Performance in Watershed Context

Concept Paper
Beverage Industry Environmental Roundtable
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Performance in Watershed Context – Concept Paper

Acknowledgements

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Measuring Beverage Facility Water Performance in the Context of Local Watershed Conditions

Concept Paper

Introduction and Purpose

Founded in 2006, the Beverage Industry Environmental Roundtable (BIER) is a technical coalition of leading global beverage companies working together to advance environmental sustainability within the sector. BIER members recognize the fundamental business imperative of water stewardship and the importance of this precious resource to the long-term health, growth and vitality of communities and ecosystems throughout the world. Over the past nine years, BIER members have worked collectively to share innovative approaches, develop tools and methodologies for accelerating water stewardship, and define standards for leadership within the beverage sector value chain and beyond.

Although the beverage sector has been recognized as being proactive in managing water issues, much remains to be done. Based upon our collective knowledge and experience, BIER members believe that managing water-related performance in the context of local watershed conditions is critical to advancing water stewardship.

In consultation with Ceres, The Nature Conservancy (TNC), and World Resources Institute (WRI), BIER has developed this concept paper to achieve the following objectives:

1. Provide a practical perspective on this concept, its importance to advancing water stewardship and its relevance to the beverage sector;

2. Outline the basic structure of a practical approach (e.g., decision support tool) for applying this concept within the beverage sector; and,

3. Advance stakeholder understanding and promote greater dialogue on the importance, challenges, and opportunities for evaluating performance in the context of watershed conditions.
BIER’s long-term objective is to transition the concept outlined within this paper into a method and/or tool to help businesses evaluate whether facility performance is appropriately aligned with the conditions of the surrounding watershed. Such information is necessary to determine to what extent additional investment or action by the company and/or watershed stakeholders should be prioritized. While the theory behind the concept of context-based decision making is sound, applying it in practice is less straightforward. The complexity, localized nature, and inherent dynamics of watershed conditions make application of the theory particularly challenging. Increasingly, internal corporate decision-makers, investors, and external stakeholders are asking questions about water-related risks and opportunities that are nearly impossible to answer in a quantitative and definitive manner using traditional water data. For these reasons, BIER believes that a decision support tool that combines facility-related performance (inside the facility) and community/watershed conditions (outside the facility) would substantially enhance corporate water stewardship and context-based decision making, as illustrated on the previous page.

Specifically, a decision support tool could be utilized to more effectively address the following types of questions in a unique and meaningful manner:

- **Facility Perspective**  
  **(Single Facility)**

  - Is my facility performance on water efficiency sufficient to address the risks that emerge from my facility’s dependencies and impacts on the watershed? Why or why not?
  
  - To mitigate water risks at my facility, should we invest in internal efficiency/water quality improvements or direct resources to external watershed-related interventions?

- **Corporate Perspective**  
  **(Multiple Facilities)**

  - Which facilities and/or what percentage of revenue are subject to high water risks relative to their performance? Do any facilities require more water than can be sustainably provided by the source watershed now or in the future?
  
  - Where and how can our company best invest in water stewardship to realize the greatest return?

Over the next 12-18 months, BIER is committed to building out and testing the concepts presented within this paper through development of a practical methodology and tool. The outputs of our work will specifically support the beverage sector, but will be made publicly available to other industries and communities looking to advance their water stewardship efforts.
The Challenge

BIER’s interest in this concept is a natural one, given the importance of water to the sector and the sector’s efforts to advance water stewardship since BIER was founded nine years ago. This focus on ‘context’ took hold within the membership in 2012 following publication of BIER’s *Practical Perspective on Managing Water-Related Business Risks and Opportunities in the Beverage Sector*. Upon completion of this document, BIER members observed that several key water-related initiatives such as CDP Water, Dow Jones Sustainability Index (DJSI) and the CEO Water Mandate were increasingly integrating watershed considerations into their reporting frameworks. As BIER reviewed these programs and compared them to the work already completed by the group, a consensus emerged that understanding facility water use relative to the current condition of the source watershed or aquifer was an important, and even urgent, emerging issue.

Initially, BIER focused upon the idea that conventional water metrics, such as water use efficiency, were not fully reflective of the impacts of a facility’s water use at the local level. These metrics lacked ‘context’ and thus were of limited use in comparing facility performance or in assessing the water-related risks and opportunities facing the site. For example, would two similarly sized facilities with nearly identical water use efficiencies be considered the same from a performance standpoint? From a risk and opportunity standpoint? The answer might be ‘yes’ if one is simply benchmarking water efficiency, but ‘no’ if the business is looking to make more difficult decisions on where to prioritize further investment, water conservation efforts, and collective action.

In 2014, BIER assembled a working group to explore the topic of ‘context-based metrics for water’, and began by reviewing existing or proposed concepts for measuring, understanding, and defining context-based metrics. While each of the methods reviewed bring value and serve unique purposes, it was apparent at the conclusion of our review that there was no single process (existing or proposed) that met the specific needs of BIER member companies. There was also no simple, practical way for different concepts to be brought together into a hybrid approach.

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1 The BIER review process included a wide variety of leading approaches such as from the Center for Sustainable Organizations, Water Footprint Network, Denkstatt - University of Vienna, Water Risk Mapping Tools, ISO 14046 / Global Water Footprint Standard, Quantis, CSIRO (Pfister/Ridout), American Water Works Association (AWWA) Water Conservation Measurement Metrics Guidance Report, Global Environmental Management Initiative.
What we found during our review is that the current approaches tend to have the following limitations:

- **Too academic** – metrics should be simple to measure and enable decisions to be made quickly and at the facility level.
- **Lack of transparency** – the methodology for calculating a context score is very complicated, or uses data or methodology that is not publicly available.
- **Too subjective** – existing approaches tend to embed assumptions where data is not available and/or establish subjective ‘values to society’ in order to compare different types of water users. BIER recognizes that some assumptions may be required to fill data gaps; however, subjectivity must be minimized to drive sound business decisions and constructive stakeholder engagement.
- **Singular focus** – the tendency is to focus on one parameter (e.g., water use of a facility in relation to total water available within the watershed) rather than employing a more holistic perspective that includes other watershed characteristics.

This last issue was by far the most limiting, as BIER members recognize that understanding water-related risks and opportunities requires consideration of multiple variables beyond physical water availability. Watersheds are fundamentally unique in size, structure, and demographics. Beyond the fundamental characteristics, individual watersheds also have multiple location-specific aspects that define the operational ‘context’ compared with another watershed. As outlined in BIER’s *Practical Perspective on Managing Water-Related Business Risks and Opportunities in the Beverage Sector*, such aspects can include physical conditions (e.g., watershed balance and supply sustainability, aquifer characteristics, and climatic conditions); regulatory conditions (e.g., water governance, regulations, and water pricing); and social conditions (e.g., community awareness and engagement, cultural aspects, and economic development).

Unlike carbon, metrics for water must account for the location and timing of consumption and discharge, and must consider that performance in one water catchment does not reduce or offset the impacts in a different catchment. Looking at ‘performance in context’ requires holistically integrating the aspects outlined above with the resulting social and environmental changes created by a facility’s water performance (e.g., water consumption and/or discharge). Adding this context to conventional performance metrics provides a critical additional dimension to “the story” and allows companies to make more informed decisions on investments and actions.
To meet our objectives, evaluating performance in watershed context should include the following characteristics:

- Provide a systematic way to make better business decisions in support of the twin goals of maintaining profitability while protecting the overall health of local watersheds.
- Make use of readily available (public) data and manage the inherent uncertainties related to data (availability, granularity, consistency, distinct watershed boundaries).
- Allow for measuring performance against multiple, aggregated watershed characteristics (e.g., holistic view) in a comparable and consistent manner, including defining the correct indicators and weighting factors.
- Be dynamic enough to take changes in local conditions into account, allowing for modeling of impacts within dynamic watersheds (e.g., climate change, population growth or decline).
- Serve as a valuable and intuitive tool for engaging external stakeholders and facilitating watershed-level collective action that is more than just another external reporting and/or water risk assessment tool.
- Be flexible enough for BIER member companies to utilize either as a stand-alone tool or as an enhancement to existing tools and processes.
- Have the ability to ‘scale up’ to support specific company business objectives (e.g., expanding operations into a new watershed, evaluating investment options, assessing various scenarios).

As the challenges and complexities of developing such an approach became apparent, our working group decided to step back and reconsider the best way to approach the project. We believe that the inherent water technical expertise within our member companies, along with the work completed by BIER to-date, provides the foundation necessary to tackle this challenge. We recognize, however, that this is breaking new ground and requires the input of external thought-leaders with expertise in watershed dynamics and indicator frameworks. With this in mind, BIER engaged the following three technical advisors to collaboratively pursue development of this concept paper and method/tool:

**Ceres** – Mobilizes a powerful network of investors, companies and public interest groups to accelerate and expand the adoption of sustainable business practices and solutions to build a healthy global economy.  
[www.ceres.org](http://www.ceres.org)

**The Nature Conservancy (TNC)** – Works around the world to protect ecologically important lands and waters for nature and people.  
[www.nature.org](http://www.nature.org)

**World Resources Institute (WRI)** - Works closely with leaders to turn big ideas into action to sustain a healthy environment—the foundation of economic opportunity and human well-being.  
[www.wri.org](http://www.wri.org)
MAPPED: A Practical Approach to Evaluating Performance in Context

This Concept Paper presents a practical approach based upon a framework of Measure – Assess – Prioritize – Perform – Evaluate – Disclose (MAPPED). For the purposes of this Concept Paper, emphasis has been placed upon building out the first two elements (Measure and Assess). These elements form the basis of understanding ‘Performance in Watershed Context’ and set the stage for implementing the remaining steps of the framework and leveraging or aligning implementation with complementary tools/approaches, such as the CEO Water Mandate Corporate Water Disclosure Guidelines, the Alliance for Water Stewardship (AWS) Standard, and the Water Footprint Network (WFN) Methodology and Tool. BIER believes that the Measure and Assess elements are currently underdeveloped, yet vital to prioritizing actions and effectively utilizing complementary tools/approaches. It is assumed that such tools/approaches would be fundamental to the Prioritize, Perform, Evaluate, and Disclose elements of the MAPPED framework.

It is worth repeating here that the objective of this approach is to evaluate whether a facility’s performance is appropriately aligned with the conditions of the surrounding watershed, and to what extent additional investment by the company and/or watershed stakeholders should be prioritized. It is also important to point out that disclosure should be an ongoing process throughout implementation of the framework, as illustrated, rather than a one-off event occurring only at completion.

**Measure**

The first step is to measure facility performance and watershed context in a consistent and meaningful manner. The concepts outlined within this section frame how measurement could be pursued starting with a relatively simple structure and set of preliminary indicators. From BIER’s experience, and that of our technical advisors, it is best to start with a simple approach that can be piloted and expanded upon once the approach has been tested.

The sample indicators and criteria/data inputs presented within this Concept Paper represent *preliminary thinking* and will be further refined and detailed during the methodology development stage of our process. Inclusion within this document is for the purpose of illustrating the concept in practical terms and not an endorsement of these specific indicators by BIER or individual BIER member companies.
Facility Water Management Performance – an evaluation of facility characteristics and performance in terms of the maturity of water management programs and key risk variables.

While there is variability with how water performance is measured at the facility-level and by companies, the beverage sector is relatively advanced in this regard. It is envisioned that facility performance would be measured using the following types of indicators already widely used within the sector:

<table>
<thead>
<tr>
<th>Example Performance Category</th>
<th>Example Data Inputs</th>
<th>Example Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Efficiency and Conservation</td>
<td>Facility key performance indicators (KPIs)</td>
<td>3-year performance trends (e.g., Water Use Ratio)</td>
</tr>
<tr>
<td></td>
<td>Facility water conservation plans</td>
<td>Water reduction, reuse, recycling goals</td>
</tr>
</tbody>
</table>

Other potential categories for building out similar indicators include, but are not limited to:
- Regulatory Compliance
- Business Continuity Planning
- Engagement in Watershed Planning and Management
- Supplier/Customer Engagement

When moving beyond our own facilities to measure watershed context, we are building upon BIER’s recent work with Ecosystem Services² to focus on the fundamental concept of watershed ‘dependencies’ and ‘impacts’. A facility’s dependence on the watershed and the facility’s impacts on the watershed could be measured using the following types of indicators:

Facility Watershed Dependencies – an evaluation on the extent to which a given facility is ‘dependent’ upon the local watershed and associated conditions.

<table>
<thead>
<tr>
<th>Example Dependency Category</th>
<th>Example Data Inputs</th>
<th>Example Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watershed Capacity</td>
<td>Watershed balance data</td>
<td>Watershed balance calculation (facility use relative to watershed balance)</td>
</tr>
<tr>
<td></td>
<td>Watershed user demand data</td>
<td>Capacity of the watershed to meet current and future demands (domestic, industrial, agriculture)</td>
</tr>
</tbody>
</table>

² In late 2014, BIER published a set of Ecosystem Service Principles for the Beverage Sector.
Other potential categories for building out similar indicators include, but are not limited to:
- Water Supply Reliability and Risk of Interruption (infrastructure capacity and reliability)
- Incoming Water Quality
- Revenues Potentially at Risk
- Availability of Alternative Water Sources

Facility Watershed Impacts – an evaluation of the extent of a facility’s ‘impacts’ on the local watershed based upon the associated conditions of the watershed and facility operations.

<table>
<thead>
<tr>
<th>Example Impact Category</th>
<th>Example Data Inputs</th>
<th>Example Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Wastewater Discharge</td>
<td>Onsite wastewater treatment • Wastewater effluent process flow • Receiving body/entity characteristics</td>
<td>Effluent discharge characteristics • Potential for adverse impacts to watershed</td>
</tr>
</tbody>
</table>

Other potential categories for building out similar indicators include, but are not limited to:
- Facility Water Consumption Relative to Other Community Water Users
- Raw Material Water Intensity (total facility footprint)
- Community Access to Water and Sanitation
- Ecosystem Sensitivity

During the methodology development process, BIER will continue to work with our technical advisors to identify a select set of indicators and define associated guidance for collecting and documenting necessary information to pilot test the methodology and resulting tool.

Assess

The second step is to combine, pattern, and analyze the data and indicators to understand the relationship between performance, dependencies, and impacts for a given facility. This step is envisioned to include a rating for each of the categories and indicators outlined in the Measure step. The objective will be to develop an approach to quantify each indicator so that a comparable score can be developed for each category and an overall rating assigned for an individual facility. Depending upon the relative significance of each indicator, weighting factors could also be incorporated. The ratings for each category could then be utilized to determine the facilities overall rating in a consistent, comparable, and transparent manner.
In the above example, a conclusion might be made that this particular facility’s performance exceeds (as illustrated by the green water drop) their level of dependency and impacts on the local watershed. This could result in a company making the decision to maintain the current water stewardship efforts at this facility and that no additional investment is necessary at the present time (versus other facilities that might have lower ratings).

Prioritize

The third step is to interpret the assessment results in order to prioritize investments and actions across the set of facilities being evaluated. It is envisioned that the methodology could be utilized to prioritize facilities, individual categories (e.g., Facility Performance, Facility Watershed Dependencies, and Facility Watershed Impacts), and/or by individual indicators depending upon the specific objectives of a company user.

The following provides a simple visualization of the prioritization process and communication potential.
Perform

The fourth step is to define necessary actions and investments for prioritized sites. While the emphasis for this Concept Paper has been placed upon the Measure and Assess components of the MAPPED framework, it is envisioned that the scoring results could be utilized to assist companies with defining specific actions, as needed, to enhance performance within the three categories of facility water management, watershed dependencies, and/or watershed impacts. Depending upon a given facility’s profile, actions may be implemented at the facility level and/or in partnership with watershed-level stakeholders.

Evaluate

The fifth step is to monitor and evaluate the implementation and effectiveness of defined actions or investments. Monitoring and evaluation (M&E) is a critical component to successfully managing ‘performance in context’ and achieving meaningful results. Proper M&E drives the collection and analysis of performance information to enable teams to make informed decisions, monitor the effectiveness of implemented actions, and measure positive impacts at the facility level and within the associated watershed.

It is envisioned that the full methodology would include guidance for effective M&E plan development and implementation, including a mechanism by which to use M&E outputs to reevaluate and update a facility’s ‘Measure’ results (indicator scores) based upon successful implementation of defined actions/investments.

Disclose

The final step is to appropriately disclose ‘Performance in Context’ to key internal and external stakeholders as defined by individual companies and/or facilities using this process. Disclosure may take the form of ‘one-way’ disclosure of performance results and updates and/or it could be a ‘two-way’ disclosure format to facilitate more informed understanding, dialogue, and partnership at the watershed level.

It is also important to note, as previously stated, that disclosure should be an ongoing process, to varying degrees, throughout implementation of this framework.
Next Steps

This Concept Paper represents a meaningful, but preliminary step in BIER’s ambitious plan to transition the concept of ‘Performance in Context’ into a practical methodology and tool for use by the beverage sector and other interested stakeholders. BIER is committed to building out and testing the concepts presented within this paper through development of a practical methodology and tool. The ultimate aspiration is to make better informed decisions, promote watershed-level collective action, and protect the health of watersheds within which our members operate. The outputs of our work will target the beverage sector, but will be made publicly available to support other industries and communities looking to advance their water stewardship efforts.

Specifically, BIER is committed to continuing to work in close collaboration with our technical advisors (Ceres, The Nature Conservancy, and World Resources Institute) on the following actions to transition this concept into a practical methodology and tool:

- Define a set of indicators for Facility Performance, Facility Watershed Dependencies, and Facility Watershed Impacts;
- Develop guidance for data collection and analysis;
- Outline a working methodology for implementing the complete MAPPED framework;
- Pilot test a Methodology Version 1.0 using BIER member company facilities;
- Solicit input and feedback from interested stakeholders; and
- Communicate the progress of our ongoing work to BIER member companies and external stakeholders at key milestones.

Given the importance of this work stream to advancing water stewardship and watershed-level collective action, BIER welcomes engagement with interested stakeholders throughout the development, testing, and implementation process.
BIER & Water Stewardship

BIER was founded upon the collective desire of the beverage sector to be leaders in the sustainable use and protection of water resources. BIER members recognize the fundamental business imperative of sustainable water stewardship and the importance of this precious resource to the long-term health, growth, and vitality of communities and environments throughout the world. Over the past nine years, BIER members have worked collectively to share innovative approaches, develop tools and methodologies for accelerating water stewardship, and define standards for leadership within the beverage sector value chain and beyond.

2007
Definition of Water Stewardship for the Beverage Sector and set of principles for what constitutes leadership

Since 2007
Annual water benchmarking study with over 1,600 facilities globally

2010
Practical Perspective on Water Accounting in the Beverage Sector

2012
Practical Perspective on Managing Water-Related Business Risks and Opportunities in the Beverage Sector

Each of these products is publicly available with hyperlinks embedded in the icons above. For more information and access to additional work products, please visit: www.bieroundtable.com
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**About the Beverage Industry Environmental Roundtable (BIER)**

The Beverage Industry Environmental Roundtable (BIER) is a technical coalition of leading global beverage companies working together to advance environmental sustainability within the beverage sector. BIER aims to affect sector change through work focused on water stewardship, energy efficiency and climate change, beverage container recycling, sustainable agriculture and eco-system services. For more information, visit [www.bieroundtable.com](http://www.bieroundtable.com).

**Facilitated by:**