

# CORPORATE WATER GAUGE



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A Context-Based Water Metric Developed by  
Center for Sustainable Organizations in 2008

November 2016



# Introduction

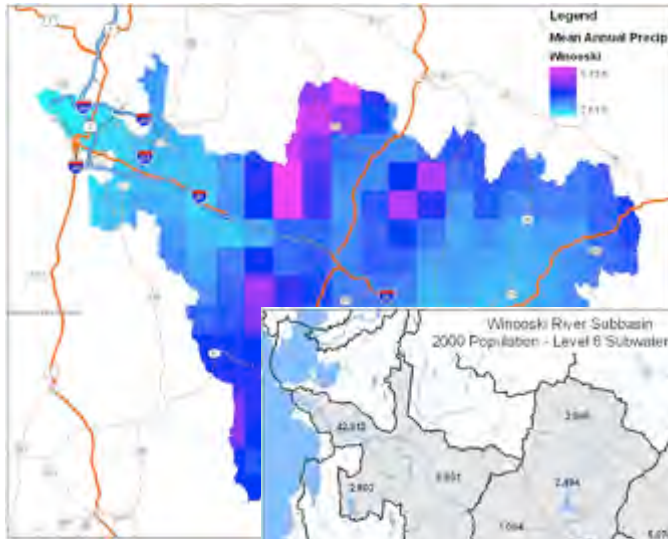
- A context-based metric for assessing the ecological sustainability of an organization's water use
- Based on the *context-based* approach to sustainability measurement and reporting developed by the *Center for Sustainable Organizations* ([www.sustainableorganizations.org](http://www.sustainableorganizations.org))
  - Consumption is measured against an allocation of available renewable supplies at the facility level
  - A watershed-centric approach
- Technology-enabled
  - Spreadsheet-based metric
  - GIS for spatial analysis using meteorological, topographical, population and economic datasets from scientific and gov't sources



# A 4-Step Method

1. Identify watershed(s) in which facilities have impact (sources and sinks of water)
2. Determine net renewable water supplies in watershed(s) of interest, and allocate proportionate shares to facilities
3. Determine net water consumption by facilities in watershed(s) of interest
4. Populate *Corporate Water Gauge*<sup>®</sup> quotient with data developed in steps 1 through 3 above, and compute sustainability scores, accordingly





GIS functionality used to determine renewable water supplies within specific watersheds, at organizational and/or facility level of analysis.

Makes innovative use of GIS tools



GIS functionality also used to determine local populations within watersheds, at organizational/facility locations of interest.



GIS functionality then used to determine per-capita levels of available renewable water resources per watershed, and/or water resources used per level of economic activity, such as per dollar of contribution to GDP.



# Making Allocations

- Allocations of available renewable supplies made to individual facilities based on:
  - Watershed boundaries in which facilities are located
  - Volume of locally available water (via annual precipitation levels)
- Adjustments then made for:
  - Evapotranspiration
  - Ecological and non-human needs
- Allocations to human users then made in 2 ways:
  - Per capita method: according to an organization's workforce size
  - Economic method: according to an organization's contributions to GDP



# Sample Report



**Organization/Facility Name:** TransGlobal, Inc./U.S. Plant  
**Year of Analysis:** 2015

**Hydrological Unit (HUC) #1:** Braintree Subwatershed Level 6  
**Hydrological Unit (HUC) #2:** Delta River Subbasin Level 4

## Quotient Scores

### Per Capita (HUC Level 6)

- Numerator  $\frac{25,550,000}{32,800,000} = 0.78^*$   
 - Denominator

### Economic (HUC Level 4)

- Numerator  $\frac{25,550,000}{98,440,000} = 0.26^*$   
 - Denominator

### Intensity (HUC Level 6)

- Numerator  $\frac{25,550,000}{99,600,000} = 0.26 \text{ gals./unit of prod.}$   
 - Denominator

\*Scores of  $\leq 1.0$  are sustainable; scores of  $>1.0$  are unsustainable.

## Background Data

e.g., precip., population, GDP, output vol., etc.

## Numerators

	Braintree HUC L6	Delta River HUC L4
- On-site in (gals.)	15,700,000	15,700,000
- Municipal in (gals.)	32,500,000	32,500,000
- On-site out (gals.)	(10,500,000)	(10,500,000)
- Municipal out (gals.)	(12,150,000)	(15,900,000)
Net Consumption (gals.)	25,550,000	21,800,000

## Denominators

	Braintree HUC L6	Delta River HUC L4
Per Capita (Level 6) (gals.)	32,800,000	
Economic* (Level 4) (gals.)		98,440,000
Intensity (Level 6)		
- Production vol. (units)	99,600,000	

\*Contribution to GDP in HUC

# Key Principles

- Sustainability of water use should be grounded in knowledge of site-specific precipitation levels
- Renewable supplies should be determined by reference to associated watershed boundaries
- Stocks of surface and groundwater resources should be preserved and not drawn down
- Human use of water resources should be balanced with ecological needs
- Water use should be measured against available renewable supplies that are allocated to individual facilities using per capita and/or economic criteria



# Advantages Over Other Tools

- Complements other risk- or stress-related tools
- Measures sustainability performance with local context taken fully into account (i.e., *is context-based*)
  - Assesses water use in terms of locally available renewable supplies, which are allocated to individual facilities in per capita and/or economic terms
  - Makes it possible to score sustainability performance at a local, regional, national, global, and enterprise-wide level with local contexts taken fully into account
- Makes use of advanced GIS tools in combination with site-specific datasets





# What Form Does It Take?

- An integrated offering:
  - An advanced, context-based water sustainability metric embodied in a spreadsheet
  - A GIS technique for measuring water use and supply in watersheds (using third-party datasets)
  - A consulting service for teaching and/or using the Corporate Water Gauge (CWG)
- Output:
  - Spreadsheet files with computed sustainability scores
  - Graphical depictions of relevant watershed areas and data
  - Relevant GIS shapefiles w/site-specific data
  - Methodology/license for using the CWG



# How Can a Company Acquire It?

- Perpetual, non-exclusive end-user licenses to obtain and use the Corporate Water Gauge are granted to clients who engage us to either:
  - Provide related training, or
  - Assist with at least one application at a site of their choosing
- Third-party licenses also available
- Minimum fees apply
- When used independently of our assistance, clients must provide their own GIS and spreadsheet systems
  - ArcGIS and related datasets
  - Microsoft Excel



# Contact us for more info!

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