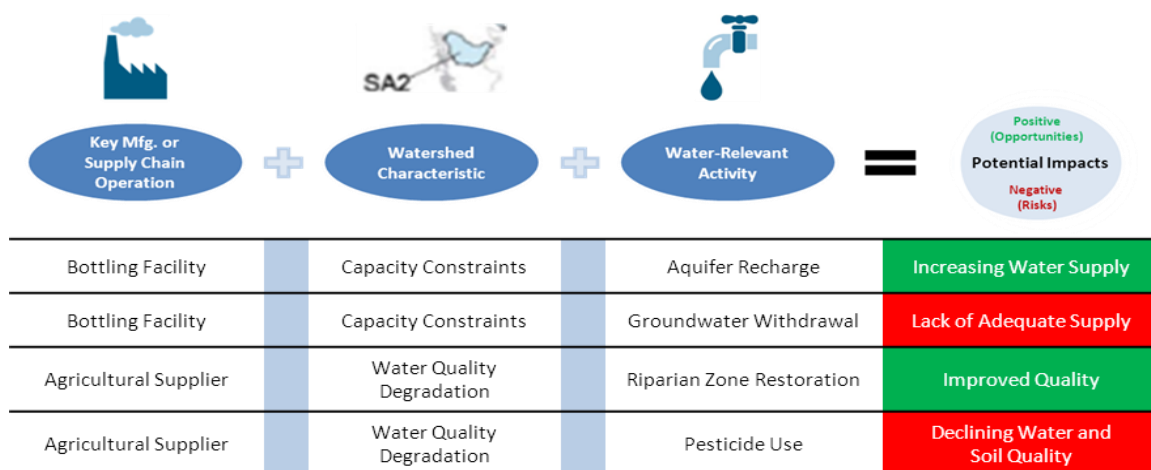
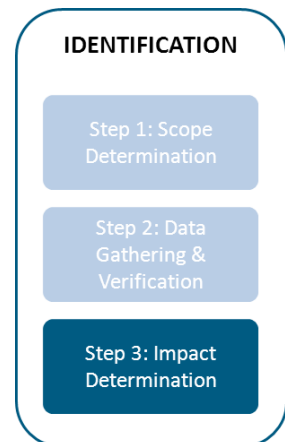
**Figure 3: Assessing Water Risks/Opportunities: The Dimensions of Data Collection and Verification**

- Comparing and Cross-Checking For Quality:** Experience indicates that a variety of quality control methods or practices should be considered and applied during the data collection and analysis phases of this process. One of the more common techniques to verify inputs is the use of multiple data sources which often originate from a variety of relevant but diverse stakeholders. For example, many companies combine and compare internal and external perspectives as part of the assessment process. This combination offers both valuable insights from company personnel along with the broader perceptions of those outside the organization, or its supply chain, who study or strive to understand the importance of water within a larger context (e.g., local watershed experts, non-governmental organizations, academia). By using this approach, many feel that the inputs gathered are more representative of local conditions and include better information on subjects that range from: the presence or absence of deep aquifers; to considerations or perceptions on allocation of water rights; to better understanding how various stakeholders influence the supply and demand for water. Experienced assessors also avoid overemphasizing any single aspect of risk/opportunity. For instance, companies should avoid extensive efforts to collect hydrologic data that define physical water risks while largely ignoring impending regulatory requirements which could have a much greater influence on future water allocations, limiting business growth.

### Step 3 – Impact Determination

With the scope established and data collection underway, companies can now begin the process of identifying positive and negative impacts (i.e., potential opportunities or possible risks). While there are a number of specialized tools for calculating the magnitude of various impacts<sup>4</sup>, many believe that simpler methods are better suited for this task.

This approach proposes the use of a basic registry designed to inventory and screen water-related impacts. As illustrated in Figure 4, the registry builds from the organizing concepts previously noted in Step 2. Specifically, this includes the *key manufacturing or supply chain operations* (e.g., bottling plant, sugar plantation, etc.) components along with important *watershed characteristics* (e.g., physical, regulatory, and/or social/reputational conditions) under consideration. The registry also includes a new set of components, *water-relevant activities* (e.g., ground water withdrawal, wastewater discharge) which, when considered collectively, reveals and systematically organizes potential risks (**negative impacts**) and opportunities (**positive impacts**) for further consideration.



**Figure 4: Impact Screening Registry Example**

To further assist efforts, a general listing of the beverage industry's key supply chain operations, frequently encountered watershed characteristics along with many common water-relevant activities (and typical relationships between these components) have been illustrated within Appendix B.

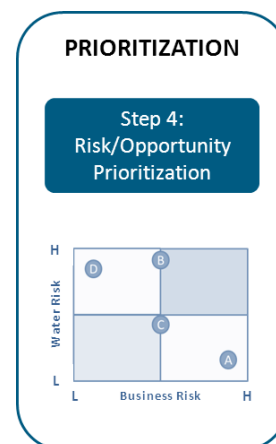
<sup>4</sup> Such specialized tools include lifecycle assessments which determine broad environmental impacts for products or specific activities as well as more relevant water footprinting tools that assess the impacts across the value chain (reference Arjen Y. Hoekstra, Ashok K. Chapagain, Maite M. Aldaya and Mesfin M. Mekonnen, The Water Footprint Assessment Manual, Setting the Global Standard, 2011).

## PRIORITIZATION

### Step 4 – Risk/Opportunity Prioritization

Most experienced assessors anticipate a lengthy list of impacts from Step 3 and plan for prioritization to effectively focus resources on those that are most material to the business. This is the aim of Step 4, where organizations select and apply an appropriate prioritization scheme.

In general, risk prioritization methods are either qualitative (i.e., relative judgments of significance) or quantitative (i.e., using numerical scoring and weighting systems).



Qualitative judgments can often be made by simply comparing summary data to other similar operations and scaling the significance up or down as needed. Such techniques require low levels of structure, formatting and analytics.

Companies opting to quantify significance usually establish ranges or algorithms for criteria considered most relevant and important (e.g., license-to-operate, business continuity, compliance and/or other similar considerations). Scoring methodologies for such criteria can range from simple (High = 5; Medium = 3; and Low = 1) to more complex, such as that presented in Figure 5.

Low Risk					Moderate Risk					High Risk				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Limited regulatory pressure or focus on water minimization from authorities.					Some regulatory pressure and/or authorities have threatened or applied, in isolated instances (short duration drought), limits.					Regulatory authorities have placed extraction/use limits directly on the site and/or the site has been in violation of associated permits.				

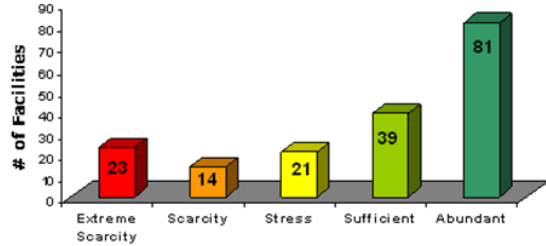
**Figure 5: Quantitative Scoring Example – Regulatory Pressure**

While there is no universal consensus on how best to prioritize, leaders realize a consistent approach is needed, one that: a) is fit-for-purpose; b) is implementable (i.e., practical, resource conscious, and realistic); and c) allows the organization to detect, understand and manage those risks and opportunities that matter most to the business.

Typically, a company's approach to prioritization is decided upon early in the assessment process (Step 1), where questions of purpose and desired output were initially addressed. Figure 6 further illustrates this, depicting examples of prioritization schemes which have been aligned with Level 1, 2 and 3 assessments.



Annual Renewable Water Supply Per Person  
(Source: WRI, Projections for 2025)



At Level 1, prioritization can often be pre-established, especially when organizations use publicly available tools such as the World Business Council for Sustainable Development's (WBCSD) Global Water Tool to support their efforts. In this example, a company may elect to solely focus on risk mitigation strategies for the facilities in the "Extreme Scarcity" category.

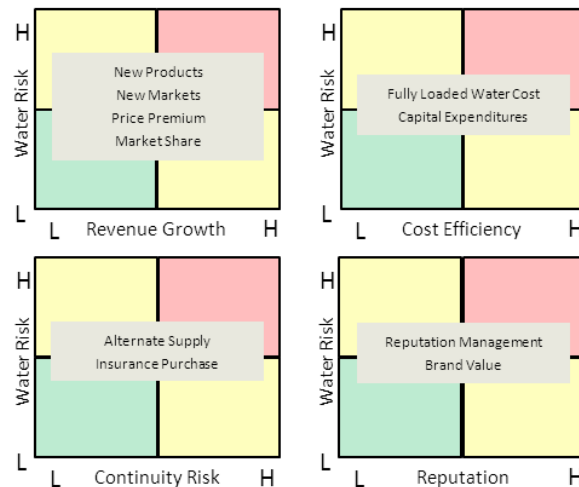
## Level 1

Facility	Overall Current Risk Level	Average Question Score		Physical Risk		Regulatory Risk		Social/Reputational Risk		Sustainability Assessment	Baseline Water Stress (WRI)	2025 Projected Climate Change (WRI)	2010 Water Use (kl)
		2011	2017	2017	Trend	2017	Trend	Current	Trend				
A	High	1.18	1.18	1.00	=	1.00	↑	1.67	=	Partial	Low Stress	Extremely More Stressed	200,000
B	Medium	2.45	1.91	1.00	↑	2.33	=	3.00	↓	No	-	-	1,100,000
C	Medium	2.45	1.91	1.00	=	2.33	=	3.00	=	No	-	-	950,000
D	Low	1.55	1.55	1.00	=	1.67	=	2.33	=	No	Moderate Stress	-	730,000

At level 2, prioritization schemes are typically more robust and include further delineation of physical attributes along with additional information concerning regulatory and reputational risks/opportunities. The more detailed output offers greater fidelity and can lead to more effective selection of the most important risks/opportunities for mitigation or management.

## Level 2

Level 3 methods typically build upon and add the business dimension to previously prioritized technical risks/opportunities. Technical water risk (or opportunities) are then plotted against a composite or individual key business considerations such as: revenue growth; cost efficiency; business continuity or risk profile; and image considerations that could impact brand or reputation.



## Level 3

Figure 6: Risk/Opportunity Prioritization Examples

## MANAGEMENT

### Step 5 – Mitigation and Management

While previous phases have focused on organizing and prioritizing, Step 5 aims to assist in the development and implementation of strategies to manage those water related risks and opportunities deemed most material.

In summary, the most successful organizations typically deal with these challenges systematically, applying many of the best practices described below for formulating and implementing effective solutions.

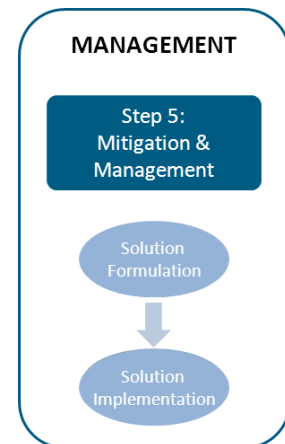
#### ***Solution Formulation***

**1. Define Management/Mitigation Objectives** – As with any important decision, contemplating and creating objectives or targeted outcomes is an essential first step in creating effective solutions. Experience shows that those who broadly consider the following factors form objectives that are better positioned to succeed:

- **Benefits** – Can the approach: provide environmental, social and/or economic benefits for the business and community; enhance regional/global image; elevate the organization’s status as a thought leader; boost stakeholder relationships; and/or serve as model that can be replicated in other areas?
- **Investment** – What level of investment is the company positioned to make and what is necessary to justify the business case?
- **Partners** – Is the company open to partnerships? If so, is being the lead partner or catalyst important and what level of engagement is appropriate?
- **External Communications** – How will external communications and stakeholder perceptions be managed during development and implementation of the solution?

**2. Map Key Players and Participants** – It is important to identify key individuals and/or entities that need or may have an interest in participating, including both internal (e.g., local/regional or functional leads) and external (e.g., industry, government, NGO, etc.) parties. For each participant, it is important to identify their level of interest, influence and involvement to ensure proper management of expectations and planned activities.

**3. Inventory and Consider Potential Success Barriers** – To effectively formulate solutions, potential barriers to success must be inventoried and considered. For instance, what limits, if any, are there to cooperating with competitors, NGOs, community groups and/or government agencies? Are there any historical issues or concerns associated with the situation? Is there potential for stakeholder opposition?



4. *Identify and Compare Alternative Solutions* – With an understanding of the objectives, required participants and potential barriers, the organization can begin to formulate possible solutions for reducing risks or capitalizing on a water-related business opportunity. Alternatives can then be compared (pros/cons or costs/benefits) with the aim of choosing the optimum course of action.

5. *Finalize The Strategy and Action Plan* – Accounting for the information gathered above and details related to the risk (or opportunity), a management or mitigation plan can now be developed. While the content and level of detail will vary with each plan, it is important to compile the strategic objectives, associated actions, accountabilities and milestones within a clear and simple framework (i.e., a ‘roadmap’ as illustrated in Figure 7) to establish and maintain focus on the most important elements as companies move into the implementation phases of their efforts.

Water Risk or Opportunity Management/Mitigation Action Plan				
Objectives	Strategic Actions	Milestones	Goals & Performance Measures	Roles & Responsibilities
<i>Major themes focused on priority and material aspects of the targeted action</i>	<i>Specific strategic actions to pursue objectives</i>	<i>Key milestones for each action</i>	<i>Leading/lagging indicators to measure progress against objectives</i>	<i>Defined accountability for each action</i>

**Figure 7: Action Planning Framework Example**

## 2. AVAILABLE TOOLS AND RESOURCES

There are an increasing number of tools, initiatives, references and other resources available to support the assessment and management of water risks and opportunities. Many of these resources are excellent at providing background information, important methodologies, and relevant data that can be used in the various steps of an effective water-related business risk/opportunity management process.

Remaining current with this ever increasing body of knowledge, however, poses a difficult challenge. Fortunately several organizations have taken on the task of compiling and maintaining “catalogs” which inventory, describe and provide web links to this diverse and ever growing collection of resources. BIER members have contributed to and monitor several of these catalogs on an ongoing basis, including:

- **[The Operational Water Source Tool Library](#)**: This catalog, maintained by The Brewers of Europe trade association, contains a description of various state of the art tools and methodologies for assessing water vulnerability and associated risk. The Library is by no means exhaustive, but provides a helpful overview of relevant water risk assessment tools and includes a decision tree to guide users through the appropriate use of the resources cited. The Library was released during World Water Week in Stockholm (August 2012) and is updated on a periodic basis. Contact Anna-Maria De Smet, The Brewers of Europe, Regulatory Affairs Director at [amds@brewersofeurope.org](mailto:amds@brewersofeurope.org) or +32 2 551 18 10 for further information.
- **[Tools Available to Business to Quantify and Reduce the Impacts of their Water Use - EV0468](#)**: WRAP has developed a final catalog of water risk and opportunity tools with assistance from the UK’s Department for Environment, Food, and Rural Affairs (DEFRA) and the Product Sustainability Forum (PSF). The catalog helps to improve guidance to businesses on reducing the impacts of their water use, both in their own operations and in their supply chains. For more information, contact Mark Barthel at [Mark.Barthel@wrap.org.uk](mailto:Mark.Barthel@wrap.org.uk) or directly at +44 (0)1295 819645.


BIER members use many of these tools and resources in assessing and managing water risks and opportunities depending upon the objectives of a given assessment. This includes resources which: supply background information; data on location-specific physical, regulatory and reputational risks; as well as references or initiatives that address general and/or specific business challenges related to water stewardship. The remainder of this section provides additional details on these selected resources along with information about their use and utility based upon the experiences of various BIER members.



In September 2012, BIER members were asked to complete a brief survey on their experiences with using existing tools *specifically* designed to support water risk and opportunity assessments. Members provided insight on functionality, ease of use, and value of output data. The results from the survey process highlighted:

- 1. The importance of selecting tools aligned with a user’s objectives (e.g., high-level, quick screen vs multi-aspect, location specific deeper dive);
- 2. That there is currently no stand-alone, “sliver bullet” tool that can unequivocally determine risks and opportunities. Although useful in providing broad-based information, it is important to remember that these tools are designed for macro assessments – a deeper dive into local information and discussions with local personnel is necessary to validate conditions when developing short- and long-term plans;
- 3. Tools and available datasets continue to evolve; and,
- 4. That there are three tools that stand out as the most widely referenced and frequently utilized to support water risk and opportunity assessments: WBCSD Global Water Tool; WRI Aqueduct Tool; and WWF/DEG Water Risk Filter.

The three tools profiled below are clearly the “go-to” tools for most BIER members who are embarking on a Level 1 or Level 2 assessment. Each of these tools offers a unique value to users and due to differences in purpose, underlying datasets, and outputs many members use a combination of the three tools for a more comprehensive assessment. Other tools exist and/or are under development, including those listed within Table 2 on the next page, which may be a better fit for certain users depending upon the objectives of a given assessment.

[WBCSD Global Water Tool](#)

**First Launched:** 2007

**Description & Intended Purpose:** Provides an easy-to-use tool for mapping a company’s water use and characterizing exposure to physical water risks within its global operations and supply chains. The tool aims to develop a company and geography-specific knowledge base for driving improved water consumption and efficiency, and enabling effective communication with internal and external stakeholders. The tool does not provide specific guidance on local situations, which require more in-depth systematic analysis.


**Format:** Downloadable Excel file equipped with Macros that require Internet connection to access databases and maps.

**Output Type:** Excel file can be saved to desktop and referenced offline as needed.

**Data Provided:** Annual Renewable Supply; Water Stress Index; company/watershed metrics.

**Recent Additions/Future Plans:** Biodiversity hotspots, Dashboard functionality, online mapping via Google Earth, link to GEMI Local Water Tool.


**Data Input:**



*Pros: good for multiple sites; offline data entry*  
*Cons: adding rows of data can result in errors*

“Great place to start but doesn’t give all the answers.”


**Functionality:**



*Pros: data can be saved and referenced offline*  
*Cons: errors with Macro functionality, format*


“Pragmatic...ideal for external reporting as the outcome is accepted by the evaluating organizations [such as] SAM and CDP.”

**Data Output:**



*Pros: data is relatively simple to comprehend*  
*Cons: limited analysis; cumbersome generation*

“Functions well for a high-level screen.”

[WRI Aqueduct](#)

**First Launched:** 2011

**Description & Intended Purpose:** Provides global maps including baseline water stress, water reuse, socio-economic drought, and projected change in water stress for the years 2025, 2050 and 2095 and for several IPCC climate change scenarios. Limited detailed water risk maps for specific basins. All information is provided at sub-basin level.


**Format:** Internet-based tool with several mapping options for stress and climate scenarios.

**Output Type:** Maps that can be printed or hyperlinked for reference; export results in Excel table.

**Data Provided:** Baseline Water Stress; Water Stress Index; climate change scenarios, socioeconomic drought; select basin focus.

**Recent Additions/Future Plans:** Evaluation of specific basins; limited bulk upload functionality.


**Data Input:**



*Pros: relatively easy data entry*  
*Cons: limited bulk data capability*

“We used the climate scenarios to feed into our internal risk tools.”


**Functionality:**



*Pros: instant analysis; several mapping options*  
*Cons: cannot save maps; no online storage*



“Great for better understanding local situations.”

**Data Output:**



*Pros: data and maps are straightforward*  
*Cons: most data is limited to physical stress*

“Maps are very useful.”

[WWF/DEG Water Risk Filter](#)

**First Launched:** 2012

**Description & Intended Purpose:** Provides a methodology for financial institutions to assess and quantify clients’ water risk. Allows users to plot all assessed facilities on maps with different water relevant map overlays. Designed for the non-water expert user and includes a “mitigation toolbox” and case studies.


**Format:** Internet-based tool for reviewing risk on a company-wide, country, and facility level. Quick View and “full risk assessment” questionnaire.

**Output Type:** Excel file that can be saved to desktop and referenced offline as needed.

**Data Provided:** Basin and country-related risks for physical, regulatory, and social aspects.

**Recent Additions/Future Plans:** specific risk assessment for agricultural commodities, incorporating groundwater aspects and additional research on regulatory frameworks.


**Data Input:**



*Pros: bulk upload available for easy data entry*  
*Cons: time-consuming supplemental data entry*

“Comprehensive...but need a better understanding of the criteria.”


**Functionality:**



*Pros: online database; many levels of analysis*  
*Cons: large bulk upload can slow down system*

“Quantitative output is easy to work with.”

**Data Output:**



*Pros: very detailed macro risk review*  
*Cons: no future scenarios provided*

“The more detail the user inputs, the more valuable the outputs will be.”

Table 2: Selected Resources Relevant to Conducting Water Risk and Opportunity Assessments

Resource & Brief Description	Resource Type	Categories of Risks Addressed			Most Helpful In			
		Physical	Regulatory	Social/Rep	Background Information	Level 1 Assessments	Level 2 Assessments	Level 3 Assessments
<a href="#">Alliance For Water Stewardship</a> : Developing an international standard with water stewardship principles, criteria, and indicators for use at a site and watershed level.	Standard	X	X	X				
<a href="#">CDP Water Disclosure Project</a> : Aims to collect/ distribute high quality information related to: companies’ water management and governance; operational and supply chain water-related risks and opportunities; and selected water accounting metrics.	Reporting Framework	X	X					
<a href="#">CEO Water Mandate Corporate Water Disclosure Guidelines</a> : Public-private initiative designed to assist companies in the development, implementation and disclosure of water sustainability and policies.	Initiative	X	X	X				
<a href="#">Ceres Aqua Gauge</a> : Allows investors to scorecard a company’s water management activities against detailed definitions of leading practice.	Tool	X	X	X				
<a href="#">Charting Our Water Future</a> : 2030 Water Resources Group report, which contributes new insights to the increasingly critical issue of water resource scarcity.	Report	X	X	X				
<a href="#">Collecting the Drops: A Water Sustainability Planner (GEMI)</a> : Assesses specific water uses/needs versus water availability and production risks.	Tool	X		X				
<a href="#">Corporate Water Gauge</a> : Aims to enhance an investor’s analysis of corporate water risk as well as to support corporate action on water stewardship.	Tool	X		X				
<a href="#">European Water Stewardship Standard</a> : The Standard covers: environmental flow regime/water abstraction; water quality; protection of high conservation value wetlands, lakes or riparian areas; and equitable governance.	Standard	X	X	X				
<a href="#">GEMI Local Water Tool</a> : Used to evaluate the external impacts, business risks, opportunities and management plans related to water use and discharge at a specific site or operation.	Tool	X						
<a href="#">Lloyd’s 360 Insight: Global Water Scarcity, Risks and Challenges for Business</a> : Analyzes the latest material on emerging risk to provide business with critical information and practical advice that businesses need to turn risk into opportunity.	Report	X	X	X				
<a href="#">IPCC Technical Paper VI: Climate Change and Water</a> : Evaluates info in IPCC Assessment and Special Reports concerning the impact on water resource availability, quality, and management due to climate change.	Reference	X	X					
<a href="#">Murky Waters? Corporate Reporting on Water Risks (Ceres)</a> : Ranks water disclosure practices for publicly-traded companies exposed to water-related risk, as well as highlights their best practices, gaps and trends in water reporting.	Report	X	X					
<a href="#">Watching Water: A Guide to Evaluating Corporate Risks in a Thirsty World (JP Morgan)</a> : Offers investors a framework for evaluating the impact of water scarcity and water pollution on individual sectors and companies.	Report	X	X	X				
<a href="#">Water: A Global Innovation Outlook Report (IBM GIO)</a> : Examines the opportunities and challenges of strategic water management and includes five case studies that provide perspectives from projects around the world.	Report	X		X				
<a href="#">Water Footprint Network</a> : WFN’s Manual provides methods, algorithms, examples, etc., for water footprint assessment. The organization also maintains the WaterStat database that includes product and national water footprint statistics.	Reference	X						
<a href="#">WaterGAP</a> : Developed to assess the current water resources situation and to estimate the impact of global water change on water scarcity.	Tool	X						
<a href="#">Water Scarcity &amp; Climate Change: Growing Risk for Businesses &amp; Investors (Ceres)</a> : This report identifies water-related risks specific to eight water-intensive industry sectors: high-tech, beverage, agriculture, electric power/energy, apparel, biotechnology/pharmaceutical, forest products and metals/mining firms.	Report	X	X	X				
<a href="#">WWF Freshwater Ecoregions of the World</a> : Provides a virtual global biogeographic regionalization of the Earth’s freshwater biodiversity.	Reference			X				

Member “Go To” Information Sources

In September 2012, BIER members were interviewed to solicit insights from their experience managing water risks and opportunities. As part of the interview process, members were asked about their top 3 “go to” sources for information.

The question proved to be more challenging than expected. Given the breadth and local nature of water issues, information sources are varied and dependent upon the specific issue or situation requiring review. It was clear from interviews that there is no single go to source for water-related data or information.

In addition to the resources highlighted in Table 2, members also shared the following important sources that they frequently rely upon:

- List serve/automated updates, especially for regulatory information
- Government Agencies – for example, the US Geological Survey (USGS) for groundwater data
- Leading reports and peer case studies
- Leading organizations with a specific focus on water (e.g., WBCSD, Ceres, 2degrees)
- Water-focused webinars and events (e.g., World Water Week)
- Local sources, including engaging directly with stakeholders (e.g., NGOs, water authorities, consultants)
- Participation in local water basin committees

Of note, there was strong agreement from members that the most valued data comes from local sources, including directly from sites.

### 3. MEMBER EXPERIENCES MANAGING WATER-RELATED BUSINESS RISKS/OPPORTUNITIES

Managing water-related business risks and opportunities can be a difficult and daunting challenge. Experience shows that barriers and limitations will be encountered. In this section, we have compiled our members' experiences with the aim of providing valuable insights to others who must navigate and overcome these obstacles – from program launch to implementation to continuous improvement phases.

#### Getting Started: Launching Water Risk/Opportunity Management Programs

Given water's importance in the beverage industry, it is not surprising that many BIER members have spent a decade or more planning, implementing and improving their water-related business risk and opportunity management programs. While perhaps not fully apparent at the time, member companies have come to appreciate the myriad of factors that influence the successful launch of such programs. Among these factors, *designing for the business drivers* and *anticipating the key challenges* are probably most noteworthy.

##### Lessons Learned

“In hindsight, we should have started by defining what needed to be accomplished with water risk assessment, and allow that decision to drive how the work was to be completed, instead of allowing the resources available to determine what work could be done to achieve a reportable result.”

**Design For The Business Drivers** - Beyond the environmental and social benefits anticipated, most members agree that water risk/opportunity management programs should be designed to serve two principle business concerns: 1) assuring continuity - both for company operations and key supplies; and 2) keeping important stakeholders informed on the organization's efforts and progress in protecting and ensuring access to its most important ingredient. Other business drivers (including cost savings, culture change and reputational enhancement) can and should be considered, but assuring continuity and communications must be top design criteria.

**Anticipate Key Challenges** - As indicated in Table 3, those launching risk/opportunity assessment programs should anticipate and prepare for a number of key challenges. These challenges will likely emerge from both internal operations as well as within the supply chains which support the company's business.

**Table 3: Water Risks/Opportunity Assessment Challenges Which Should Be Anticipated**

Key Challenges Within The Company
<b>Addressing Pre-Conceived Notions</b>
<ul style="list-style-type: none"><li>• Establishing clear connections between the risk/opportunity management process and the company's business strategy and results</li><li>• Overcoming perceptions of insufficient ROI for mitigation or proactive actions associated with the program</li><li>• Convincing operational or facility management of results and value of these efforts to avert ambivalence or resistance to planned activities</li><li>• Getting/maintaining attention and focus in areas that have no history of water stress</li></ul>

## Key Challenges Within The Supply Chain

### Engaging An Uninformed Or Reluctant Supply Chain

- Building capacity and support to ensure full engagement and cooperation of strategic or top-tier suppliers
- Preparing for the large number of suppliers that may be required to participate
- Prioritizing focal points/information needed to launch or start efforts

## Key Challenges Common To Both

### Being Clear From The Onset About The Purpose & Use Of Data Requested

- Ensuring those leading the effort are capable of describing and communicating the purpose, objectives and uses of the data that will be collected, analyzed, monitored and/or reported

### Anticipating Limited Data Availability

- Expecting that a variety of tools/input sources may be needed to establish an accurate understanding of the risks and/or opportunities encountered (particularly at a watershed level)
- Being prepared to (at least initially) estimate water consumption/use at company facilities or suppliers when measurements are not available
- Preparing to receive data from archaic information and measurement systems, potentially spread over broad and diverse geographies (increasing the degree of difficulty and time required to collect necessary facts and figures)
- Establishing contingencies to advance water risk/opportunity management programs even if data responses are limited or incomplete

### Accounting For Time & Resource Constraints

- Planning for resource or capability shortfalls in managing or conducting required efforts
- Building in time to create awareness, capacity and in-house expertise for analyzing, interpreting and understanding of the nature and priority of various water-related business risks/opportunities

## Implementing The Risk/Opportunity Management Process

The following section captures practical insights obtained through a structured interview process with representatives from each of the BIER member companies. The information is organized sequentially based upon the five step process outlined in Section 1 of this document.

### Step 1 – Scope Determination

With each iteration of a water risk and opportunity assessment, single site or multiple facilities, member companies must determine an appropriate scope. This requires selecting a level of evaluation (e.g., Level 1, 2, or 3 as previously introduced) which delivers proper business insight, yet remains practical and realistic. Member companies highlight the following key decision factors in determining the right scope:

- Resource intensity (corporate and site investments);
- Operational disruption – how intrusive will data collection be on operations (e.g., personnel time and diversion from other activities, site visit needs, ongoing data collection and reporting);
- Number of facilities and geographic distribution – fewer sites, less resource intensive;

#### Lessons Learned

“In determining scope, consider the “so what” factor – what am I going to do with the data? How will the data support water efficiency, business continuity or community engagement strategies?”



- Business risk and sensitivity (e.g., operations suspected to be in water stressed regions, limited supplier raw materials, water-driven operational disruptions experienced or imminent);
- Availability of requisite data and/or expertise; and,
- Alignment with existing internal risk assessment processes (e.g., look, feel, quantification methods).

#### Lessons Learned

“Always aim to work at the site level – even though tools provide good information, real situations can only be investigated directly within the watershed of concern.”

Given the local and temporal nature of water issues, some members choose to bypass a Level 1 assessment and start with a more detailed, localized Level 2 or 3 assessment. The reasoning is that Level 1 results can be too high-level and potentially misleading due to inherent assumptions and limitations of tools, as well as localized factors beyond water availability that are not

addressed in macro-level assessment tools (e.g., governance, socioeconomic, water rights, etc.).

However, a progressive approach through the three levels is most common and given the growing number and sophistication of tools available, conducting a Level 1 assessment can help a company more strategically focus “deeper dive” assessments (Level 2 and 3).

Choosing the appropriate elements of the value chain to include in the scope is another consideration. As to be expected, member companies focus initially on owned and operated facilities given the level of control and ready access to data. However, a number of member companies continue to work diligently in expanding their scope to include other value chain elements. The following table provides a summary of value chain considerations in conducting water risk and opportunity assessments:

**Table 4: Scope Inclusion Across Value Chain**

Value Chain Category	Scope Inclusion	Member Insights
<b>Upstream</b> (1 <sup>o</sup> and 2 <sup>o</sup> Suppliers)	<b>Growing</b>	<ul style="list-style-type: none"> <li>▪ Most member companies have completed mapping and/or a Level 1 screen of suppliers. Level 2 is more common for company-owned operations and business critical suppliers.</li> <li>▪ Prioritize by risk level (e.g., specialized ingredients can present more potential for operational disruption due to limited supplier options).</li> <li>▪ Initial engagement is also driven by supplier receptiveness.</li> </ul>
<b>Beverage Company</b> (Production, Packaging, Shipping)	<b>Expected</b>	<ul style="list-style-type: none"> <li>▪ Offers the greatest combination of information access, data consistency (“apples to apples”), and ability to influence.</li> <li>▪ Most member companies have completed a Level 1 screen <u>and</u> a Level 2 assessment on operations meeting defined water risk thresholds.</li> <li>▪ Consensus agreement that a Level 1 is not sufficient for business decisions given the local and temporal nature of water issues.</li> </ul>
<b>Downstream</b> (Customers and Consumers)	<b>Limited</b>	<ul style="list-style-type: none"> <li>▪ Limited due to relative control/influence and return on investment compared with addressing company and upstream operations.</li> <li>▪ Can include up to distribution points, beyond that effective control of products is challenging from a water stewardship perspective.</li> </ul>

## Step 2 – Data Gathering and Verification

One of the first decisions that must be made is how to proportion data gathering and verification efforts across physical, regulatory, and social/reputational aspects. There is consensus agreement from members that ***a balance is needed across all three categories, as each has business implications.*** The three categories are also connected. For example, recent droughts in the United States have significantly increased the likelihood of social and reputational pressure, at least short-term, with the potential for public inquiries regarding priority water uses (e.g., domestic, agriculture, industry). Having at least a basic awareness of regional water issues across all three categories is important, especially as companies increasingly face challenging decisions involving highly publicized and polarizing issues (e.g., bottled water debates, self-treating effluent vs. supporting public utilities).

### Lessons Learned

“A high volume of data can pose a problem when translating and making the data understandable for senior/executive level. Too much data can muddle perspective.”

Generally speaking, physical risks account for between 50-60% of the data gathering and verification effort, with regulatory and social/reputational sharing the remaining time. A few specific insights gathered during the interview process are captured in Table 5.

**Table 5: Relative Level of Data Collection Across Risk/Opportunity Categories**

Category	Relative Data Collection Effort	Member Insights
Physical	50-60%	<ul style="list-style-type: none"><li>Requires focus as common driver of regulatory and social/reputational risks and opportunities.</li><li>Deserves more time because understood the best and easiest to tie directly to business – importance is obvious.</li></ul>
Social/ Reputational	25-30%	<ul style="list-style-type: none"><li>Can be time consuming because less straightforward and more qualitative.</li><li>Requires cross-functional involvement (e.g., marketing, public relations) and translating technical water issues into marketing/PR context. Can be difficult finding a common language.</li></ul>
Regulatory	15-20%	<ul style="list-style-type: none"><li>Relatively well understood and monitored and a must do for day-to-day operations at this point.</li><li>Regulatory information is relatively easy to obtain and monitor. However, tracking future regulations and trends is increasingly challenging.</li></ul>

The ease by which data can be collected and/or verified varies considerably depending upon three key considerations:

- Geographic Scope** – developed regions of the world generally have more robust and publicly available datasets; analyzing one region is less challenging than multiple countries or continents. Finding comparable metrics globally is very difficult, especially as consistency with methodologies varies across the beverage value chain (e.g., beverage, agriculture, packaging);
- Operational Scope** – data from owned/operated sites is significantly less challenging than other value chain elements (tier 1 and 2 suppliers):

- It is relatively easy to collect data from owned and operated facilities if data needs are clearly defined and prioritized. Sites can be reluctant to gather and provide data that is not required, or it may be unclear to them why the data is being requested. The greatest challenge with operations is with the sophistication of metering within individual facilities (site-wide versus metering of individual processes and/or pieces of equipment).
- In general, members have experienced reluctance from supply chain partners to provide water data. Supply chain partners likely do not feel they have a full understanding or comfort with how the data will ultimately be used (e.g., contract pricing and/or competitive advantage). Positive progress is being made in engaging supply chains and defining best practice. Continued progress requires establishing a clear understanding of water management aspirations and building a “partnership” approach and level of trust. Need to reassure partners that data will be value adding for them as well.
- Agricultural supply chain data is also complicated by a mix of direct contract and market purchasing. It is nearly impossible at the current time to trace all raw materials back to the original source locations. For example, corn contracts are based upon specifying a certain quantity and quality, with suppliers sourcing corn from a multitude of different farms/consolidators at any given time.

#### Lessons Learned

“Start with suppliers that are willing to share data. Assure growers that the goal is to help them use data to implement action at their farms.”

### 3. **Granularity** – a high-level screen vs. an intensive, localized deep dive assessment (e.g., watershed specific hydrogeological study):

- Physical and regulatory data is the most understood, able to be directly connected to the business, and readily available for most geographies. Social and reputational data is more qualitative and company dependent.
- Primary, measured data is ideal, but is for the most part not realistic for all required data points. This is especially true for supply chain operations where the integrity and granularity of data varies considerably and does not presently allow for “apples to apples” comparison (e.g., some farmers have mature data collection systems while others do not have mechanisms to accurately measure and report data).

#### Lessons Learned

“Science is important. People want underlying data, especially when it comes to questions about climate change. Science answers the question – why do you say our site has these risks? Where is the proof?”

Members shared several examples of how they are being creative with addressing data gaps/limitations, especially when evaluating their supply chains. Such alternative methods allow for member companies to continue evaluating and managing risks and opportunities as they diligently work to enhance data collection processes. The following are key techniques shared by members for addressing data gaps/limitations:

- Identify general locations for key supply chain partners and estimate commodities that are sourced within a defined geography (e.g., X miles from the processing facility);

- Analyze prior year data, where available, and extrapolate for current time periods and/or defined periods into the future (e.g., water use was X in 2008, with 5% growth per year it is projected to be Y in 2015);
- Rely upon external databases to estimate water use and intensity (e.g., Water Footprint Network, Life Cycle Assessment databases, etc.); and,
- Avoid “paralysis by analysis” where there is missing data. Accept that collecting data beyond owned and operated facilities and direct contract suppliers is a learning process. Use estimates where readily available, but where data is determined to be of limited significance consider flagging and moving on with evaluations. Re-evaluate once better data is available.

Member companies are also challenged with the decision of when to move from desktop research to on-site or local assessments. There is no easy answer to this decision and it is driven in large part by issues identified during desktop assessments. Generally, members agreed that the following conditions can drive more detailed assessments:

- Conflicting data that must be resolved locally;
- Local availability of more granular data;
- Willingness to assess locally by facility personnel and/or partners;
- Unique events or situations such as intense droughts; and/or
- Potential for operational disruptions, growth limitations, or community implications.

### Step 3 – Impact Determination

In Section 1, this document introduced the concept of determining positive and negative impacts by combining three elements:

1. *Key manufacturing or supply chain operations* (e.g., bottling plant, sugar plantation, etc.)
2. *Watershed characteristics* (be they physical, e.g., capacity limits, degrading quality; regulatory; and/or social/reputational)
3. *Water-relevant activities* (e.g., ground water withdrawal)

The challenge is that combining these three elements, especially on a global scale, can result in hundreds if not thousands of potential impact scenarios requiring data collection and assessment. Member companies consistently utilize the three major categories: 1) *Physical*; 2) *Regulatory*; and 3) *Social/Reputational* as a means by which to determine potential impacts and organize assessment processes. This approach provides a logical structure for utilizing tools (e.g., WBCSD Global Water Tool), developing site questionnaires, and engaging with local personnel to determine risks and opportunities.

Members were also asked about the most challenging impact scenarios to identify and/or monitor changing conditions for, which has been summarized in Table 6.

#### Lessons Learned

“It is hard to drive actions until risk conditions actually occur in a given location (e.g., 2-3 years of drought). Challenge is committing to longer-term changes even if conditions improve. It is easy to revert back to old habits.”

**Table 6: Most Challenging Impact Scenarios to Identify and/or Monitor**

Challenging Impact Scenario	Member Insights
<b>Legal and Policy Frameworks</b>	Water-related regulations and policy vary considerably by jurisdiction. It is important that companies monitor and, given the sector's relative maturity with water management, play an active role in supporting local governance processes. Such considerations can range from operational limits (e.g., wastewater discharge requirements) to municipal infrastructure and management (e.g., dam installation, water rights frameworks).
<b>Extreme Weather</b>	Some regions can experience floods and droughts within relatively short periods of time. Such extreme weather can present short-term pressures that require localized monitoring and management, including policy changes (e.g., water restrictions during periods of drought) and abnormal activities (e.g., citizens constructing illegal boreholes or tapping of infrastructure lines).
<b>Water Quality</b>	Availability and integrity of water quality data can be a challenge globally. Beverage companies must not only evaluate and monitor the impacts from their own operations on water quality, but also the impacts on their operations from incoming source water with water quality variability. Member companies can consistently monitor incoming and outgoing water quality to ensure product safety, regulatory compliance, and contamination. However, collecting and monitoring data on overall water quality and degradation within a watershed, potential sources of contamination, and trends can be problematic in some locations.
<b>Watershed Capacity</b>	Water usage by domestic, industrial, and agricultural users is not consistently tracked globally or on a frequent basis. Therefore, it is often difficult to truly evaluate the overall capacity of a given watershed to meet human and ecological demands, especially longer-term.
<b>Cultural Sensitivities</b>	In many regions of the world, water can have unique cultural or religious connotations. Certain types of food or beverages can also have sensitivities that must be considered.

Members agree that much of the challenge involved in defining impact scenarios is ultimately best addressed by building the capacity of local personnel to develop a whole watershed perspective. Such an understanding should include a basic knowledge of a watershed's hydrology, primary sources of water (e.g., key rivers, lakes or reservoirs, and aquifers), and water users. However, given the complexity involved, establishing this base knowledge across global operations is not an easy task. It is also further complicated by constantly changing dynamics (e.g., new regulations, increased competition, and extreme weather events) and the need to also look at expected future conditions. In addition, most members agree that risk conditions must be reviewed periodically either through reviewing site questionnaires at defined intervals and/or integrating site water management plans into strategic business planning cycles.

#### Lessons Learned

“ Always validate assessment results with local personnel before making decisions. Our company is very hesitant to invest resources without an understanding and validation of local “on the ground” issues.”



## Step 4 – Risk/Opportunity Prioritization

Most members agree that, to use the results of the assessment in the most efficient and effective way possible, it is critical to assign some method of prioritization. Methods can range from using traditional 4-box quadrants to the use of composite indicators and indices.

The following are strengths and watch-points highlighted by member companies with regards to quantifying risks and opportunities:

### *Strengths*

- Enables more in-depth data analysis (levels of “onion peeling”). For instance, if scores are applied for all three categories (physical, regulatory, social/reputational), a company could aggregate to a total score, but then dig into individual scores to see site-specific risk drivers and regional trends.
- Ability to rank facilities and/or issues, which in turn provides an indication of relative risk (e.g., one site is 3 points higher than the next highest site).
- The quantification of different risk factors also allows a company to group sites according to defined “slices” of data (e.g., sites that do not face physical pressures, but have high social/reputational risks).
- Quantification adds an element of rigor to assessment results, particularly useful when communicating results to stakeholders.

### *Watch-points*

- Complex scoring methods can be harder to explain to sites and stakeholders.
- Conflicting results can skew outputs and inadvertently downgrade/upgrade a risk or opportunity. For example, if incorporating data from multiple mapping tools, one tool might show high risk and another low risk for the same area. Using the average score could result in that site being downgraded or overlooked, when in reality the first tool could be more accurate.
- Applying a single quantification method may not be effective in appropriately capturing certain risk situations. For example, a site may be located in an area not considered to be water stressed, yet still face water-related business risks such as the inability to renegotiate increased water allocations to meet growth plans and/or significant water cost increases.

Member companies also provided the following additional insights with regards to prioritization of risks and opportunities:

- Sites that have experienced water-related disruptions in the past should be elevated from a risk perspective, regardless of what mapping tools or other external data suggests.
- If struggling with prioritization, consider using simple categorization of high, medium, and low for a first pass. Then go back and apply a scoring methodology to further differentiate select sites.

#### Lessons Learned

“Prioritization is not an easy task. There are different challenges in different places....but an underlying sense of need exists everywhere for greater water stewardship.”

#### Lessons Learned

“Every step of the process is a balance – simplicity vs. complexity.”

- Establish thresholds for defined risk levels (e.g., criteria for Tier 1, Tier 2, and Tier 3). Thresholds can be site-specific or defined by category (physical, regulatory, social/reputational). This will make prioritization very clear and enhance communication of results (e.g., sites will better understand why they were classified a certain way).

#### Lessons Learned

“The average Plant Manager is presented with numerous risks and opportunities. Water needs to be considered and presented in the context of a number of other, equally important, issues vying for the same attention and budget allocation. This will ensure water issues are appropriately prioritized.”

The use of weighting factors is also an important consideration when working to prioritize risks and opportunities. Member companies utilize varying methods and degrees of weighting factors depending upon the scope of a given assessment and company-specific aspects (e.g., water maturity, past history, brand/reputation). Methods highlighted by member companies include applying weighting factors based upon:

- Categories of risk - physical, regulatory, and social/reputational (e.g., locations where water has cultural or religious connotations might require weighing social/reputational aspects higher);
- Region or business unit (e.g., certain regions or business units may face greater water quality risks than availability);
- Site production volume and/or relative water footprint compared to other sites;
- Growth expectations for a site and/or region;
- Site resilience (e.g., availability of back-up supply options, contingency plans, social license to operate); and,
- Sources of water (e.g., springs, groundwater, municipal) and uses (e.g., process water, light treated water, non-treated water).

Prior to using outputs from a water risk and opportunity assessment to drive specific actions, member companies emphasized the importance of validating data. Validation is important for many reasons, including investment justification, soliciting buy-in of key personnel and partners, and ensuring a clear understanding of the situation and business implications. Standard practice is to first validate results with individual sites.

#### Lessons Learned

“Expect challenges and be open to them. Opening dialogue on water issues is a very important outcome. If there is push back, request that the site provide local information or data to verify actual conditions.”

Ensure that each site understands the assessment process and based upon results will stand behind their original inputs (e.g., survey responses). Given the local and temporal nature of water issues, it is not uncommon for there to be disagreement on location-specific risk levels especially as companies reach decision-points. Some companies have also integrated multi-level and/or functional validation at each step of the process, allowing leadership to make informed and well-vetted decisions. Depending upon the situation, it may also be necessary to reach externally to local consultants, NGOs, and/or universities to conduct further validation at the global, regional, and/or site level.

## Step 5 – Mitigation and Management

As the process moves from analysis to action, companies begin to react and respond to those water related-business risks and opportunities determined to be of the highest priority. As illustrated in Table 7, there are a number of common solutions or approaches to water risk mitigation and/or opportunity management within the beverage industry.

**Table 7: Common Industry Mitigation/Management Strategies**

Category	Common Strategies & Practices
<b>Physical</b>	<p>Two basic strategies are commonly employed for physical risk and opportunities: 1) internal water conservation; and 2) source water protection (incoming sources and discharge).</p> <p><b><i>Internal Water Management (Reduce, Reuse, Recycle)</i></b></p> <ul style="list-style-type: none"> <li>• Define a cross-functional water team at the global, regional, and/or facility level charged with driving water management programs.</li> <li>• Understand basic water use by conducting a mass water balance or similar analysis of basic water use and discharge.</li> <li>• Facilitate internal benchmarking and best practice sharing.</li> <li>• Implement a water-focused employee education and awareness program.</li> <li>• Focus on water optimization opportunities, including utilities (process cooling, use of make-up water for cooling towers, evaporators, condensers, boiler feed); packaging and conveyors; along with emphasis of closed-loop opportunities.</li> </ul> <p><b><i>Source Water Protection (Incoming sources and discharge)</i></b></p> <ul style="list-style-type: none"> <li>• Conduct a source vulnerability/sustainability assessment to establish base knowledge about water sources (current and alternative) and wastewater discharge impacts.</li> <li>• Develop a source water protection plan with ongoing monitoring and escalation of watershed conditions.</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>• Instill a process to identify and track water-related regulations (e.g., permits, limits, reporting requirements and emerging regulations).</li> <li>• Work with national, regional and local governments as well as other public authorities to address water sustainability issues and policies.</li> <li>• Assign accountabilities and provide guidance for regulatory compliance and reporting.</li> <li>• Establish proactive, periodic dialogue with regulatory agencies. Consider developing a standard agenda for engagement/interaction on water-related topics.</li> </ul>
<b>Social/Reputational</b>	<ul style="list-style-type: none"> <li>• Conduct stakeholder mapping to identify key regional/local stakeholders and prioritize important water-related community issues, concerns and opportunities.</li> <li>• Develop a framework for identifying, evaluating and tracking strategic partnerships. Build local capacity for water-related community engagement.</li> <li>• Train employees to become “water ambassadors” and actively encourage participation in collective action opportunities that provide business value.</li> <li>• Evaluate opportunities for community leadership, including educational partnerships, research support and donation of technical skills.</li> <li>• Proactively communicate company aspirations, strategies, and goals to key external stakeholders and suppliers.</li> </ul>

Examining these common approaches and direct experiences from member companies has revealed a number of factors that appear essential for successful implementation. These success factors include:

1. *Organizational Commitment* – Successful implementation of water-related actions requires strong short- and long-term organizational commitment inclusive of monetary resources and aligned leadership. Such commitments can be challenging as water investments do not routinely meet traditional investment hurdle rates (e.g., IRR, NPV) and short-term payback horizons. The most successful initiatives are driven by formalized action plans and forced accountability.
2. *Engaged and Appropriate Partners* – By nature, water issues and associated interventions require local partnerships with the right mix of stakeholders. Selecting partners that are respected, reliable, and engaged is key. Partners can provide important technical expertise, local validation, and/or supplemental resource commitments. Partners may vary by situation, including a combination of government, non-government, and industry partners.
3. *Effective Communication* – A communication strategy should be established early with partners. The strategy should clarify objectives, roles and responsibilities, and important project characteristics (e.g., potential sensitivities/watch-points, success measures, and any necessary contingency measures). The strategy should also consider communication to “external” stakeholders not directly involved to share the experience (e.g., outcomes, best practices, lessons learned) and receive proper recognition for achievements. Lastly, it is critical to have a defined and accountable point person(s) to manage initiatives, key decisions, and communications.
4. *Material Issues* – As defined throughout this document, the key to implementing sustainable solutions is to select issues that are material to both the company and the community. Such opportunities establish a working environment of shared value and responsibility with the company considered “part of the solution”, not just a third party funder.
5. *Measurable Success* – It is important to establish a baseline prior to initiating actions and quantitative metrics that can be measured to evaluate impacts.

#### Lessons Learned

“Facility level risks and opportunities should be “owned” by local operations as early in the process as possible. This can be accomplished by a facility financing the assessment process and mitigation actions and by synchronizing the process with existing business planning cycles.”

#### Lessons Learned

“Engage the community and key stakeholders, even those you expect to be challenged by. Understand what people are really after and what the most viable actions are.”

#### Lessons Learned

“Water-related risks and opportunities are dynamic. Expect the unexpected during implementation of actions and initiatives.”

## Continual Improvement: Maintaining Momentum Today and Tomorrow

The development of this document is a clear indication of the importance placed upon water stewardship by the beverage industry. Water is and will remain an important business consideration. Looking forward, we explored with select members what the future may hold in the area of water-

related business risk and opportunity assessment and management. While no major transformations were highlighted, members did share their views on how current challenges will be addressed which is summarized in Table 8.

**Table 8: Future Advancements and Continued Challenges**

Category	Future Advancements	Continued Challenges
<b>Tools &amp; Resources</b>	<ul style="list-style-type: none"> <li>• Greater availability and refinement. New secondary data sets.</li> <li>• Increased collaboration by developers and harmonization of tools/methods.</li> </ul>	<ul style="list-style-type: none"> <li>• Tool alignment, consolidation, and/or synchronization will take time.</li> <li>• Tools that can simplify and streamline assessment processes.</li> </ul>
<b>Business Integration</b>	<ul style="list-style-type: none"> <li>• ROI for water-related investments is shifting and it will become easier to define the business case for action.</li> <li>• Greater local capacity and focus will result in more informed decisions, innovation, and sustainable solutions.</li> </ul>	<ul style="list-style-type: none"> <li>• Companies face increasingly complex prioritization decisions, including a wider range of Corporate Responsibility issues.</li> <li>• Organizational stamina and capacity is always a reality especially in challenging economic conditions.</li> </ul>
<b>Beverage Sector Leadership</b>	<ul style="list-style-type: none"> <li>• Greater sharing of technical expertise and best practices, including via BIER, will continue to drive innovation by the beverage sector.</li> <li>• Greater consistency of water performance across global operations, even where risks are not apparent.</li> <li>• Advancement of innovative/novel approaches (e.g., ecosystem services).</li> <li>• Sector leadership in supply chain water management.</li> </ul>	<ul style="list-style-type: none"> <li>• The relative maturity of the beverage sector means that issues are beyond “low hanging fruit” and increasingly complex, resource intensive and beyond direct influence (e.g., supply chain).</li> <li>• Ongoing justification of water-related investments, especially with supply chain partners. Aspirations must constantly be balanced against cost competitiveness.</li> <li>• Balancing resource demands between increasing reporting requirements, stakeholder management, and meaningful “on the ground” actions.</li> </ul>
<b>Education &amp; Awareness</b>	<ul style="list-style-type: none"> <li>• Greater appreciation of multiple aspects of water beyond highly publicized scarcity concerns.</li> <li>• Evolving standards, methodologies, and guidelines will provide greater clarity on water stewardship and performance.</li> <li>• Transparency and reporting requirements will continue to drive company actions and advanced strategies.</li> </ul>	<ul style="list-style-type: none"> <li>• Traceability and the challenges involved with driving water stewardship beyond owned and operated facilities.</li> <li>• Building local capacity, internally and externally, to effectively identify, prioritize, and manage location-specific water issues.</li> <li>• Focusing on sustainable solutions, which provide shared value to the partners involved and the local community.</li> </ul>



Additionally, members highlighted the following considerations that will influence the future of water-related business risk and opportunity management:

- *Hyper Communication* – Advancements in technology and social media have significantly altered interactions with external stakeholders (consumers, NGOs, students). Companies will be expected to be increasingly transparent and able to demonstrate wide-ranging sustainability programs. This will drive greater identification of risks/opportunities (e.g., more bubbling up effect), but may slow decision-making processes given increased information, communication needs, and stakeholders.
- *Food Security* – Future projections of food security will bring increased attention on agricultural efficiency and sustainability, creating a challenging balance of collaboration and pressure/mandates. Given the importance from a water footprint perspective, agriculture will play an increased role in beverage company water risk and opportunity management.
- *Expectations* – Definitions for sustainability and related expectations can vary widely by scope and duration. The breadth of issues being addressed by companies under the umbrella of sustainability is increasingly diverse incorporating social, environmental, and regulatory topics ranging from traditional (e.g., energy efficiency) to more recently adopted (e.g., conflict mineral reporting). Issues and expectations can also vary in duration. For instance, droughts can heighten water attention within a community for an indefinite period. However, once water supplies are replenished, attention can significantly decrease in some locations and shift to other issues.
- *Geopolitical and Regulatory Trends* – Water governance and geopolitical conditions vary considerably across geographies making it increasingly challenging to monitor such conditions, consistently align corporate water strategies, and meet expectations. Water rights will play an increasingly important role in water security, including across supply chain operations (e.g., agriculture).
- *Short vs. Long-Term Perspectives* – Ultimately, water availability and management is not a short-term issue. There is a risk in trying to meet short-term expectations at the expense of longer-term, more practical solutions. Truly sustainable solutions require a long-term view and commitment. However, the challenge is with aligning necessary incentives, legislative push, technology and other factors that promote wider adoption and innovation. Capacity building across company personnel at all levels (corporate, business unit, and site levels) and relevant external stakeholders to understand, evaluate, and manage issues at a local or regional level will be critical to long-term, sustainable management of water issues.

## References

- Alliance for Water Stewardship, <http://allianceforwaterstewardship.org/>.
- Arjen Y. Hoekstra, Ashok K. Chapagain, Maite M. Aldaya and Mesfin M. Mekonnen, [The Water Footprint Assessment Manual: Setting the Global Standard](#), 2011.
- Beverage Industry Environmental Roundtable (BIER), [Practical Perspective on Water Accounting in the Beverage Sector](#), December 2011.
- Beverage Industry Environmental Roundtable (BIER), [Water Use Benchmarking in the Beverage Industry: Trends and Observations](#), 2011.
- Brooke Barton, Berkley Adrio, David Hampton, and Will Lynn, [Ceres Aqua Gauge: A Framework for 21<sup>st</sup> Century Water Risk Management](#), October 2011.
- Center for Sustainable Organizations, [Corporate Water Gauge: A Context-Based Solution for Measuring the Sustainability of Organizational Water Use](#), 2012.
- Ceres, [Murky Waters? Corporate Reporting on Water Risks](#), February 2010.
- Ceres and Pacific Institute, [Water Scarcity & Climate Change: Growing Risk for Businesses & Investors](#), February 2009.
- Chatham House, [Lloyd's 360 Insight, Sustainable Energy Security: Strategic Risks and Opportunities for Business](#), 2010.
- Deloitte on Behalf of Carbon Disclosure Project, [CDP Water Disclosure Global Report 2011: Raising Corporate Awareness of Global Water Issues](#), 2011.
- European Water Partnership, [European Water Stewardship Standard: Version 4.8](#), December 2011.
- Global Environmental Management Initiative, [Collecting the Drops: A Water Sustainability Planner](#), January 2007.
- Global Environmental Management Initiative, [GEMI Local Water Tool \(LWT\)](#), March 2012.
- IBM Global Innovation Outlook (GIO), [Water: A Global Innovation Outlook Report](#), 2009.
- Intergovernmental Panel on Climate Change, [IPCC Technical Paper VI: Climate Change and Water](#), June 2008.
- Joseph Alcamo, Petra Döll, Thomas Henrichs, Frank Kaspar, Bernhard Lehner, Thomas Rösch, Stefan Siebert, Sara Vassolo, [The Global Water Model WaterGAP: Water Use Model](#), May 2012.
- JP Morgan, [Watching Water: A Guide to Evaluating Corporate Risks in a Thirsty World](#), March 2008.
- United Nations, [United Nations Global Compact: CEO Water Mandate](#), July 2007.
- Water Footprint Network, [The Water Footprint Assessment Manual: Setting the Global Standard](#), 2011.
- World Business Council for Sustainable Development (WBCSD), [Global Water Tool](#), 2011.
- World Resources Institute, [Aqueduct: Measuring and Mapping Water Risk, Water Risk Atlas Tool](#), 2012.
- World Wildlife Fund, [DEG Water Risk Filter: CEO Water Mandate](#), May 2011.
- World Wildlife Fund, [Freshwater Ecoregions of the World: A New Map of Biogeographic Units for Freshwater Biodiversity Conservation](#), May 2008.

## Appendix A: Typical Facility and Watershed Level 2 Questions

### FACILITY-FOCUSED QUESTIONS

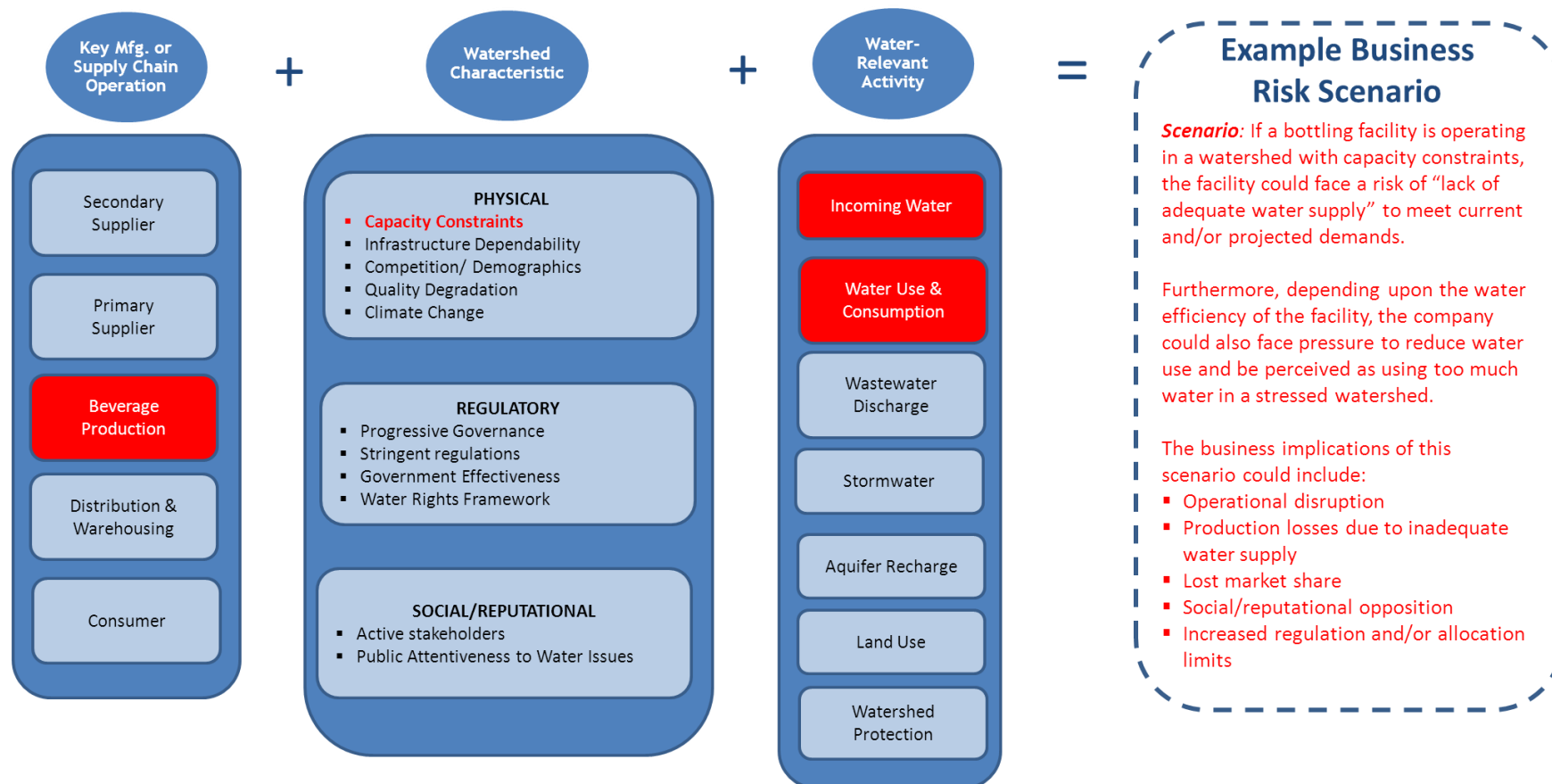
Category	Aspect	Criteria and Data Inputs
Physical	<b>Water Supply (Quantity &amp; Quality)</b>	<ul style="list-style-type: none"> <li>Where does the facility get its water?</li> <li>If municipal supply to the facility is significant, where does the municipality draw its water from?</li> <li>What has the trend been over the last 5-10 years on water availability to the facility?</li> <li>Has the facility ever experienced water shortages?</li> <li>What is the quality of incoming water and what have the trends been in water quality over the last 5-10 years?</li> <li>What is the likelihood that quantity and quality of incoming water will not be sufficient for meeting production goals now and in the future?</li> <li>How seriously would the facility be impacted by a loss or reduction of water supply for an extended period?</li> <li>Are increases in local development (population, agriculture, tourism, industrialization, etc.) expected to limit access to water supply within the next 5 – 10 years?</li> </ul>
	<b>Water Use &amp; Consumption</b>	<ul style="list-style-type: none"> <li>Does the facility's water use efficiency (water used per product produced) compare favorably to that of other, similar operations?</li> <li>Does the facility have a program in place to improve efficiency?</li> </ul>
	<b>Wastewater Discharge</b>	<ul style="list-style-type: none"> <li>Where does the facility discharge its wastewater to?</li> <li>Can the facility's wastewater be discharged to environmental sensitive water bodies (either directly or indirectly)?</li> <li>Do facility wastewater discharges negatively impact the quality of receiving water bodies?</li> <li>Are downstream users of facility wastewater relying on certain levels of quality in the facility's discharges?</li> </ul>
Regulatory	<b>Regulations – Use &amp; Discharge</b>	<ul style="list-style-type: none"> <li>Has the facility ever been subject to water rationing during droughts or low flow periods?</li> <li>Are any of the facility's water sources subject to withdrawal or usage limits?</li> <li>What is the level of regulatory pressure with regards to such withdrawal or usage limits (increasingly stringent or increasingly lenient)?</li> <li>Is the facility compliant with regulations regarding wastewater discharge quality and quantity?</li> </ul>
	<b>Water Costs</b>	<ul style="list-style-type: none"> <li>What portion of total facility operating costs is accounted for by water?</li> <li>What portion of total facility operating costs is accounted for by treatment of wastewater discharges?</li> <li>What has the trend been over the last 5-10 years on the cost of water to the facility?</li> <li>What was the economic impact to the business of any episodes of water shortage?</li> </ul>
Social/ Reputational	<b>Water Program Maturity</b>	<ul style="list-style-type: none"> <li>What is the facility's water use ratio (WUR)? What is the trend in WUR for the past 5 years?</li> <li>How does your facility's water use generally compare against other water users within your community?</li> <li>How much opportunity is there to improve your facility's water management programs?</li> <li>Is the facility planning to expand production within the next 5-10 years?</li> </ul>
	<b>Community Engagement</b>	<ul style="list-style-type: none"> <li>Has there been any negative (or positive) engagement with any stakeholders in the surrounding community on the issue of water use at the facility within the last 5 years?</li> <li>Does the facility monitor water-related concerns of the surrounding community?</li> <li>Has the local community voiced concerns about industrial wastewater discharges in the past?</li> <li>Is the facility's water use relative to other industries in the community public knowledge?</li> </ul>

## WATERSHED-FOCUSED QUESTIONS

Category	Aspect	Criteria and Data Inputs
Physical	<b>Supply Reliability &amp; Sustainability</b>	<ul style="list-style-type: none"> <li>• Are any sources of water to the facility linked to environmentally sensitive or protected areas?</li> <li>• What has the trend been over the last 5-10 years on watershed supply in terms of supply vs. demand? Is water being used at a sustainable rate?</li> <li>• How are water supplies measured (e.g., reservoir levels, key wells, etc...)? Is this information publicly available?</li> <li>• Is there increasing competition for water (e.g., population or industrial growth)?</li> </ul>
	<b>Water Quality</b>	<ul style="list-style-type: none"> <li>• What is the general water quality within the watershed?</li> <li>• Are any of the receiving water bodies to which facility wastewater discharges linked to environmentally sensitive or protected areas or areas with known water quality issues?</li> </ul>
Regulatory	<b>Water Regulations</b>	<ul style="list-style-type: none"> <li>• Are there regulations in place to protect the watershed in which the facility operates?</li> <li>• Does the local and/or regional water resources management agency have a long-term water supply plan?</li> </ul>
	<b>Water Rights</b>	<ul style="list-style-type: none"> <li>• Are water rights legally defined? If so, are they based upon land ownership or use? Are there different rights for groundwater versus surface water? Are water rights consistently respected and enforced?</li> <li>• If prior appropriation is used, does the operation have senior or junior water rights?</li> <li>• Are there policies concerning allocations or re-allocations in times of scarcity (e.g., drought conditions)?</li> </ul>
	<b>Water Costs</b>	<ul style="list-style-type: none"> <li>• What has the trend been over the last 5-10 years on the cost of water in the region or neighboring jurisdictions?</li> </ul>
Social/ Reputational	<b>Social and Media Coverage</b>	<ul style="list-style-type: none"> <li>• Does the local community have adequate access to clean water?</li> <li>• What is the level of public attention or interest on water issues from the media, local community, and other external stakeholders?</li> <li>• Has the community voiced concerns about diminished availability of water or diminished quality of water?</li> </ul>
	<b>Active NGOs &amp; Activists</b>	<ul style="list-style-type: none"> <li>• How active on the issue of water have local or regional NGOs been?</li> <li>• Have there been any public cases of water-related opposition against local industry?</li> </ul>

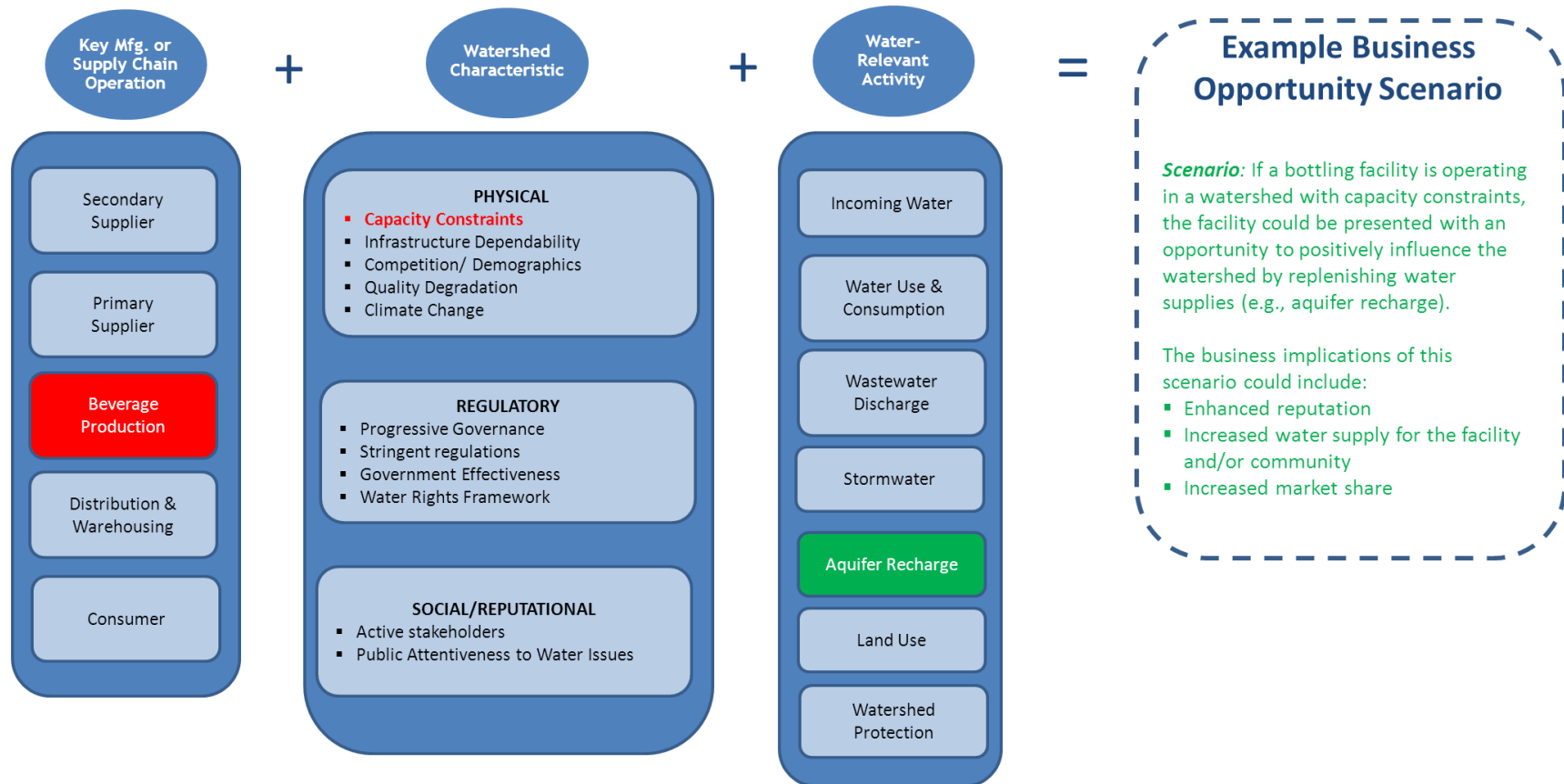
## Appendix B: Impact Registry: Supporting Materials

The following provides a working example of a *business water risk scenario* from Section 1, Step 3 (page 7). This example is provided to demonstrate the use of an Impact Screening Registry in determining water-related risk scenarios across a beverage company value chain.





The following provides a working example of a *business water opportunity scenario* from Section 1, Step 3 (page 7). This example is provided to demonstrate the use of an Impact Screening Registry in determining water-related opportunity scenarios across a beverage company value chain.



The above Impact Screening Registry process can be deployed at varying levels of granularity by different beverage companies with the goal of identifying a registry of relevant water risks and opportunities which can more easily be evaluated and prioritized to determine the most strategic mitigation and management opportunities. Such analysis can be completed at a global, regional, and/or site-level.



## **Beverage Industry Environmental Roundtable**

### **For More Information, Contact:**

Tod D. Christenson, BIER Director  
+1 612 850 8609  
[info@bieroundtable.com](mailto:info@bieroundtable.com)  
[www.bieroundtable.com](http://www.bieroundtable.com)

### **About the Beverage Industry Environmental Roundtable (BIER)**

The core mission of Beverage Industry Environmental Roundtable (BIER) is to advance the sector's environmental sustainability by developing industry-specific methods and data. In other words, we seek to create tools and methodologies that accelerate sustainability and its journey from analysis to action.

BIER is a technical coalition of leading global beverage companies working together to advance environmental sustainability within the beverage sector. Formed in 2006, BIER aims to accelerate sector change and create meaningful impact on environmental sustainability matters. Through development and sharing of industry-specific analytical methods, best practice sharing, and direct stakeholder engagement, BIER accelerates the process of analysis to sustainable solution development.

BIER is facilitated by the Global Corporate Consultancy of Antea Group ([www.anteagroup.com/gcc](http://www.anteagroup.com/gcc)).