An Introduction to the Sustainability Consortium

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I am with the Food, Beverage and Agriculture Working Group of the Sustainability Consortium (TSC), the intent of which is to help businesses focus on issues that really matter using techniques that really matter, to get the most "bang for the buck." We communicate that message across a common platform so that, no matter where you are in the world, the conversations are similar. Of course, regional differences prevail, but means of communication are harmonized.

More and more demands are being made on our natural resources, not just because of increasing population, but also because lifestyles are changing. People are consuming more. How do we address these increasing demands? The Sustainability Consortium's objective is to improve decision making for product sustainability throughout the product life cycle.

There is increasing understanding within the consumer-products industry of impacts and issues involved in achieving sustainability. Underpinned by many types of programs and initiatives and tools, global, federal and state regulations, and NGO expectations, companies are trying to understand how to harmonize this information to inform their decisions and develop best practices consistent with other similar companies. This process is based on science that is open and transparent and continuously improving. The vision is to drive product innovation with continuous improvement in sustainability. The mission is to design and implement credible, transparent and scalable science-based measurements and reporting systems accessible for all producers, retailers and users of consumer products.

Translating TSC's mission into impact requires:

- Using a multi-stakeholder approach…
- …to create practical measurement tools…
- …that enable proactive innovation in sustainability…
- …and unlocks value in the supply chain.

Another issue is unlocking the added value that should come with sustainability; how does an organization communicate the innovative strategies inherent in its products? For the multi-stakeholder approach, we work with academic institutions, corporations and non-profit organizations. We are, essentially, a convener of information and a driver helping to communicate product sustainability. We focus on credibility, drawing on information—including information on water—generated by leading universities and NGOs that use a science-based approach to identify areas of adverse impact in the supply chain.

TSC Structure

Across the value chain, our membership[1] includes many of the world's most recognized companies, representing $1.5 trillion in revenue, and many different processors and manufacturers. As stated, producer organizations also are involved, NGOs and academic organizations; some are research partners and some participate in advisory roles. The University of Arkansas and Arizona State University have administrative responsibilities. We also have offices at Wageningen University, in the Netherlands, and in Santiago, Chile. We are a global organization with a global perspective, at the same time communicating the need for flexibility at the regional level.

There are seven Sector Working Groups and two Consortium Working Groups within TSC. The former comprise 90 of the largest organizations working together on sector-specific issues:

- Electronics
- Food, Beverage and Agriculture
- Home and Personal Care
- Paper
- Packaging
- Retail
- Toys

And the latter comprise corporate members, non-profit organizations, government agencies and academic institutions:

- Consumer Science
- Measurement Science

[1]http://www.sustainabilityconsortium.org/members/.

We develop tools for application within these industries. I lead the effort within the Food, Beverage and Agriculture sector.

Main Deliverable

The main deliverable is the development of sustainability measurements and reporting systems, which first require gaining understanding of the key issues. Key issues for water in Arkansas have been mentioned; however, they are likely to be applicable elsewhere. Groundwater depletion and compromised surface-water quality are common global issues. As an organization, from the basic understanding of the key issues, we develop scientifically supported strategies for use by clients. The information is provided in a dossier with 1- to 2-page document as a category sustainability profile that summarizes the environmental and social hotspots—and improvement opportunities—for a product. For instance, water emerges as an environmental hotspot in coffee production; we provide scientifically based strategies to facilitate addressing that hotspot. We may communicate additional issues resulting from consumer observations. Some companies use the scientific data to educate consumers in order to reverse any inaccurate perceptions.

The next stage in the development of the sustainability measurement and reporting tool is to have a more quantitative approach. As a collective we want to design a baseline model, which is a life-cycle assessment model that permits input of quantitative data, *e.g.* gallons of water or kilowatt hours of energy. We are in the process of developing that.

Again, we collect the information in a dossier and create a category sustainability profile, and the next step is the development of key performance indicators. Let's say that a hotspot for grain production involves irrigation and water use (which, in fact, is the case). Water would be included in the list of hotspots in the life cycle for production of packaged cereal. Accordingly, there would be an improvement opportunity and mention may be made of a recommendation from the National Resources Conservation Service (NRCS) or other agency of a strategy commonly used for improving water-use efficiency in irrigation. (Our members are adamant about the use of the word "efficiency" *vis-à-vis* water; availability and efficiency of use need to be considered separately.) Based on this information we are developing questions for generation of a database, so that companies can go to one place to access a survey. The questions will be relevant, in this case, to packaged cereal. Accordingly, it would include queries about grains, questions about manufacturing, retail, use patterns and end of life; all aspects of the life cycle of a packaged cereal.

The Sustainability Consortium's measurement and reporting system reveals value in the supply chain. Improved transparency of reporting is helping to reduce complexity, thus saving costs throughout the supply chain. Standardization of metrics enables buyers and suppliers to work together on the same environmental and social goals. And reduction in costs and in the complexity of sustainability research and reporting allows companies to tackle hotspots faster and more efficiently. In the case of packaged cereal, suppliers and buyers become aware of the impact of water and can use that information as a tool to improve efficiency in the supply chain.

Organizations Collaborating with TSC: Examples

Walmart

Walmart is incorporating category sustainability profiles and key performance indicators in its merchandizing. They are creating "scorecards" for their suppliers—science-based standard metrics that provide an "index" of a product's sustainability. The scorecards are based on hotspots and improvement opportunities developed and summarized in TSC'S category sustainability profiles.

Unilever

The potential of TSC's tools to engage and educate consumers on product sustainability is recognized by Unilever:

> *The scientific basis of TSC's work helps us focus on activities that matter and distinguish us from other companies. We've identified opportunities and impact… It's not only about how we manufacture it, but also how a consumer uses it. TSC's approach provides the first step for companies to drive consumer engagement.*

Unilever sells many hundreds of products. They can't afford to make full life-cycle assessments of all of them, therefore quick spot analyses of their product categories allows them to focus their resources on hotspots. Water is an ingredient, and a potential hotspot, in all of their products.

Kimberly-Clark

The potential to apply TSC tools across a number of business functions has been identified by Kimberly-Clark, *e.g.* evaluating the sustainability of input materials, ensuring that new products are more sustainable than existing ones, utilizing a single reporting system with all buyers, and reducing sustainability investments by leveraging TSC.

P&G

Proctor and Gamble sees TSC as a catalyst for innovation and collaboration among stakeholders to drive change. They recognized that the use of cold-water formula in laundry detergent is a way to minimize energy consumption. This approach has been shared within TSC as a potential way to minimize energy use.

Tesco

Tesco is planning to use the information in the sustainability measurement reporting system. They seek harmonization of standards, so they are asking the same questions of all their suppliers. Feedback varies with the source, water-scarcity issues in that location, and so on.

Dell

Dell is engaging retail partners, and utilizing the TSC hotspot approach:

…to focus our efforts towards more sustainable solutions. We are starting to work with LCD and other suppliers to better understand their footprints. TSC research gave use more confidence to ask better questions in a standardized way. We can now share our laptop data across other products, such as displays, to identify improvement opportunities.

Mars

The petcare/confectionary/food giant is moving from measuring to innovation:

> *We want to put all of our effort into improving the supply chain and not into creating the measurement system… TSC allows us to be economically efficient—we don't have to spend all our resources on the tape measure.*

Henkel

Henkel's sustainability goal is a three-fold increase in eco-efficiency by 2030:

> *The future of the industry and society is in sustainable consumption. TSC has an important role to play.*

WWF

The World Wildlife Fund engages with TSC to create and refine its tools, ensuring a holistic view of hotspots along the value chain. In turn WWF strengthens the TSC process by:

- Active participation in creating TSC products
  - 235 product-specific comments for 50 dossiers
- Inclusion of broad commodity challenges into hotspot analyses, including
  - Deforestation, biodiversity, climate change, water risk, land use/competition and soil impacts
- Complementing TSC product-category methodology with other assessment methods

Key Issue: Water

In the dossier containing the relevant information and the category sustainability profile (Figure 1), what are some of the key issues regarding water, that we see across our products, specific to agriculture? The dossier is a collection of evidence gathered from literature, models and subject-matter interviews; it provides transparency and credibility. The category sustainability profile is a synthesis and categorization of information found in the dossier that provides awareness of the most relevant and actionable issues and opportunities. And the key performance indicators are metrics used to record organizational progress on issues and opportunities described in the category sustainability profile; these metrics facilitate performance tracking and communication of progress. What is happening in the scientific community related to packaged cereal or beef or milk or coffee? We collect that information in the dossier and then summarize it to reveal the most scientifically supported issues.

Figure 2 shows the products we are focused on: beef, beer, bread, cotton, packaged cereal, milk, farmed salmon and wine. Grains are included because various types are inputs into several of these products. Water plays an integral part in all of these products. Our knowledge base, contained in the dossiers, reveals that some water issues apply across agriculture, whereas some are unique to specific agricultural systems. Also, some are post-agricultural water issues.

Life-cycle issues that apply across agriculture include:

- Depletion of groundwater and rivers by irrigation
- Fertilizer runoff causing eutrophication of nearby surface waters
- Pesticides, herbicides and defoliants washing into water bodies
- Emissions through fertilizer production and fuel use on the farm causing formation of acid rain
- Poor land management leading to soil loss through erosion and sediment accumulation in streams, rivers and lakes
- Irrigation causing salination of soil

Life-cycle issues that apply in specific situations include:

- Damming and rerouting of natural waters to provide irrigation
- Alteration of water temperature and aquatic biota by flooding fields for crop production
- Improper management of manure, washing pathogens into waterways
- Erosion of soil resulting from livestock traffic, inducing sediment accumulation in streams, rivers and lakes
- Accumulation of livestock-administered antibiotics in aquatic environments

And post-agricultural life-cycle issues include:

- Discharge of organic and other waste compounds in wastewater flows
- Incorporation of scarce water into products
- Gaseous emissions during manufacturing that cause formation of acid rain
- Consumption of water during biofuel generation

These are the key issues—hotspots—that are related to water; some of them are more strongly supported by scientific data than others, but it is important to recognize attendant improvement opportunities. For example, with regard to farmed salmon, the following hotspots imply approaches for amelioration:

- Antibiotics applied to curb disease negatively affect non-target species
- Chemicals to prevent parasite infestations harm non-target invertebrates
- Release of unconsumed fish food and wastes induces eutrophication in surrounding waters

These key issues apply specifically to water. We also examine across-the-board impacts of categories such as energy, land use, biodiversity, and social issues to develop key performance indicators.

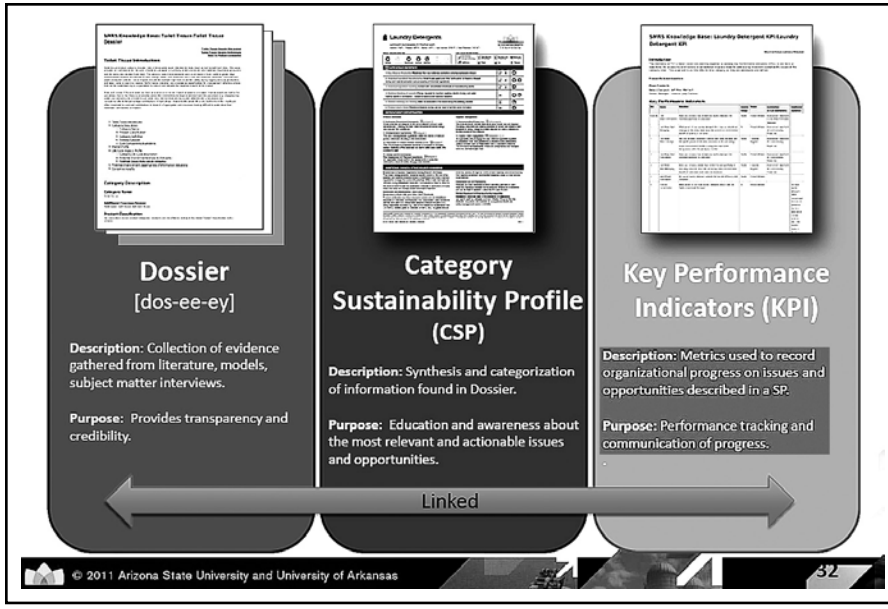


Figure 1. Knowledge products.

Figure 2. The Sustainability Consortium: Food, Beverage and Agriculture sector products.

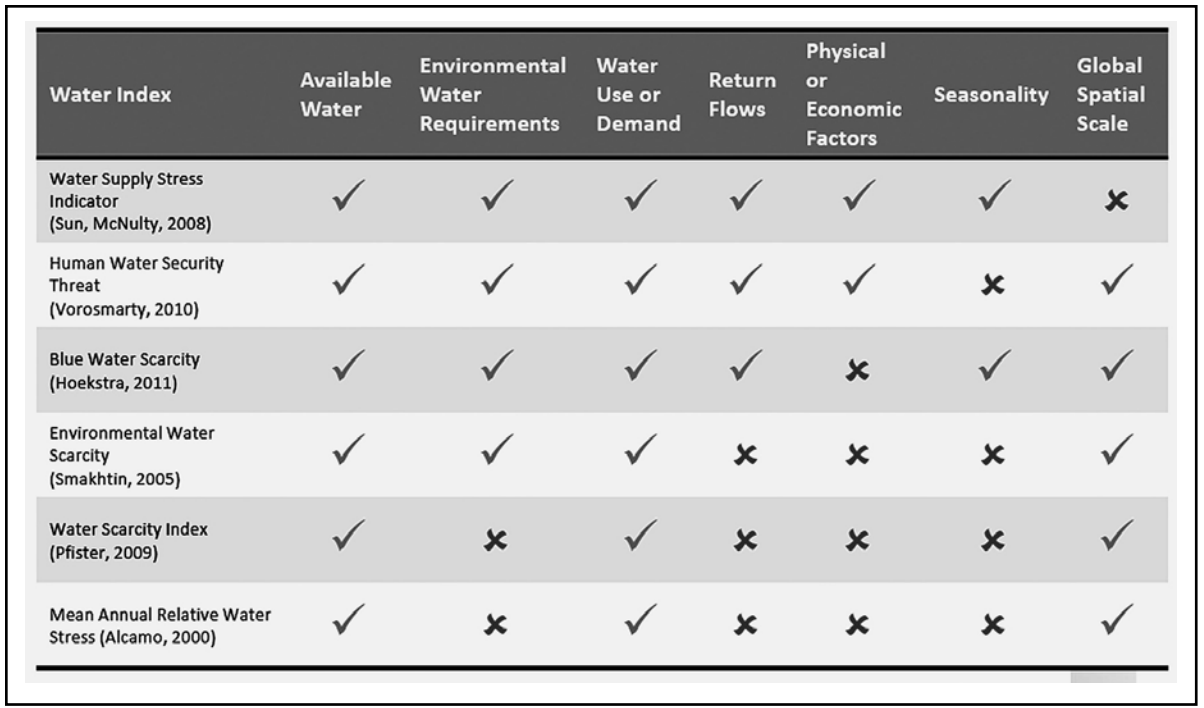
TSC leverages existing data to identify knowledge gaps and, thus, develop questions as key performance indicators of opportunities for improvement across a product's life cycle. As far as water is concerned, scientifically based examples of key performance indicators that suggest solutions may be:

- Does your farm (or your supplier's farm) have a riparian buffer in place?
- Has your facility adopted a wastewater-management plan?
- Are you keeping an inventory of your water use?

We are working with Marty Matlock (University of Arkansas, Fayetteville) on developing a strategy for capturing regional water risk, to integrate geography into the category sustainability profile. On a 1- to 2-page web document, we envision a link that shows where in the world there are water-scarcity issues, with a drop-down menu that provides science-based strategies for amelioration. This tool will help buyers at Walmart, Mars, Disney, McDonald's, *etc.*, make their conversations more legitimate and scientifically focused. As new studies are published, they can be included.

The objective of the project with Dr. Matlock is to understand the significance of existing water indices. Different indices are based on different methodologies, scales and metrics. His team scanned indices globally with the intent of creating a common metric to help understand the impacts of water in specific regions. In all of the studies consulted available water was addressed (Figure 3), whereas two studies failed to address water requirements, and all but two studies failed to address water seasonality, *etc*.

The data in Figure 3 show relevant tools for possible application across the supply chain. Dr. Matlock took the six indices listed in Figure 3 and created a consolidated index by creating a 0–1 scale for each index range, adding up the outcomes and dividing by the total (Figure 4). We intend to use this to help inform our US members on how to measure water-use efficiency in their practices. Eventually they will be able to say, "I'm in this region and this is the water scarcity here, therefore these are the strategies I will use."



Water Index	Available Water	Environmental Water Requirements	Water Use or Demand	Return Flows	Physical or Economic Factors	Seasonality	Global Spatial Scale
Water Supply Stress Indicator (Sun, McNulty, 2008)	✓	✓	✓	✓	✓	✓	✗
Human Water Security Threat (Vorosmarty, 2010)	✓	✓	✓	✓	✓	✗	✓
Blue Water Scarcity (Hoekstra, 2011)	✓	✓	✓	✓	✗	✓	✓
Environmental Water Scarcity (Smakhtin, 2005)	✓	✓	✓	✗	✗	✗	✓
Water Scarcity Index (Pfister, 2009)	✓	✗	✓	✗	✗	✗	✓
Mean Annual Relative Water Stress (Alcamo, 2000)	✓	✗	✓	✗	✗	✗	✓

Figure 3. Variability in water indices.

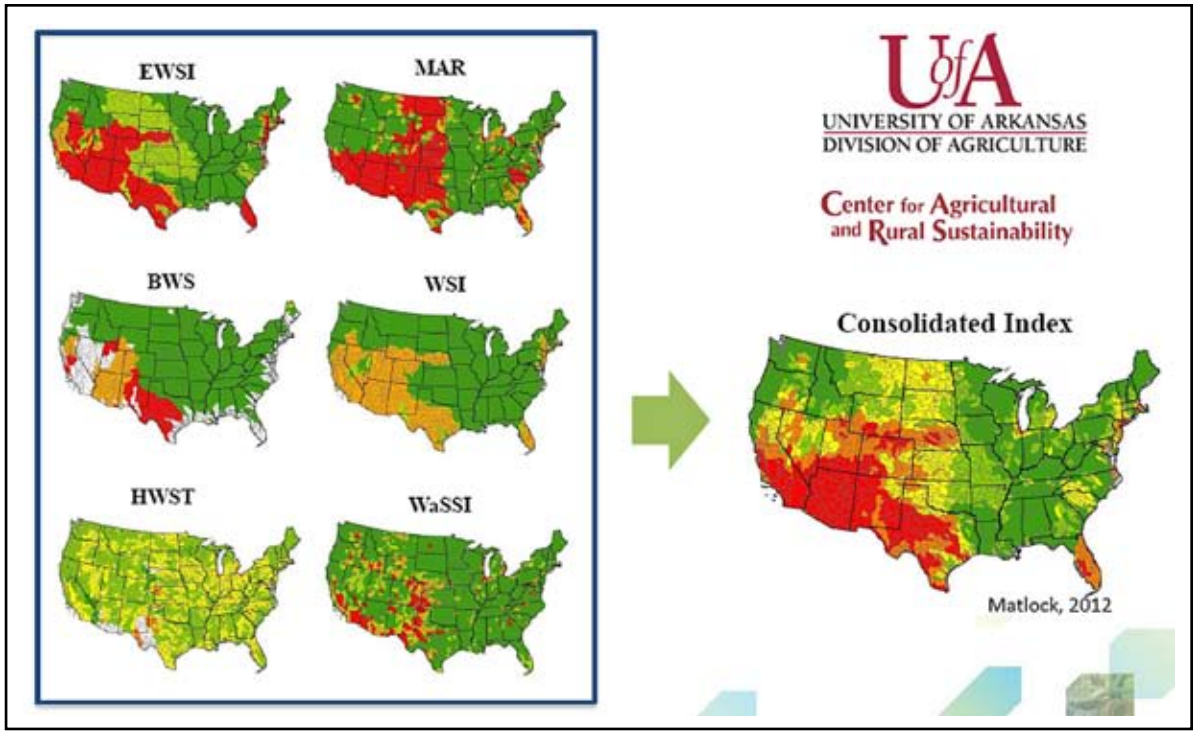


Figure 4. Finding consensus in water indices.
(See Figure 3 and pp. 162 and 163 for explanations of abbreviations.)

SARAH LEWIS holds a PhD in environmental dynamics and an MA in French from the University of Arkansas. She received her BS in biology and French secondary education from the University of Nebraska at Lincoln. Dr. Lewis is passionate about identifying and working through challenges at the interface of humans and the environment. Her work with The Sustainability Consortium at the University of Arkansas, Fayetteville, focuses on managing research projects and member relationships within the food, beverage, and agricultural industries in order to develop the Sustainability Measurement and Reporting System. An award-winning educator, she is an adjunct professor of environmental sociology at the University of Arkansas at Little Rock, and is the founder and president of EcoExplique, a consultancy focused on educating communities about ecological economics. An active member of her community, she serves as an elected official on the Fayetteville City Council.