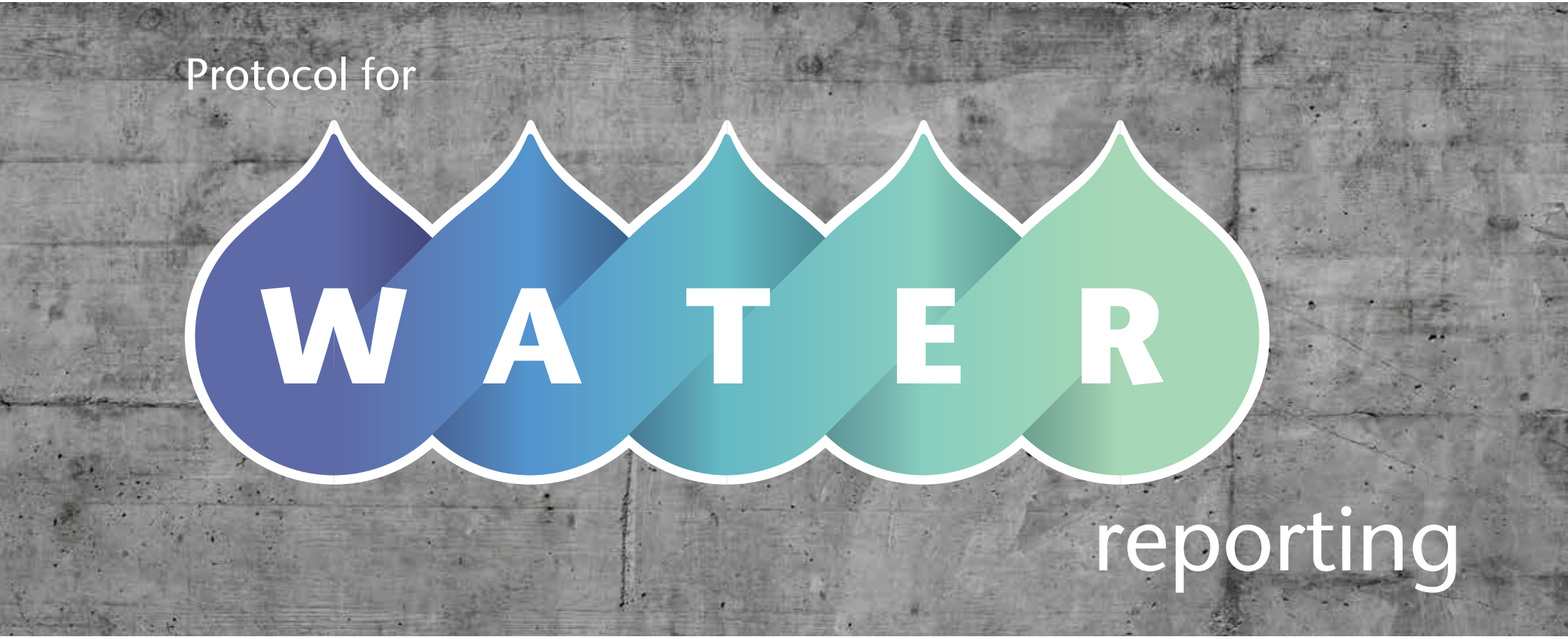
business solutions for a sustainable world



Cement Sustainability Initiative

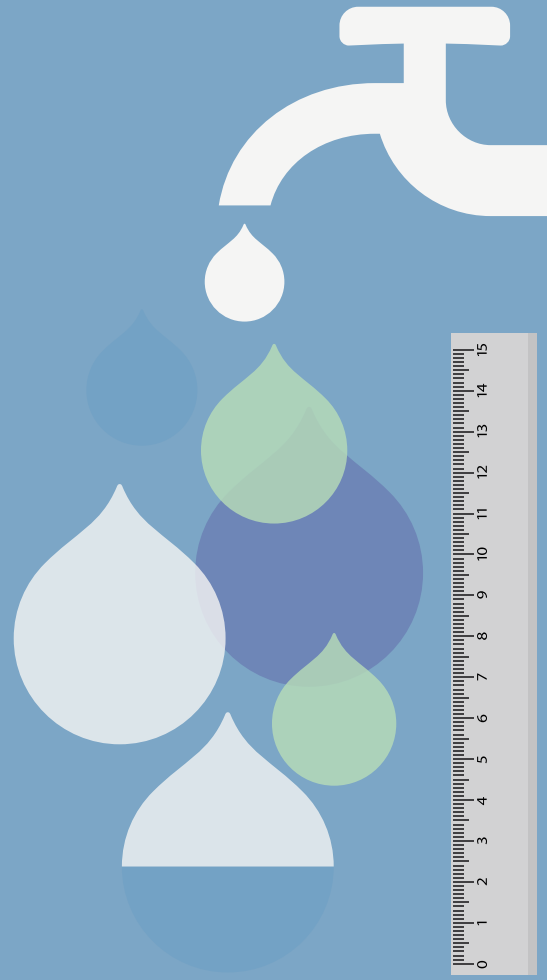
wbcsd

Background & objectives

Freshwater is becoming increasingly limited in a large part of the world. Growing population, increasing industrial and agricultural activities in new markets and pollution and climate change impacts are combining to put unprecedented stress on local water resources.

Water scarcity can lead to practical and business risks for a wide range of companies and sectors, including the cement industry. These risks can be addressed through the implementation of a comprehensive water management strategy, which can both mitigate water scarcity risks and provide benefits for stakeholder relations. In order to implement water management measures and to meet stakeholders' expectations, water data need to be credible, relevant and easy to understand. This requires the consistent use of metrics, terminology and definitions.

The Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD) has developed this ***Protocol for Water Reporting***[1] (herein referred to as "the Protocol") primarily for water reporting in cement plant operations, but which can also be used in aggregate installations and ready-mix concrete operations. Both the Protocol, which is presented in this document, and the CSI's ***Guidance on Good Practices for Water Accounting*** detail metrics, terminology, definitions and guidance for water accounting and serve as a reference for CSI member companies as well as stakeholders. More specifically, the Protocol encompasses the site data required for disclosure and/or benchmarking based on the nature of operations.[2] ***The Global Water Tool for the Cement Sector***[3] (GWT for Cement Sector) is a sector-based customization of the WBCSD Global Water Tool (GWT). It was developed to support member companies reporting the CSI Indicators for water, which are specified in the Protocol outlined below, in addition to other information detailing water measurement and recording.



Global Water Tool®

for the Cement Sector

1. The Protocol has been reviewed by stakeholders including members of the WBCSD Water Project and the European Aggregates Association (UEPG).
2. The specific reporting requirements for cement plant operations, aggregate installations and ready-mix concrete operations are described in the sections below on "Perimeter" (what should or should not be included for site disclosure and benchmarking) and "What and how to report".
3. The customized GWT for Cement Sector was developed by CH2MHILL in collaboration with WBCSD and piloted by members of the CSI. The GWT for Cement Sector compares company water use with validated water, sanitation, population and biodiversity information. It establishes relative water risks in a company's portfolio in order to prioritize action. The tool provides the data required for water reporting indicators as defined by the CSI as well as other metrics, such as the Carbon Disclosure Project, Global Reporting Initiative, Dow Jones and Bloomberg.

Water withdrawal - Water discharge = Water consumption

Total **water withdrawal** by source (G4-EN8)	minus	Total **water discharge** by quality and destination (G4-EN22)	equals	**Total water consumption (GWT for Cement Sector)**	**Percentage of sites with a water recycling system (GWT for Cement Sector)**
The sum of all water drawn into the boundaries of the reporting organization from all sources (including surface water, groundwater, quarry water used, municipal water, external wastewater, harvested rainwater) for any use over the course of the reporting period.		The sum of water effluents discharged over the course of the reporting period to ocean, surface, subsurface/ well, off-site water treatment, and beneficial/ other use through a defined discharge point (point-source discharge), over land in a dispersed or undefined manner (non-point source discharge), or wastewater removed from the reporting organization via truck. Domestic sewage discharge is added to G4-EN22 total water discharge effluents according to this Protocol.		The water evaporated for cooling purposes, the water evaporated from water storage facilities, **the water lost via transmission**, the water incorporated in the organization's products and on-site uses. Water consumption removes water from a system and makes it unavailable for further use. The **total water consumption** includes rainwater harvested on-site for any use; it differs from **total freshwater consumption**, which excludes harvested rainwater; both are included in the GWT for Cement Sector.	The total number of sites with a water recycling facility, divided by the total number of sites, expressed as a percentage. For aggregate operations, the last indicator above is comprised of the following two indicators: • Percentage of sites with a water process: The total number of sites using water for aggregate production (including wet screening and aggregate washing) divided by the total number of sites; • Percentage of sites with a water recycling system: The proportion of sites using water for aggregate production that have recycling facilities.

Perimeter

The perimeter of the indicators has to be set precisely. This will depends on the use of data, which would be either for disclosure or benchmark.

Option 1

Data disclosure

An approach by site should be implemented, in which water indicators are reported for all of the businesses operated on the sites or premises (cement, aggregate or ready-mix concrete).

Option 2

Benchmark

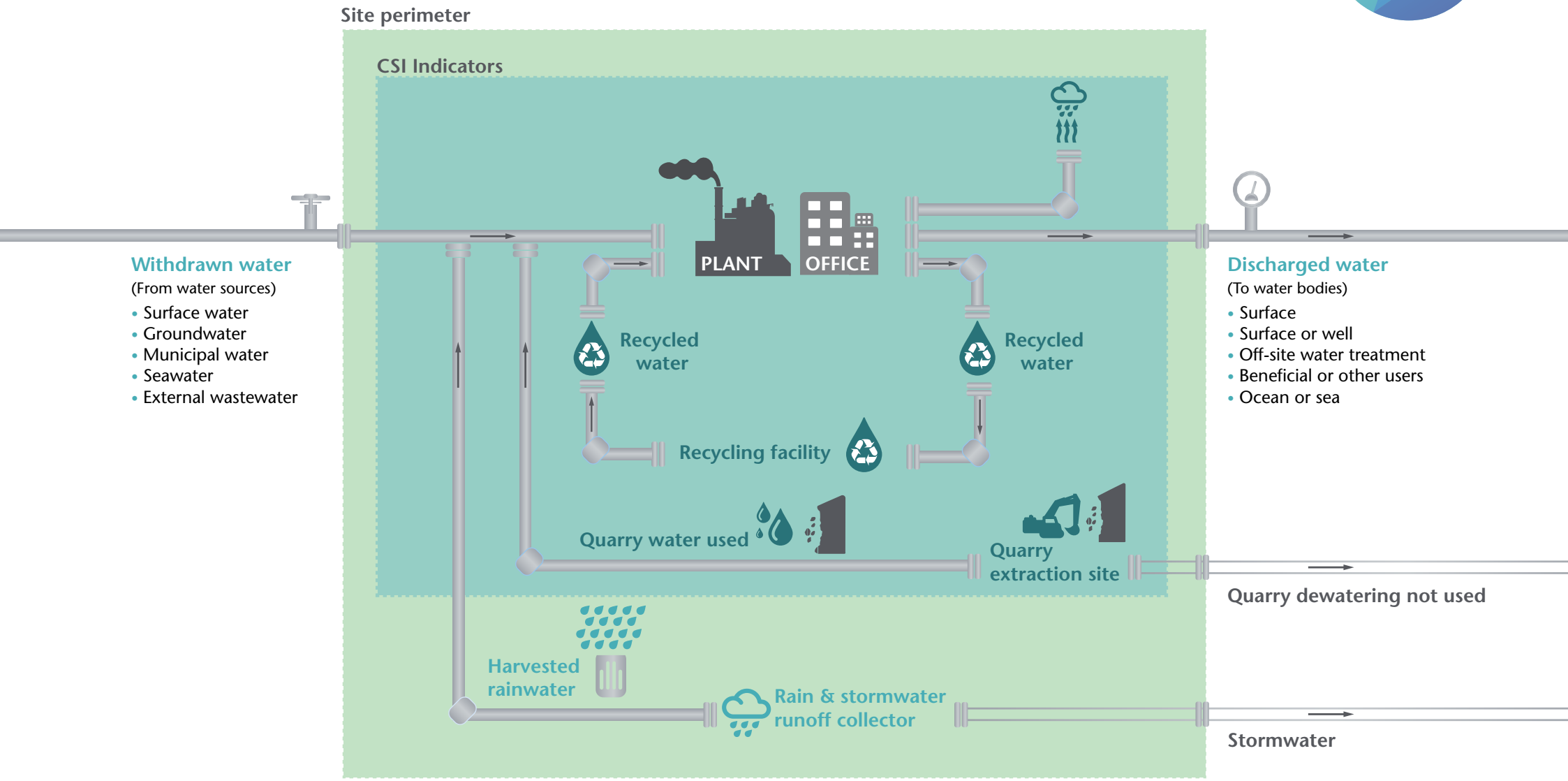
An approach by business (cement, aggregate or ready-mix concrete) should be implemented, in which:

- Water indicators are reported solely for the business considered, be it cement, aggregate or ready-mix concrete. On sites or premises with various activities, the activities external to the business covered should be excluded (e.g., in a cement plant, the water used to produce ready-mix concrete or aggregate would be excluded).
- Where the water network of a cement plant and a quarry are connected (i.e. the cement plant is located on the quarry), the water indicators should cover both the cement plant and quarry operations; otherwise water for quarry operations should be excluded. In the same way, where the water network of an aggregate installation for wet screening or aggregate washing and a quarry are connected, the water indicators should cover both aggregate installation and quarry operations. Nevertheless, the water indicators may be reported separately according to each company's decision.
- Housing and dormitories (if any) should be excluded from benchmarking but may be reported separately for site disclosure according to each company's decision.

Data disclosure and benchmark

- The site should be considered in its entirety. For cement plants, this includes departments for crusher (if any), raw meal, finish mill, dispatching, as well as kiln system, maintenance workshops, general services, offices, and amenities for workers and green areas. For an aggregate installation, this should include crushing (if any), screening, aggregate washing (if any), dispatching, offices and amenities for workers.
- All water use on the site should be considered as follows:
  - Cement plants: slurry for wet process or granulation for the semi-dry or semi-wet process, cooling the off-gases, off-gases treatment system (i.e., wet scrubbers), cooling the mechanical equipment and the materials (e.g., in cement coolers), and watering the materials;
  - Aggregate installations: wet screening, aggregate washing and watering the materials;
  - Ready-mix concrete: concrete;
  - Non-process use (applicable in cement plant, aggregate installation and ready mix concrete): cleaning and washing equipment and trucks, watering the roads to control dust and the green areas, general services (e.g., compressors, boilers), offices, amenities for workers;
  - Losses through the distribution network should be considered as well.
- Where a power plant (namely a captive power plant) is located on the same premises as a cement plant, the water indicators should be reported separately, but the systems for waste heat recovery, which is included in the cement process, should be reported with the cement plant.

Diagrammatic representation of site perimeter and associated CSI Indicators



What & how to report

Each company may choose to report the CSI Indicators for water, using the GWT for Cement Sector or any other reporting tool meeting the provisions of the Protocol.

Water withdrawals and water discharge should be reported for the water sources and bodies[4] presented in annex 1. Total water withdrawal, water discharge and water consumption should be reported in cubic meters per year (m^3/yr). In addition, each company may choose to report the CSI Indicators for water in cubic meters (or liters) per unit of product.

Water discharge volumes could be accompanied by water quality parameters specific to the businesses covered. Total suspended solid (TSS) and pH are recommended quality parameters for cement, TSS for aggregate, and pH for ready-mix concrete. It is the decision of each company to report these water quality parameters, and/or to add other water quality parameters. No specific water quality parameter is recommended in the Protocol for the discharge of domestic sewage.

Water already used once for process or non-process purposes and used again is considered **recycled water.** It includes both water reused for the same purposes (e.g. in a closed cooling loop for cement or in a washing process for aggregate) and water reused for different purposes (e.g. cleaning equipment and trucks, road maintenance and irrigation). A water **recycling installation** is a tank, a pool or a settlement lagoon, artificial or natural, located on the site in which water is returned and used again. It does not have to be impermeable. A settlement lagoon opened to any surface water body (e.g. river, lake) is not a recycling installation. The existence of a recycling installation should be reported.

Water returned to a recycling installation and used again (i.e. recycled water) is not water withdrawal, discharge or consumption according to this Protocol, although the water added (i.e. make-up water) to recycled water should be included as water withdrawal according to the Protocol.

Pumping water from a quarry to lower the water level in the quarry in order to obtain a dry area is **quarry dewatering**. The water collected in the quarry could be from rain, ground and/or surface. The portion of water from quarry dewatering used on site should be reported as **"quarry water used"** and should be included as water withdrawal. The portion of water from quarry dewatering that is not used should be reported separately as **"quarry water not used"**.

Rainwater collected and used on the site is considered **harvested rainwater**. It should be reported as such and be included as water withdrawal. A company may decide to report rain and stormwater runoff collected and discharged without being used as '**stormwater**'. In this case, it should be reported separately and should not be included as water withdrawal, discharge or consumption according to the Protocol.

The identification and quantification of major water consumption items within the process should be encouraged. Water consumption figures should be measured or calculated referring to the ***Guidance on Good Practices for Water Accounting.*** Depending on the situation, **water discharge** could be the balance between water withdrawal and water consumption.

4. Sources and bodies are identified in the GWT for Cement Sector.

What installation and format

To set organizational boundaries on reporting of CSI Indicators for water defined by the Protocol, a company can choose one of the following options:

- Equity share approach;
- Control approach (operational or financial);
- A combination of both.

A company should clearly state in its public reporting which method it applies and the exact scope of what is reported. The Protocol applies definitions as outlined in the ***WRI/WBCSD Corporate Greenhouse Gas Reporting and Accounting Standard.*** A new or acquired entity/facility/ installation has to comply with the Protocol in the second year after the year in which the first clinker, cement, aggregate or ready-mix concrete was produced, or the year it was acquired at the latest. The closed or sold entity/ facility/installation may be excluded from the Protocol for the whole year of its closure or selling.

Water metrics (CSI indicators for water and other data) may be reported using the customized GWT for Cement Sector or any other reporting tool meeting the provisions set in the Protocol.

Data assurance

Water flows should be determined and monitored as described in the ***CSI Guidance on Good Practices for Water Accounting.***

It is a company's decision to install water measurement devices on water withdrawals, water discharges and the main water consumption points, using a balanced water approach and giving priority to sites in water stressed areas and/or to the sites where water risks have been identified.

In order to establish a standard assurance method and increase the transparency, reliability and accuracy of reporting the CSI indicator for water to stakeholders, the water indicator should be independently assured in accordance with the following requirements:

Item	Requirement
Assurance level	Limited assurance at corporate level
Assurer reputation	The assurer must be a recognized, independent third party assurance practitioner
Scope of assured data	CSI indicator for water: Total water withdrawal by source G4 EN8 for cement plant
Frequency of assurance	Once every 2 years, assuring data from current and previous years
Coverage of sites	To be defined by assurer with number of business units and sites examined stated explicitly, and percentage of indicator covered
Assurance standard	Assurer must use the International Standard on Assurance Engagements (ISAE) 3000 (ISAE 3000) (or equivalent) and the Protocol, explicitly citing their use in the assurance letter
Materiality threshold	5%
Assurance statement	The assurer must provide to the CSI member with an assurance statement summarizing the conclusions about the indicator and explicitly mentioning the use of the CSI Protocol and Guidance Documents, the number of sites examined, and the corresponding percentage of the indicator covered

Annex 1

Explanation of water sources and bodies

Water withdrawal – freshwater sources

- Surface water[5]: water from rivers, lakes, natural ponds
- Groundwater[6]: water from wells, boreholes, etc.
- Quarry water used[7]: water collected in the quarry and used on-site
- Municipal/potable water[8]
- External wastewater

Harvested rainwater

- Water collected, stored and used for process and non-process purposes

Water withdrawal – non-freshwater sources

- Seawater: water extracted from the sea or the ocean,
- Surface water: brackish or saline source[9]
- Groundwater: brackish or saline source[10]
- Quarry water used[11]: water collected in the quarry and used on-site
- External wastewater

Water discharge – freshwater discharge by receiving body

- Ocean
- Surface
- Subsurface/well
- Off-site water treatment
- Beneficial/other user

Water discharge – non-freshwater discharge by receiving body

- Ocean
- Surface
- Subsurface/well
- Off-site water treatment
- Beneficial/other user

Water sources not used – memo items

- Quarry water not used: water collected in the quarry and discharged without being used
- Stormwater: water from rain and storm runoff collected on the site and discharged without being used

5. Includes sources located on and outside the site.
6. Includes sources located on and outside the site.
7. Could be water from rain, ground and/or surface.
8. Includes water purchased from public grid and third parties.
9. Includes sources located on and outside the site.
10. Includes sources located on and outside the site.
11. Could be water from rain, ground and/or surface.

References

Global Reporting Initiative (GRI), G4 Sustainability Reporting Guidelines 2013: www.globalreporting.org/reporting/g4

Global Water Tool for the Cement Sector, October 2013: www.wbcsdcement.org/GWT-cement

About the Cement Sustainability Initiative (CSI)

The Cement Sustainability Initiative (CSI) is a global effort by 24 leading cement producers with operations in more than 100 countries. Collectively these companies account for around 30% of the world's cement production and range in size from very large multinationals to smaller local producers. All CSI members have integrated sustainable development into their business strategies and operations as they seek strong financial performance with an equally strong commitment to social and environmental responsibility. The CSI is an initiative of the World Business Council for Sustainable Development (WBCSD).

www.wbcsdcement.org/water

About the World Business Council for Sustainable Development (WBCSD)

The World Business Council for Sustainable Development is a CEO-led organization of forward-thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment. Together with its members, the Council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the Council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its 200 member companies, which represent all business sectors, all continents and a combined revenue of more than $7 trillion, to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.

www.wbcsd.org

Disclaimer

This publication is released in the name of the WBCSD. Like other WBCSD publications, it is the result of a collaborative effort by members of the secretariat and senior executives from several member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the majority view of the WBCSD membership. It does not mean, however, that every member company agrees with every word.

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