USER GUIDE

What is the Global Water Tool? How to use it?
Version 1.3 – July 2015

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Introduction

Water crises and failure of climate change adaptation are among the greatest global risks in terms of their potential impact (WEF Global Risks 2015).

- Access to water is a basic human right and a critical sustainable development challenge.
- As competing demands for water (agriculture, households, energy generation, industrial use, ecosystems) continue to rise, the effects of climate change further exacerbate the challenges associated with water quality and availability creating new risks for businesses, governments, communities and the environment.
  - According to the Water Resources Group projections, without improvements in how water is managed and used, the world could face a 40% supply gap by 2030.
- Uncertainties, tensions and dilemmas associated with water use can affect any organization as it uses water in its own operations (within the product, in the process or for consumption/use by employees), depends on it indirectly (upstream supplier dependencies, downstream consumer dependencies) or relies on certain ecosystems that help regulate the flow and quality of water.
- Water constraints can translate into significant risks (financial, operational, market-related, reputational or regulatory) for businesses operating globally. But corporations can also seize opportunities to offer sustainable water solutions via the goods, services, innovations and technologies they provide.
- Sustainable water management and cost-effective risk mitigation require action at a local level, often outside a company’s direct control. Watershed collaboration among leading companies is increasingly common based on the understanding that water is a finite shared resource resulting in collective risk and requiring collective action.
- Also, water risks should not be managed in isolation from other impacts and related tradeoffs, including land use, energy consumption, and greenhouse gas emissions. Efficiency measures and circular approaches can reveal opportunities for co-benefits and co-optimized solutions capable of breaking through the silos of water, energy and waste.
Introduction

Water issues go beyond businesses’ fencelines

Business need

- Water for operations
- Ability to discharge
- Healthy communities and workforce
- Strong supply chains
- Healthy and strong global consumer markets
- Access to clean water for product use

Areas of risk

- Stranded assets
- Rising costs (supply, treatment)
- License to operate
- Community and regulatory pressure
- Health of employees
- Competing industries
- Supply chain interruptions
- Brand image
- Health and growth of consumer markets

Own operations and product design

Supply chain operations

Local communities

Global consumer markets in developed and developing countries
Introduction
Mitigating corporate water risks

Have you identified your global water risks?
**Phase I**: Company-wide water risk assessment to determine value at risk & identify of most at risk areas

Do you understand your impacts at site?
**Phase II**: Development of comprehensive water strategy, including local action plans

What is your response and engagement strategy?
**Phase III**: Implementation of water stewardship strategies - action outside the fence line with other users in the watershed

Some resources
- WBCSD GWT, IPIECA GWT for oil and gas
- GEMI Local Water Tool & LWT for oil & gas
- WBCSD India Water Tool
- WRI Aqueduct Water Risk Atlas
- WWF Water Risk Filter
- WBCSD Guide to water valuation
- WBCSD Water for Business
- CEO Water Mandate Guide to Collective Action
- AWS
- OECD Water Governance Principles (June 2015)
Introduction
Do you know…

- How many of your sites are in extremely water-scarce areas? Which sites are at greatest risk? How that will change in the future?
- How much of your total production is generated from sites most exposed to risk?
- How many of your employees live in countries that lack access to improved water and sanitation?
- How many of your suppliers are in water scarce areas now and will be in 2025?

By comparing your sites with the best available water, sanitation, population and biodiversity information on a country and watershed basis, including sub-basin data, the tool allows to answer these questions.
What is the Global Water Tool (GWT)?

- A free, publicly available excel-based resource for identifying corporate water risks and opportunities, GWT provides beginners and more advanced users with easy access to and analysis of critical data.
- It includes a workbook (inventory by site, key reporting indicators, metrics calculations), a mapping function to plot sites with datasets, and Google Earth interface for spatial viewing. No personal data is stored on servers.
- Developed with an advisory board of WBCSD member companies and partner organizations, GWT encourages all stakeholders to take action, whether at global, national, watershed or site level to support sustainable water management by all.
- GWT can be used in combination with other tools to support decision-making (e.g. to capture the regulatory, reputational and climate change risk factors, as well as the socio-demographic dimension in the water scarcity assessment).
- First launched in 2007, last updated in 2011 with the addition of biodiversity hotspots, new reporting metrics and summary outputs. The latest version released in March 2015 brings in:
  - New datasets on water stress, more recent and comprehensive data, with improved modelling (WRI),
  - Updated datasets (e.g. FAO, WHO/UNICEF JMP WSS),
  - Updated reporting metrics,
  - Improved GIS-based mapping,
  - User-friendly additions (easier data import, improved navigation and offline capabilities, improved coding).
What is the Global Water Tool (GWT)?

Support to companies operating in multiple countries to start the journey of water management...

- Users can map their locations and water use data against water, sanitation, population and biodiversity datasets and stress indicators on a country and watershed basis, with future outlook, and in turn assess risks related to their global operations, supply chains, new projects and prioritize action.

Key benefits:
- **Understand water use/needs of operations in relation to local externalities** (including staff presence, industrial use and supply chain, water consumption and efficiency) to make informed decisions
- **Perform a first level screening through maps, figures or charts capturing key water performance and risk indicators.** These metrics can then be used for reporting under corporate disclosure initiatives like the Global Reporting Initiative, CDP Water, Bloomberg and Dow Jones Sustainability Index.
What is the Global Water Tool (GWT)?

... and an input to a long-term water management strategy for minimizing risk and building long-term resilience

- Understanding needs and potential water availability and quality risks at a global level is a first and essential step towards sustainable water management, but the GWT does not provide specific guidance on local situations.
  - The global analysis supported by the tool can guide a deeper understanding of local communities' water situations, and help prioritize actions for high risk sites with detailed response plans elaborated at local/site level.
  - The tool can be used in combination with other tools to support decision-making such as a company’s internal environmental data tracking tool, and is compatible with GEMI’s Local Water Tool™ to build water management plans at a specific site or operation.

- A robust strategy for minimizing risk and building long-term resilience will take into account community engagement, supply chain and watershed management, other impacts and related tradeoffs (energy, greenhouse gas emissions, land use…), transparency and public policy.
  - A comprehensive corporate water management strategy and holistic water stewardship approaches can also follow the global analysis, enabling effective communication/reporting and dialogue with both internal and external stakeholders (including for instance the development of internal policy and guidelines, the education of supply chain partners, with consistent metrics and terminology).
The datasets were selected to meet all of the following criteria:

- Global coverage
- Availability in the public domain
- Considered valid by the global community of water stakeholders including academics, non-governmental organizations (NGOs), government organizations and industry
- Recent and regularly updated
- Accuracy of mapping and geographical distribution of the data

The original datasets have not been modified, except for harmonizing the names of countries across datasets.

Data stored within the tool:
- aquastat
- Joint Monitoring Programme for Water Supply and Sanitation
- World Health Organization
- unicef
- Population Division of the Department of Economic and Social Affairs of the UN Secretariat – UNDESA

Data stored on the WBCSD Map Server:
- IWMI
- Conservation International
- World Resources Institute
- (Watershed and Sub-basin data)
Data selection (2/2)
Dataset and definition details

Descriptions of datasets and definitions used by the GWT

How to use the new GWT?
Step 1: Install the tool on your computer

- Go to www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx, download the Excel file and enable macros;
  - remember that your own data will not be saved on the WBCSD website
- Note any news / updates about the tool (e.g. upcoming webinars, changes to the tool, etc.)

User requirements:
- MS Excel 2003 and above
- You need to have Internet Explorer 10 and Google Earth (pro-version for commercial use) on your computer to use the mapping application and to view the sites spatially.
  - Maps are generated on ArcGis format - ArcGis data is best supported by Internet Explorer 10, other browsers might display partial results.
  - This version of the tool automatically locates Google Earth in the right folder.
- Firewall and security settings for Internet must recognize WBCSD Global Water Tool as a trusted source. In order to avoid issues to display the maps and Watershed report, users should add an exception on their firewall:
  - gwt.wbcsdservers.org (online maps)
  - 54.169.49.193 (watershed report)
- Windows must be set up in English (US).
  - Go to “Control Panel”; region and language, and in “Formats” select English (United States)
How to use the new GWT?
Step 1: Install the tool on your computer

- In case you’re using a Proxy (if you are not using a Proxy, please ignore this function), please insert Proxy Name and Proxy Port in the Configuration tab (the last one) and save the tool.

- To check whether you are using a proxy:
  - Please open your browser, go to Internet Options / Connections / LAN Settings.
  - Check if the flag 'Use a proxy server for your LAN' is active. If it is active, address and port are the two values to be entered in the Configuration tab in tool.
Step 2: Familiarize yourself with the tool (1/3)

Input or paste your data in the Water Inventory input page

Compare your site locations with COUNTRY or WATERSHED water data

Reporting metrics: GRI, DJSI, Bloomberg, CDP Water

Generate map links to WBCSD mapping server

To build all the reports at once

Summary worksheets by WATERSHED

Instructions, definitions, help
Step 2: Familiarize yourself with the tool (2/3)

The Instructions tab summarizes the functionalities of the GWT and help users use them in the most effective way.

Actions (such as “Build”, “Clear”, etc.) are not Excel actions: they’re code fragments (like macros) and cannot be undone using the “back” button.

The Instructions tab summarizes the functionalities of the GWT and help users use them in the most effective way.

Actions (such as “Build”, “Clear”, etc.) are not Excel actions: they’re code fragments (like macros) and cannot be undone using the “back” button.
The Definitions tab provides a set of background information to clarify water terms and calculations, in particular for accurate reporting of water-related metrics.

For example: “Total freshwater consumed by facility” is the difference between freshwater intake and freshwater discharge. This is the freshwater:

- Evaporated for cooling purposes
- Evaporated from water storage facilities
- Lost via transmission
- Used directly in the organization’s products
- Onsite uses, including irrigation and road maintenance
Step 3: Input your information

1. Input or paste your data in the *Input Water Inventory* tab:
   - **To use data from an existing source**, click *Clear* to delete existing data and then paste your new data (new function 2015)
     • Please ensure that the country names pasted match the country names on the drop list.
   - **To enter your data manually**, click on an empty cell under *Site Name* column to add a new row (you can safely delete unused rows).
     • The *Add new* button lets you enter site details by using a data form with an internal geocoder. Click on "Geocoder" to find the coordinates (latitude/longitude) after entering your address.
     • The site ID can be inserted as number or text.

2. Once you have entered your data, **click *Set*** on the top of the page to process your data.

3. You can delete a row directly and then click *Set* to format the table.
The metrics calculated on Water Inventory Sheet are:

- Freshwater Withdrawal and Consumption;
- Non-Freshwater Withdrawal and Consumption;
- Total Water Withdrawal and Consumption;
- Freshwater Discharge;
- Non-Freshwater Discharge;
- Total Water Discharge;
- Recycling and Reuse.

The Global Reporting Initiative (GRI) was used as a basis for definitions to promote alignment.
Step 4: Water Metrics (2/2)
GRI G4 standard

- GWT uses Global Reporting Initiative’s G4 standard.

- The definitions enable reporting on GRI Indicators G4-EN8 (Total water withdrawal by source), G4-EN10 (Percentage and total volume of water recycled and reused), and G4-EN22 (Total water discharge by quality and destination).
  - At this time, Indicators G4-EN9 “Water sources significantly affected by withdrawal of water” and G4-EN26 “Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization’s discharges of water and runoff”, are not addressed in this tool due to the complexity of obtaining detailed local water information.

- Any of the information generated with this tool can form part of a GRI-based report.
  - For example, while GRI does not request “total water consumption”, organizations may choose to include this in their GRI-based report to complement the GRI Water Indicators.
  - Similarly, GRI requests total figures for the entire organization. However, organizations may also wish to provide a breakdown by site, region or operation type, if it will provide appropriate context on significant impacts.
Step 5: Output Country data table (1/4)

- **Country Report:** Click to go to Output Country Data sheet. Click Build to generate the Output Country Data and Combined Metrics Country report.
- **Any time you make changes on the Input Water Inventory page,** you will need to click the Build button again to regenerate the report.

General information: Country, Site name, Operation type, and Water Inventory (Total Freshwater Consumption and Total Water Consumption) – sorted by scarcity level.
Step 5: Output Country data - indicators (2/4)

- **FAO Aquastat**
  - Total internal renewable – (IRWR);
  - Total internal renewable per person – (IRWR/person);
  - Total external renewable – (actual);
  - Total renewable – (actual) (TRWR);
  - Total renewable per person – (actual) (TRWR/person);
  - Projected total renewable per person (actual) (TRWR/person) – 2025 and 2050 m3/person/year;
  - Dependency ratio;
  - Agricultural water withdrawal as part of total water withdrawal;
  - Municipal water withdrawal as part of total water withdrawal;
  - Industrial water withdrawal as part of total water withdrawal;
  - Total water withdrawal per person;
  - Total freshwater withdrawal (surface water + groundwater);
  - Total freshwater withdrawal as % of TRWR;
  - Desalinated water produced.

- **WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP)**
  - Population total;
  - Urban population;
  - Rural population;
  - Proportion of total population served with improved water;
  - Proportion of Urban population served with Improved Water;
  - Proportion of Rural population served with Improved Water;
  - Proportion of Total population served with Improved Sanitation;
  - Proportion of Urban population served with Improved Sanitation;
  - Proportion of Rural population served with Improved Sanitation.
Population Division of the Department of Economic and Social Affairs of the UN Secretariat:
- Urban annual growth rate for 2015 – 2020

World Resources Institute (WRI)
- Baseline water stress: total annual water withdrawals (municipal, industrial, and agricultural) expressed as a percent of the total annual available flow. Higher values indicate more competition among users. It is calculated as Water withdrawals (2010) divided by mean available blue water (1950-2008);
- Inter-annual variability: variation in water supply between years. It is calculated as the standard deviation of annual total blue water divided by the mean of total blue water (1950-2008);
- Seasonal Variability: variation in water supply between months of the year. It is calculated as deviation of monthly total blue water divided by the mean of monthly total blue water (1950-2008);

Projected Change in Water Stress 2020, 2030, 2040 data will be included in the GWT when released by the WRI.

For each indicator (baseline water stress, seasonal and inter-annual variability), WRI offers the results at three different scales: sub-catchment, country and river basin. The result for any given indicator at any given location varies based on the scale at which the indicator is measured. WRI gives the example of Pretoria, facing Extremely High Water Stress when using the sub-catchment scale, high water stressed when looking at the country score, low water stressed when using the river basin scale (Orange River Basin).

GWT includes the country and sub-catchment scales. The Output Country tab aggregates data by country, using the country scale.
Step 5: Output Country - combined metrics (4/4)

- For all sites and each value chain type the following graphs are available:
  - Total renewable water resources per person (FAO) + Projections for 2025 and 2050
  - Total water withdrawal per person (FAO)
  - Dependency ratio (FAO)
  - Industrial water withdrawal as part of total (FAO)
  - Population served with improved water (WHO / UNICEF)
  - Population served with improved sanitation (WHO / UNICEF)

**Available blue water:** available blue water is the total amount of water available to a catchment before any uses are satisfied. Calculated as all water flowing into the catchment from upstream catchments plus any imports of water to the catchment minus upstream consumptive use plus runoff in the catchment.

**Total blue water:** total blue water for each catchment is the accumulated runoff upstream of the catchment plus the runoff in the catchment.
Step 6: Output Watershed data table (1/2)

**Watershed Report:** Click this button to go to Output Watershed Data sheet. Click **Build** to generate the Output Watershed Data, Combined Metrics Watershed, Dashboard, and Geographical Summary reports.

**Indicators displayed at the watershed level:**
- Annual renewable water supply per person (1995 and 2025) (WRI)
- Biodiversity hot spots (Conservation International)
- Baseline water stress
- Inter-annual variability
- Seasonal variability

For each indicator (baseline water stress, seasonal and inter-annual variability), WRI offers the results at three different scales: sub-catchment, country and river basin. **The result for any given indicator at any given location varies based on the scale at which the indicator is measured.** GWT includes the country and sub-catchment scales. The **Output Watershed tab** aggregates data by watershed, using the sub-catchment scale.
For all sites and each value chain type the following graphs are available:

- Annual renewable water supply per person (1995 and 2025) (WRI)
- Biodiversity hot spots (Conservation International)
- Production by Annual Renewable Water Supply (actual) (m3/person/year) (Projections for 2025) (WRI, Projections for 2025)
Step 7: Output water metrics pages GRI, Bloomberg, CDP Water and DJSI

- The output section includes also to create key water reporting indicators.

### Note:
Click **Build** on each Metrics sheet to generate GRI, Bloomberg, CDP and Dow Jones Metrics. Any time changes are made on the **Input Water Inventory** page, you will need to click **Build** again to generate a new report.
Step 8: Summary output – dashboard (1/2)

- After running the Output Watershed Reports, the Dashboard is automatically generated with an overall summary for all sites and each operation type (freshwater consumption, total water consumption…).
- Any time changes are made on the Input Water Inventory page, Watershed Reports must be run again in order to update the Dashboard.
- After running Output Watershed Reports, the **Geographical Summary** is automatically generated with a regional breakdown view;
- Any time changes are made on the **Input Water Inventory page**, Watershed Reports must be run again in order to update the **Geographical Summary**.
- Water availability calculations are based on Annual Renewable Water Supply (actual) (m3/person/year) (Projections for 2025);
Step 9: Global visualization of the sites

- **Generate Map:** Click to map your sites on the GWT mapping application. Data is displayed on the web using the mapping application and not stored.
- The user needs to select an **Operation Type** for a site from the drop down menu on the Input Water Inventory page to map sites, otherwise the sites will not be presented.
Step 9: View options, including different maps

Tick the box to select the map

Click on + to view the legend
Country-specific maps are provided, together with the related indexes.

- Total renewable water per person (FAO)
- Projected total renewable water per person 2025 (FAO)
- Projected total renewable water per person 2050 (FAO)
- Water withdrawal per person (FAO)
- Industrial water withdrawal as part of total (FAO)
- Dependency ratio (FAO)
- Population served with improved water (WHO / UNICEF)
- Population served with improved sanitation (WHO / UNICEF)
- Baseline water stress (WRI)
- Inter-annual variability (WRI)
- Seasonal variability (WRI)
Watershed maps are provided, together with the related indexes.

- Annual renewable water supply per person 1995 (WRI)
- Projected annual renewable water supply per person 2025 (WRI)
- Environmental water scarcity index (IWMI)
- Physical and economic water scarcity (IWMI)
- Biodiversity hot spots (Conservation International)
- Baseline water stress (WRI)
- Inter-annual variability (WRI)
- Seasonal Variability (WRI)
Step 9: Focus on the Biodiversity data layer

- **Just like managing water**, managing biodiversity or ecosystem-related issues **globally** requires an understanding of a company’s ecosystem impact & dependence **locally**. In addition, mapping areas of water scarcity/stress which are in proximity to, or overlap with, areas of biodiversity importance is of business value for recognizing and managing these combined risks.

- The addition of **biodiversity hotspots** data enables a first macro-level assessment providing the context to a site specific evaluation of impacts and dependencies.

- By clicking on “Watershed report” on the Start page, your site locations will be linked to Conservation International’s **biodiversity hotspots** data, informing you of:
  - How many of your sites are in a **biodiversity hotspot** (in a chart),
  - Which sites are in a **biodiversity hotspot** (in the Excel sheet),
  - Where are all your sites on a **biodiversity hotspot** map (using the mapping function).
Understanding the results requires some background on how a biodiversity hotspot is defined.

To qualify as a hotspot, a region must meet two strict criteria:
- it must contain at least 1,500 species of endemic vascular plants (0.5% of the world’s total),
- and it has to have lost at least 70% of its original native habitat.

Therefore, it is a representation of both high biodiversity value / endemism and high threat.

34 biodiversity hotspots have been identified - between them they contain around 50% of the world’s endemic plant species and 42% of all terrestrial vertebrates. 86% of their original habitat has already been lost.

These rather broad regions are not a detailed representation of the total biodiversity or ecosystem status or value at a fine scale location. Not being in a hotspot does not necessarily mean the area is not of interest, or vice versa.

The additional data layer aims to prioritize sites that have a higher chance of being within ecosystems of interest and should be looked at in more detail by subsequent assessment at a local scale.
- A wealth of finer scale information relevant to specific locations is available for many areas to support more detailed assessment and planning (e.g. via sources such as the Integrated Biodiversity Assessment Tool for business).
Step 10: Google Earth interface – global perspective

With Google Earth, data and info are mapped spatially, which allows to double-check in real time the situation of a specific site.

For personal use, download the free version of Google Earth (Version 5.0 or above) application from [www.google.com/earth/download/ge/agree.html](http://www.google.com/earth/download/ge/agree.html).

For commercial use, purchase the Google Earth Pro or other business version from [www.google.com/earth/businesses/](http://www.google.com/earth/businesses/).
Step 10: Zoom in – real impressions

- Are you near a river / lake / sea?
- Are you in a densely-populated area?
FAQs answer questions related to...

Software and system requirements
Data entry
Technical issues


We welcome feedback on the use and value of this tool to your company.
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