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The CEO Water Mandate and Corporate Water Reporting

A content study assessing the quality of corporate sustainability reporting by participating companies to the UN Global Compact initiative on water

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Problem description

Purpose:

The purpose of this study is to develop methodology for evaluation and analysis of the reporting system from companies endorsing the CEO Water Mandate as part of their commitment to UN´s Global Compact and advancement of global water stewardship.

Content:

1. Conduct a literature review of global initiatives, reporting practices and research related to corporate water stewardship and water governance.

2. Develop a theoretical framework for evaluation of reporting practice to the UN´s Global Compact initiative The CEO Water Mandate.

3. Give an overview and analysis of the practice of corporate reporting to the CEO Water Mandate on water use and water stewardship.

4. Give recommendations of how the reporting system can be improved in terms of corporate water management in order to meet goals of sustainable development.

The master thesis will be carried out in cooperation with DNV GL, where Cecilie Hultmann (Senior Consultant Group Sustainability) is the contact person and external co-supervisor.

Preface

This study is a master thesis of MSc in Industrial Ecology at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. It was conducted spring 2015, with the Department of Industrial Economics and Technology Management under the supervision of associate professor John Eilif Hermansen, with co-supervision by Cecilie A. Hultmann at DNV GL in Oslo, Norway.

Parts of this study contributed to a report by DNV GL (DNV GL 2015), on behalf of the United Nations Global Compact head office in New York. The report, *IMPACT: Transforming Business, Changing the World*, was launched on 26 June 2015, in New York City, during the event "Global Compact +15: Business as a Force for Good".

First of all I extend my appreciation for the supervision and support John Eilif Hermansen has given me during the sometimes-challenging efforts of writing this thesis. I would also like to express my gratitude for the inspiration and generosity of my co-supervisor Cecilie A. Hultmann and Bjørn Haugland (Chief Sustainability Officer) at DNV GL, Oslo. Thank you also to the wonderful and spirited project team at DNV GL offices at Høvik and in London for being so welcoming.

Finally I would like to thank friends and family for all their support and patience, and for reminding we were always tougher than our challenges.

Kristine Marie Berg
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Abstract

Climate change paired with global growth of populations and economies demands improved water resource governance. Freshwater is irregularly and unevenly distributed in a global context. The environmental and social impacts from trading water either for direct consumption, or as an indirect resource in production processes have alerted civil society, governments and corporations of the need for corporate water management. The CEO Water Mandate, which is a water initiative under the umbrella of the United Nations Global Compact, has since 2007 encouraged business leaders to measure and improve upon several aspects of freshwater in their respective companies and industries, not only in direct operations but also how water withdrawals are affecting local communities and ecosystems. This study describes concepts and corporate reporting practices that relate to water. It also provides a method for assessing the quality of such reporting in order to give recommendations for improvements of corporate reporting practices.

The study first introduces the topic, followed by a description of methods and materials used to answer the research questions. The theoretical framework presents concepts and initiatives that relate to water as a global resource, and corporate management practices aimed at tackling the challenges of water. The CEO Water Mandate is presented briefly, and the content of the reporting published by the companies that endorse the Mandate is analyzed in light of quality indicators the theoretical framework. Content analysis is applied to link the corporate reporting on water to the global challenges of water. The result of this study is a set of recommendations for improving the corporate water reporting, and hence the management practices, of water-intensive, global industries.

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List of abbreviations

AWS - Alliance for Water Stewardship

CDP - Carbon Disclosure Project

CSR - Corporate Social Responsibility

EPD - Environmental Product Declaration

GEMI - Global Environmental Management Initiative

GRI - Global Reporting Initiative

IPCC - Intergovernmental Panel on Climate Change

ISO - International Organization for Standardization

LCA - Life Cycle Assessment

NGO - Non-governmental Organization

UNESCO - United Nations Educations, Social and Cultural Organization

UNGC - United Nations Global Compact

WF - Water Footprint

WFN - Water Footprint Network

WWAP - World Water Assessment Programme

WWF - World Wide Fund for Nature

1 Introduction

> *"Unsustainable development pathways and governance failures have generated immense pressures on water resources, affecting its quality and availability, and in turn compromising its ability to generate social and economic benefits."*
>
> UN World Water Assessment Programme (2015)

Water is everything. Water is imperative for human health, for food and energy security, for industry, cities, and for socio-economic development. Anthropogenic activities are putting pressure on the long-term sustainability of water resources, by diverting rivers and preventing shared access, by over-abstracting aquifers that are not replenished fast enough from precipitation, or by jeopardizing the viability of ecosystems due to pollution (WWAP 2015). Climate change, population growth, economic growth and urbanization all link in to water in numerous and complex ways. For global development to be sustainable, it requires good water resource governance and equal distribution of its benefits (ibid). The CEO Water Mandate is part of the United Nation´s efforts towards achieving global sustainable development.

Global water demand is expected to exceed supply by 40 percent by 2050 (WWAP 2012). The Intergovernmental Panel on Climate Change (IPCC) predicts that climate change will significantly changes freshwater systems, and that availability and quality of water will be one of the main issues and pressures on environment and society (Morrison et al. 2009b). The increasingly complex and global nature of value chains increasingly results in trade-offs between environmental impacts, and good water management requires methods for understanding and mitigating these impacts (Chapagain 2006).

Corporate environmental reporting has in the past decade or so focused mostly on carbon emissions and their global impacts (CDP 2015a; Daniel & Sojamo 2012). More recently, water has become a focal point for business and human rights alike, particularly where these intersect (The CEO Water Mandate 2015b; World Economic Forum 2015). Water impacts behave differently from atmospheric carbon emissions, and contrary to fossil energy sources, water cannot be substituted. Thus, corporate reporting on water needs to be understood in terms of its quality in order to uncover what constitutes good resource governance, and to what degree this governance is achieved. Based on relevant theory, this study aims to

quantify content and in turn assess quality of the corporate reporting practices of the CEO Water Mandate.

This results of this study have contributed to the report *"IMPACT: Transforming Business, Changing the World"* (DNV GL 2015), which was prepared by DNV GL on behalf of UN Global Compact and launched June 26, 2015.

1.1 Background

Water is becoming an increasingly globalized resource. As it is also a critical resource, some would argue more critical than oil, water interdependencies and trade mechanisms are unavoidable. Addressing the need for global, collective action to promote and ensure sustainable development and human security, the United Nations Millennium Development Goals (MDGs) were launched in 2000 – setting eight global goals to be achieved by 2015. These address poverty, hunger, environment, disease, health and collective action (DNV GL 2015). The United Nations Global Compact (UNGC) initiative is aimed at the actions of business towards achieving the MDGs. The CEO Water Mandate links into this structure as one of the UN initiatives on water directed at business.

The purpose of the DNV GL report to which this study contributed, is to take stock of achievements and developments on the Millennium Development Goals as these will give way to the new Sustainable Development Goals by the end of this year.

1.1.1 Water going global

> *"Humans are changing the global water system in a globally-significant way without adequate knowledge of the system and thus its response to change"*
>
> Vörösmarty et al. (2013)

The seventh Millennium Development Goal is to "Ensure environmental sustainability", under which there is an explicit target on water. This states that the aim is to "halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation" (UN Millennium Development Goals 2015). In 2015, the CEO Water Mandate (2015b) published a guideline on how companies could incorporate the human rights to water and sanitation into their strategies, practices and policies.

About 70 percent of water resources is saltwater or brackish water. Out of the remaining 30 that is freshwater, less than 1 percent is available for human consumption (Lambooy 2011). Human activities and climate change is in the process of altering the hydrological cycle, impacting how melting of snow and glaciers replenish rivers and aquifers, and impacting the transportation and destination of pollutants (Vörösmarty et al. 2013). "Peak water" is the term used to describe the situation where freshwater is consumed faster than it is replenished (Morrison et al. 2009a).

Water as a component of production and as an economic commodity is becoming increasingly embedded in global trade. This has raised questions about how to manage and price water, which is traditionally considered a common good under governance of the public sector. Business opportunities in water trade are causing the private sector to become increasingly involved in global water governance. Sales of bottled water alone were in 2007 worth $91 billion, as an example (Morrison et al. 2009b).

1.1.2 Water in industries

Global challenges of climate change, population growth and migration, and water are impacting value chains and production security. Water, energy and food are highly interconnected, making it virtually impossible for business, shareholders and stakeholders to neglect risks associated with water. Added pressure by increasingly frequent and stringent regulations as a response to challenges of over-abstraction and pollution is emphasizing the need for tools and resources for business to manage potential water risks (Cullet 2011; Morrison et al. 2009a).

Hoekstra & Chapagain (2003) quantified virtual flows of water in trade between nations in order to understand how water is indirectly traded as an element of production. This allows for assessment of how consumption of various goods and services impact water resources on a global scale. Industries with significant water footprints (i.e. total freshwater amount required for production of a commodity or service) are typically food producers, beverage producers, mining and metals refining, and notably textile production – the production of 250 grams of cotton requires 25,000 liters of freshwater (Ercin et al. 2011; Morrison et al. 2009b; Water Footprint Network 2011).

1.2 The CEO Water Mandate

The CEO Water Mandate was launched in 2007, and aims to engage a critical mass of business leaders to advance practices on water stewardship, by providing corporate disclosure guidelines that build business cases for more sustainable water management and collaborative efforts on global development (The CEO Water Mandate 2015d). As part of the UN Global Compact framework, it is structured as a public-private partnership for development, implementation and disclosure of principles and practices on corporate water management (Morrison & Schulte 2009). The six CEOs that initially endorsed the Mandate in 2007 were:

- E. Neville Isdell (The Coca- Cola Company)
- John Anderson (Levi Strauss & Co.)
- Martin Hagbyhn, (LäckebyWater Group)
- Peter Brabeck-Letmathe (Nestlé S.A.)
- Graham Mackay (SAB Miller); and
- Gérard Mestrallet (Suez).

Companies that choose to endorse the Mandate have to already be participants of the UN Global Compact, and they are required to annually report on their progress on six core elements. These are: (i) direct operations, (ii) supply chain management, (iii) watershed management, (iv) collective action, (v) public policy, and (vi) community engagement (The CEO Water Mandate 2015c). Transparency is also a core element, but is considered as an inherent aspect of all the other elements.

1.3 Research questions

The United Nations Global Compact´s head office tasked DNV GL to assess the impact of the Global Compact initiative has had in making business more sustainable since 2000. The present study contributed data on corporate water reporting of the CEO Water Mandate as part of the assessment of the Global Compact environmental principles. This study is unique in that it analyzes the quality of corporate reporting on water in such an in-depth manner.

Water as a critical resource and as a means for life, business and planet to thrive, is subjected to increasing pressures from over-abstraction, unsustainable management, climate change impacts, and the global production of food and goods to meet needs of a rapidly increasing population. In 2015, possible and probable water crises are considered a top business risk. Simultaneously, the United Nations are revisiting the achievements of the Millennium

Development Goals since 2000 as these are about to expire and make room for the Sustainable Development Goals that are to be launched later this year.

The CEO Water Mandate is a high level, CEO endorsed initiative that puts sustainable water management and corporate water reporting on corporate agendas. The Mandate is one of several initiatives and organizations that seek to drive corporate reporting to meet the apparent needs of improved management practices in order to ensure stable and adequate water access for people and business alike. Achieving this requires focused, informative and high quality reporting that drives improvement of water management practices.

The present study will examine the corporate reporting on water of the companies that endorse the CEO Water Mandate, and provide a method for evaluating the reporting practices. The focus of the study is a holistic one, where the goal is to assess reporting, and thus also management, on water as a global resource in order to give recommendations for improvements. The study is structured along the lines of the follow research questions:

i. What are the current relevant management and reporting practices on water?
ii. How is water addressed as resource in light of global sustainable development?
iii. What do the CEO Water Mandate companies report on water?
iv. How can the quality of this reporting be assessed?
v. How does the content and quality of the reporting align with what´s necessary to tackle global water issues?

1.4 Purpose and structure of study

The purpose of this study is to examine the sustainability reporting on water management and water stewardship of the companies endorsing the CEO Water Mandate. By providing an overview of current frameworks and initiatives for water management in a global perspective, a method for assessing the quality of this reporting is developed. Measures of quality are deduced not only by the theoretical framework, but also by the levels of transparency and accountability of the data disclosure in the corporate reporting.

The structure of this study is as follows: chapter 1 has described a brief background on global water trends and issues in business and corporate responsibility, along with an overview of the CEO Water Mandate. Chapter 2 describes the methods and research design of this study. Chapter 3 provides an overview of global initiatives, concepts and management systems on water. Chapter 4 presents the method and outcomes of the empirical data assessment of the

corporate reporting, where the quality of the reporting is measured. Chapter 5 analyzes these outcomes in light of the theoretical framework, and how the corporate water reporting to the Mandate is performing in terms of successfully addressing global water challenges. Chapter 6 suggests recommendations for improvements of the reporting practices. Chapter 7 discusses the analysis and its results, while Chapter 8 finally provides concluding remarks and suggestions for further research.

2 Methods and materials

This study will assess corporate reporting on water by the companies endorsing the CEO Water Mandate. The following chapter describes the research design, and the process of data collection by applying content analysis to various types of sustainability reports. The chapter also outlines previous research and relevant literature for the theoretical framework of the study, which draws inspiration for structure from a similar master thesis at NTNU (Harildstad 2014). Finally the chapter discusses validity, reliability and possible ethical issues.

2.1 Research design

Content analysis was the method applied in order to analyze the CEO Water Mandate. This allows for structured generation of comparable data from the body of reporting that was selected for this study. Although this technique of research is perhaps most commonly applied to mass media communication, it serves the purpose of this study well in that is it designed to "quantify content [from documents and texts] in terms of predetermined categories and in a systematic and replicable manner" (Bryman 2012). It is also the most common method of research applied to assess corporate accounting in terms of social and environmental disclosure, as reported by Milne and Adler (1999).

Content analyses are often defined as means to quantify content into data. Berelson (1952) states that it *"*is a research technique for the objective, systematic and quantitative description of the manifest content of communication*"* . This is therefore a well-suited method for the purpose of providing a *quantitative* description of the content in the company reports. As summarized by Prasad (2008), content analysis is all about applying a set of explicit rules to a message, and in turn making valid, replicable, and objective inferences from the content of the message.

Beattie et al. (2004) characterizes this type of partial content analysis as a semi-objective, form-oriented approach, where text is scrutinized for specific items, ignoring sections not related to these. The documentation undergoing the analysis is the sustainability reporting on water management and water stewardship from the 132 companies that were registered as endorsing the Mandate in early 2015 (see Appendix C).

The research design follows an evaluative strategy, where the intended outcome is to provide useful, empirically-driven feedback to evaluate the utility of the CEO Water Mandate reporting practices (Bryman 2012). Data is collected from the publicly available corporate reporting on water. Relevant resources guide the evaluation of its utility in a holistic approach within the context of the global discourse on water stewardship.

2.2 Data collection and sampling

This study performs an assessment of publicly available, secondary data in corporate reporting. The data collected from the communication on water management and water stewardship to the CEO Water Mandate is analyzed in the context of relevant frameworks and research.

2.2.1 Literature and previous research

Sustainable water management is a massive field of practice and research. In order to emphasize relevant literature that relates to the CEO Water Mandate as a voluntary initiative on water management, the present study replicates a literature search from a previous study on water management and sustainability. The literature search is done mostly in the scientific database Scopus, using the keywords "Globalization" OR "CSR" AND "Water" AND "Sustainable management" (Harildstad 2014). This search generated 77 results in Scopus. By adding "Footprint" as Harildstad also did, the search was narrowed down to 10 documents. Out of these, four articles and books form the basis for the theoretical framework. These are *Corporate social responsibility: sustainable water use* (Lambooy 2011), *Water footprint scenarios for 2050: A global analysis* (Ercin & Hoekstra 2014), and *Globalization of water: sharing the planet´s freshwater resources* (Hoekstra & Chapagain 2008).

Harildstad (2014) further refers to the Fifth Assessment Report by Intergovernmental Panel on Climate Change (IPCC), and the United Nations World Water Development Report (WWDR), which is an annual report published by UNESCO. These are also considered important for approaching water issues in the present study. The international standards on environmental management systems and CSR, namely ISO 26000:2010 Social Responsibility and ISO 14046:2014 Water Footprint, are also considered important for the analysis. The Pacific Institute partners with UNGC in coordination of the CEO Water Mandate, and publishes articles and guidelines linking water and business. The same two articles used by

Harildstad in her study are also used in the present study: "*Water Scarcity and Climate Change"* (Morrison et al. 2009b), and *"Climate Change and the Global Water Crisis: What Businesses Need to Know and Do"* (Morrison et al. 2009a).

2.2.2 Content analysis

The analysis aims to extract relevant indicators and themes related to water management and water stewardship from the corporate reporting of the companies endorsing the Mandate. These companies commit to annually report on progress of their water management practices and improvements. Most of them issue reports annually, as per requirement of the Mandate´s Transparency Policy (The CEO Water Mandate 2008).

Performing content analysis requires a framework for coding of data. The present study does not conform entirely to previous research on corporate environmental reporting, so previously tested and applied coding frameworks were adapted to be coherent with the research questions. Coding frameworks, or schemes, must respect certain features, as defined by Bryman (2012):

- *Discrete dimensions*: dimensions must not overlap
- *Mutually exclusive categories*: likewise, categories must not overlap
- *Clear instructions*: avoiding misinterpretation on data requires clear definitions and explanations
- *Clarity about the unit of analysis*: this needs to be clearly expressed and coherent with the research question(s)

2.2.2.1 Sampling

Content studies can be applied to a variety of document types, thus the research problem is often formulated along the lines of "the representation of X in a given medium". This requires definitions of what media or texts, and what dates are relevant for the study (Bryman 2012). Sampling dates might be very well be dictated by a phenomenon of interest, such as specific events.

The sampling media for this study was pre-defined by the report by DNV GL (2015), that this study contributed to. The sample was defined as the corporate reporting on water from the companies endorsing the CEO Water Mandate. The data is collected from publicly available company sustainability reports, integrated annual reports, or from communication on progress to the CEO Water Mandate. Majority of the reports were found via company websites or from the database on participants of the United Nations Global Compact. Some

reports were sourced from the CEO Water Mandate´s own website (see Appendix C on overview of reporting). Due to the scope of the study, it was necessary to branch out from the Mandate website to obtain historical data. The reports provided by the Mandate website were often not the most recent ones, therefore supplementary sources of reports were necessary.

The sampling dates were based on the purpose of analyzing the impact of the CEO Water Mandate on water management practices since its launch in 2007. Thus, the sampling dates needed to be defined as between 2007 and early 2015, which is when this study was initiated. The impacts over time are defined as total water savings aggregated from all available data in reporting, and change in number of companies that disclose comparable data on water use indicators. The historical reporting is analyzed for this purpose, while the most recent reporting is used to collect all other data used in this study.

However, after gaining an initial overview of the content of the reporting it became clear that assessing impacts over time was not very useful. This was mostly due to generally low frequencies and quality of reporting on data on water withdrawals. This is also what lead to expansion of the assessment to include Category 3, in order to have as much data as possible that was relevant in terms of freshwater specifically.

The sampling dates are thus defined as: (i) the first corporate reporting (as defined in sampling media) from a given company after the registered date of endorsing the Mandate; and (ii) the most recent corporate reporting from a given company up until April 2015.

Overall, the following 4 dimensions had to be covered; (1) the sample should include all companies endorsing the Mandate in early 2015, where (2) the most recent and up-to-date reporting should be covered. (3) Reporting from when each company first endorsed the Mandate, and finally (4) whether reporting provides content on relevant water indicators from both the first and most recent reporting to the Mandate.

2.2.2.2 Units of analysis

Significant actors and themes are defined by the research questions under consideration (Bryman 2012). Most social and environmental content analyses use sentences as unit measure for data generation on disclosure (Milne & Adler 1999). However, this study is particular in that it does not assess the environmental accounting as a whole, nor does it rely

on volume as a measure of disclosure. This study assesses the quality of content in the reporting on specific water relevant themes. Quality of disclosure is important, but difficult to assess. And great caution should be taken in assuming a positive relation between quantity and quality (Beattie et al. 2004). Measuring sentences, or words, is less useful in terms of evaluating the quality of disclosure – which is ultimately the goal of this study.

The actors of interest are already defined as the companies endorsing the CEO Water Mandate in early 2015. The content of interest considers previous research and existing frameworks on water management, but principally it is based upon documentation published by the CEO Water Mandate. Here the study draws upon another aspect of content analysis: that it might often be of equal interest what is not being reported on, as what is reported on (Bryman 2012). Particularly did this prove to be an important aspect in terms of the comparability of the data on in this study. Thus, the assessment focuses on the presence or absence of specific themes and indicators related to water management in the individual reports.

2.2.2.3 Coding framework

The units of analysis need to be coded according to explicit rules. This requires a set of categories into which the data can be coded. As reported by Stray (2008), the number of categories used in the coding schemes varies considerably with previous research on corporate social and environmental reporting. She notes, as does also Milne & Adler (1999), that as the number of content categories increases, so does the potential for inter-coder error (i.e. discrepancies between how different researches code the data).

Coding schemes have taken on many forms and directions with the continuous research into environmental and social accounting. Some have been based on Global Reporting Initiative (GRI) guidelines (Buhr 1998; Burritt & Welch 1997; Guthrie & Parker 1990; Patten 1991; Raar 2002); other researchers have developed their own (Wiseman 1982); or based their frameworks on previous research, as reported by Milne & Adler (1999).

Because the CEO Water Mandate guidelines do not offer any endorsement to particular frameworks for content in the reporting, the development of a coding framework was an adaptive process. By becoming familiar with the content of company reports the categories and codes were reviewed and adapted if necessary. This iteration between theoretical

perspectives and data continued until a stage of saturation – a process similar to that of Campopiano & De Massis (2014). The content framework is therefore based predominantly on relevant GRI and CDP indicators, with insights from other frameworks incorporated to ensure a holistic approach to water in a global context. The plateau of saturation for the present study was naturally influenced greatly by time limitations.

The content categories and coding descriptions used in this study are found in Appendices A and B respectively. The focus is primarily on the quality of disclosure of key indicators on water, rather than an assessment of the total water disclosure framework of the CEO Water Mandate. The coding of the categories is weighted, a method discussed by Beattie et al. (2004) and Bouten et al. (2011). This structure allows for ranking of partial and full disclosure, which became a key component in understanding the reporting. Different levels of meaningful transparency are synonymous to different levels of accountability, which in turn is a reflection of the quality of the reporting.

2.3 Validity and reliability

It is almost impossible to device a content analysis or a coding scheme without some level of interpretation by the coders (Bryman 2012). The matter of inter-coder reliability and consistency has received thorough attention by Milne & Adler (1999), and they express concern that this issue if often neglected in content research. Reliability of original data in one aspect, but the reliability of *measurement* must also be addressed. This is defined as the stability, reproducibility and accuracy of the coding instruments (Krippendorf 1980; Milne & Adler 1999), although there is no one universally accepted measure to test these (Stray 2008).

A single researcher, who is not an expert coder, undertook coding for the present study. Testing for inter-coder reliability and consistency was made difficult by time limitations. This increases the risk of reduced reliability, particularly with a relatively inexperienced coder. However, as discussed by Milne & Adler (1999), this is not necessarily an issue as only a minimum of familiarization with the method is required to perform the coding in a sufficiently reliable manner. And as previously mentioned, well-specified decision rules and categories may also improve on this risk to reliability, particularly when these rules and categories build upon the foundation of already used and tested coding schemes. Stray (2008) argues that limiting the number of categories for coding mitigates the problem of inter-coder

reliability, although this number should not be so small that the categories become too general to be meaningful. The present study follows her example.

Validity of research is concerned with the quality and integrity of the inferences we make from the research (Bryman 2012). It describes to what degree the observations made actually measure what the research questions asks for. Internal validity relates to how well observations made connect to the theories developed from these. External validity is concerned with whether it is possible to generalize findings from a study beyond its specific context. The internal validity of the present study is strengthened by using the very frameworks for reporting used by many of the companies in the coding of data. Given that these frameworks are not specific to the CEO Water Mandate but are global initiatives on water management and stewardship, the albeit limited sample of corporate reporting in this study might be useful in the context of global water challenges as a whole.

2.4 Limitations of research

The present study only analyzes the corporate reporting of the companies that endorsed the CEO Water Mandate in early 2015. This composition has naturally changed over time, and no efforts have been made to perform equal assessment of historical reporting as with current reporting.

Some companies that endorsed the Mandate in 2014 had by early 2015 not yet published reporting. This can be attributed to when the study was started – as many companies align sustainability reporting with annual reports, which typically are published in the late first six months of the year. Performing the study at a later date might have addressed this limitation. There is also variation in what types of reporting are used for this study, which also means variation in content (Stray 2008). This would be increasingly relevant if environmental reporting as a whole was analyzed, and not only specific indicators on water management. Also, this study does not attempt to analyze reporting on all components of the CEO Water Mandate.

2.5 Ethical issues

There appears to be no significant ethical concern with this study. Data is sourced from publicly available documents, and although these are intended for a variety of audiences the documentation is not produced in a reactive manner with research in mind. With content

studies there is instinctively some level of interpretation done by the researcher, but relying on established and widely applied frameworks the risk of subjective bias is reduced. The companies were not invited to provide feedback or additional information to the study. This is not regarded as an issue of particular concern as the results of the study do not seek to evaluate or report on individual company performance.

3 Theoretical Framework

Water is a complex and critical resource that can be quantified and managed with a variety of tools. This chapter will first present relevant initiatives within the United Nations, and within international management standards. In the following subsections it will also describe relevant theoretical inputs for the analysis and the CEO Water Mandate as such. It also elaborates on how water is not only a subject of management, but also of stewardship – a concept that expands beyond framing water as a commodity into the understanding how it is a nexus of industry, food, inequality, human rights, and human health.

Development Goals

As an integrated part of the global agenda on sustainable development, the United Nations Millennium Development Goals promote global action to ensure a sustainable future for all. In relation to water, Goal 7 includes a target relating directly to improving safe and sustainable water access (UN Millennium Development Goals 2015). As these goals will expire by the end of this year, the Sustainable Development Goals (SDGs) that are to be launched later this year will define the post-2015 agenda. These goals will expand upon the Millennium Development Goals, and are expected to frame UN member states´ agendas and policies over the coming 15 years.

United Nations Global Compact

The UN Global Compact (UNGC) is a voluntary initiative closely linked to the Millennium Development Goals. The initiative is a platform for businesses that aims to facilitate sustainable development for, and through the private sector. Established in 1999 by former UN Secretary General Kofi Annan, it aims to encourage business to adopt policies that promote a global economy that is environmental and socially sustainable. The initiative requires companies to sign and adhere to ten principles of conduct, which are based on respecting human rights and labor rights, promoting anti-corruption and female empowerment, and environmental sustainability. According to the UN Global Compact, companies should incorporate these principles into policies, procedures and strategies, ensuring long-term commitments to the basic responsibilities toward people and planet (UN Global Compact 2015a). Communication on progress (COP) from the individual businesses to the UN Global Compact is a requirement for continued participation, and so corporate

disclosure is a central element. As of June 2015, there are about 12,000 participants from business and civil society (UN Global Compact 2015b).

Historically, water has been perceived to be an issue of governments, not business (DNV GL 2015). This perception has changed with the emerging understanding of the private sector as part of the solution, in addition to companies themselves acknowledging the need for active engagement in water management. The UN Global Compact has three principles on environment, which states that companies should pursue a precautionary approach to environmental challenges; they should take action to promote environmental responsibility; and companies should encourage diffusion of technologies (UN Global Compact 2015a). The CEO Water Mandate is part of the UN Global Compact structure and the push for environmental sustainability in business, where only companies that participate in the UNGC can endorse the Mandate.

The UN Global Compact has received criticism for lack of monitoring and actual compliance with implementing the principles, as well as criticisms for dependency on the private sector. If companies are not successful in taking actions to develop policies and strategies that address the explicit needs of the initiative, and if they do not provide useful information on the results of these actions, the argument put forward in the literature is that the initiative's credibility and viability comes into question (Berliner & Prakash 2015; Sethi & Schepers 2013; Soedeberg 2007). There is no formal monitoring by the UN Global Compact office, and much of the information provided by the companies is part of self-assessment questionnaires, without any feedback on the accuracy or level of compliance shown in the responses.

ISO 26000 Social Responsibility

The International Organization for Standardization (ISO) is the world´s largest organization for developing and publishing voluntary international standards. They have developed a comprehensive framework on implementation of CSR. ISO 26000 Social Responsibility from 2010 addresses core subjects of organizational governance. These include human rights, labor practices, environment, fair operating practices, consumer issues, and community involvement and development. The standard is not meant as a management certification standard, but rather as a way to maximize contributions to sustainable development (International Organization for Standardization 2010).

This voluntary standard, applying not specifically to business, builds on international agreements, conventions and standards developed by the UN, various UN organizations, and ILO (Harildstad 2014). A schematic overview of ISO 26000 is given in figure 1.

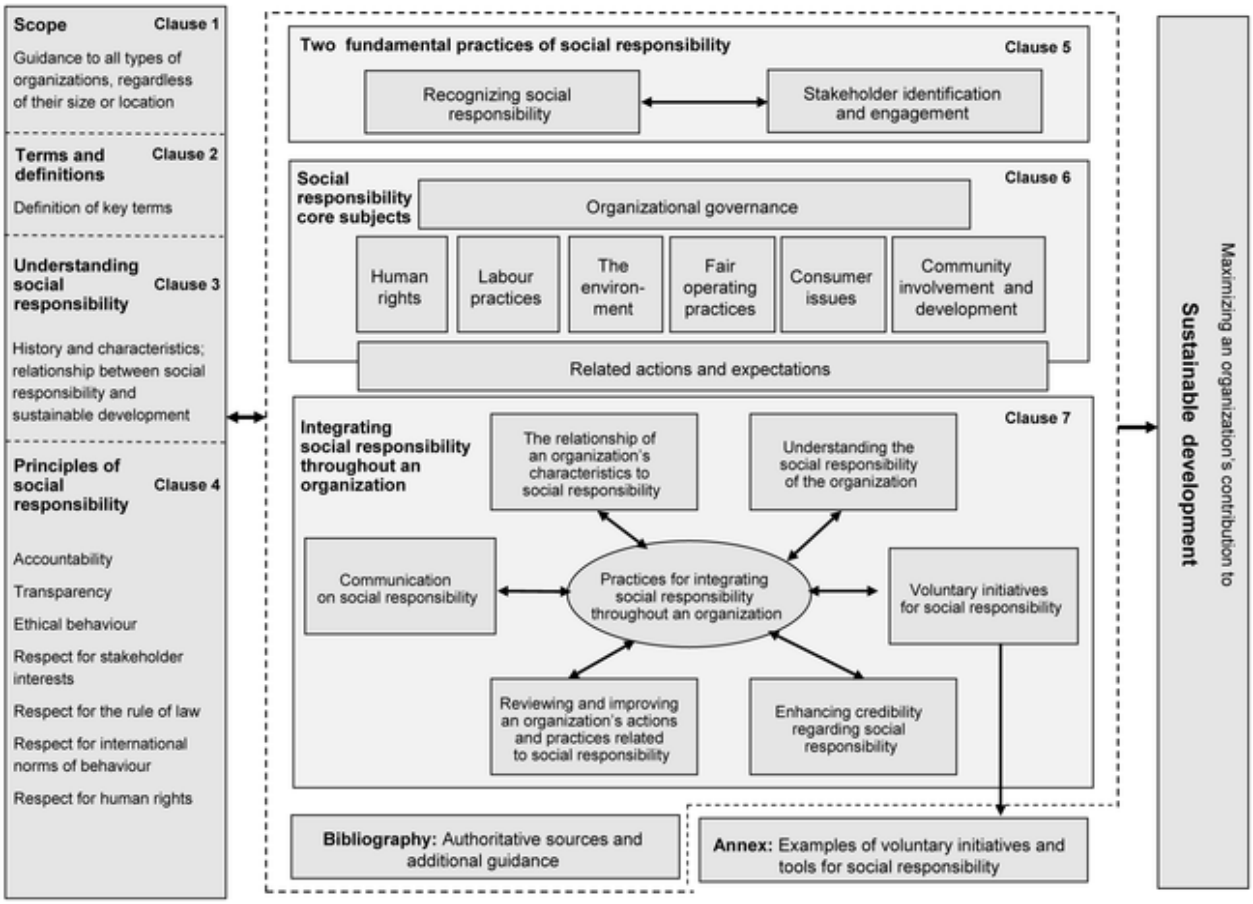


Figure 1 ISO 26000 Social Responsibility (ISO 2010:ix)

3.1 Water as global resource

> *"Water flows through the three pillars of sustainable development – economic, social and environmental."*
>
> Ban Ki-moon (WWAP 2015)

Water is a natural resource of absolute importance for all social, economic and ecosystem functions, cutting across and affecting more aspects of life than are easily listed. Water is a natural resource that can no longer be considered a local, national or regional issue, and it cannot be isolated to food, industry, energy, commercial goods, nor business alone (Hoekstra & Chapagain 2008; WWAP 2012). It is also a commodity of uneven distribution, flowing through a sensitive cycle both locally and globally, as it is also considered a human right that

can be supplied as a service by both private and public actors. The following section will shed some light on various ways to understand water.

3.1.1 Water as ecosystem

Water flows through a vast hydrological cycle, with both local and global components, forming a biochemical basis for all ecosystems. Life, in all its forms, cannot be sustained without water. Despite being "all around", water is in many cases a non-renewable resource, particularly as human activity is placing increasing strain on water systems by over-abstraction and pollution (Vörösmarty et al. 2013). Freshwater can be divided into three categories: blue, green, and grey water. Blue water is surface and groundwater; green water is evaporated rainwater as soil moisture; and grey water is polluted water (Chapagain 2006; Lambooy 2011; WWAP 2012).

3.1.2 Water as economic commodity

In 2015, water crisis was for the first time recognized as the top risk to business (World Economic Forum 2015). Privatization of water has been debated as one possible (and highly controversial) solution to looming crises of freshwater access, although the argument also emphasizes strong public oversight (Gleick et al. 2002). Part of the reasoning behind the argument comes from frustrations over time with the ongoing failure to fulfill universal, basic needs for water – which has reinforced the idea of applying economic tools and principles to national and international water management policies (ibid).

The issues of water tend to compound further in cases of weak or failing governments, where private providers might be able to provide for people in ways their governments cannot – while at the same time the explicit need for public oversight might be compromised (Lambooy 2011). There is however stern emphasis on that the vital social, cultural and ecological roles of water cannot adequately be protected by market forces alone (Gleick et al. 2002). Chapagain (2006) argues that although water has been defined as a "tradable commodity" by the likes of WTO, the exponential increase in water trade will cater only to those who can pay for it. Despite that water as a commodity requires capital, labor and land, the subsequent social and environmental impacts are rarely communicated to the consumer or paid for by the consumer (Harildstad 2014).

3.1.3 Water as geopolitical resource

Critical resources have a long history of attracting conflict, and there are perhaps few other resources of such immediate importance and complicated ownership as water. Water availability is becoming a bigger concern than energy security (Morrison et al. 2009b), where water is not only an objective of military action, but also an instrument of war (Chapagain 2006). Political borders rarely coincide with watershed borders, and it has been estimated that as many as 273 aquifer systems are transboundary, and that nearly 150 states have international basis within their territories (WWAP 2012). The uncertainty and insecurity of water is not only interlinked with population growth and war (Chapagain 2006; Donnelly et al. 2012), but also with climate change, which is changing the geography of water (Bates et al. ; Cullet 2011; International Committee of the Red Cross 2009).

Harildstad (2014) describes two ways in which nations can be water dependent; on water resources that connect to their geographical territory, or through virtual water imports. Rivers are a typical example of the first water dependency. Rivers such as the Nile, the Ganges and the Zambezi are key water resources for several countries at once – originating in one place, providing water and absorbing pollution along its route. The second type of water dependency, according to Harildstad (2014), is prevalent in countries that import water indirectly through goods. Her study refers to Kuwait, Israel, Jordan, Lebanon and Malta, which in fact import more than 50 percent of their indirect water use, compared to the global average of 16 percent. Both examples demonstrate how water as a geopolitical resource impacts relations between countries. Another aspect of water dependency is the need to produce freshwater from sea or brackish water, which happens on a large scale in particular arid regions such as around the Persian Gulf (Berg 2015).

3.1.4 Water as social good

Clean water is considered a universal social good, as access to water and sanitation is imperative for life and human health, and promotes both individual and social well-being (Gleick et al. 2002). For this reason, water supply must be under some form of government regulation, as social goods should not be supplied through market forces alone.

Although the Universal Declaration of Human Rights does not include water directly (Harildstad 2014), the United Nations´ General Assembly Resolution 64/292 explicitly states

that water is a prerequisite for the realization of all human rights (*Resolution 64/292. The human right to water and sanitation.* 2010).

3.2 Concepts

The CEO Water Mandate links directly to the UN Global Compact´s environmental principles, which in turn is a call for the private sector to acknowledge and address its role in realization of the Millennium Development Goals. This view is also reflected in the literature (DNV GL 2015; Lambooy 2011; Morrison et al. 2009a; Morrison et al. 2009b; WWAP 2015). Water is not only critical to sustain life, but it is also crucial in energy production, in industrial cooling systems, in agriculture, metals mining, meat production, in the textile industry, and generally as a solvent and means of dilution (Harildstad 2014). And although water can be described as a global resource, the impacts of its use are also undeniably local. This chapter will present key concepts of water.

3.2.1 Water scarcity

The issue of water scarcity is closely connected to the issue of water security, where risk and vulnerability are also part of the concept (Mukheibir 2010). Water scarcity does impact water security, but the two are not interchangeable. Scarcity is defined by a population-water equation as according to the *Falkenmark Water Stress Index* (Falkenmark et al. 1989), where a country is said to experience water scarcity if there is less than 1000 m^3 per capita per year, and absolute scarcity is said to occur below 500 m^3 per capita per year. Mukheibir (2010) describes three principle drivers of water scarcity: depletion and degradation of the water resource, population growth, and uneven or unequal distribution of water resources, arguing that scarcity can be a problem of both physical supply and a social demand. It is estimated that one in three people are currently affected by water scarcity, and that the situation is expected to escalate dramatically as global water demand is likely to exceed supply by 40% before 2040 (The Water Resources Group 2012)

3.2.2 Water risk

Access to safe and clean freshwater has become a top global issue for environment and development. Although water risk is geographically dependent, water risk can also be described as a feature of our global ecosystem and our global metabolism – where risks associated with access to freshwater are amplified by uncertainties of climate change, unsustainable water competition, and the food and energy needs of growing populations

(Gassert et al. 2014; Lambooy 2011). As the CEO Water Mandate is a good (but not the only) example of, water risk is becoming an increasingly integrated part of corporate awareness.

Water risk can be defined along four dimensions: physical, financial, regulatory and reputational (WWF 2009). Physical risk relates to disruption of access, such as too much, too little or polluted water, and these issues can arise from poor management of water resources. Financial risk relates to how issues of water can undermine a business´ profit generation/operations, such as cost inflation or reduced production from water shortages. Regulatory risks arise from changes in regulatory regimes around water, such as more demanding legislation, and it can also arise from issues of corruption. Reputational risk refers to company exposure to challenges of managing public perception, and is regarded as a difficult risk to manage. Water risks can be managed to the extent that they are issues of compliance and corporate responsibility, relating mainly to internal factors, while external factors of added pressures of public scrutiny, climate change and expanding, sometimes contradictory, legislation are not so easily managed. It is also important to keep in mind that water risk is not only linked to geographical locations, but also linked to company behavior.

3.2.3 Virtual water

Virtual water is defined as ”the water ’embodied’ in a product, not in real sense, but in virtual sense” (Chapagain 2006; Hoekstra 2003), and was a concept introduced for the first time in the early 1990s by Tony Allan. It is also referred to as embedded water, or exogenous water, and there are two principal approaches to quantifying virtual water. The first approach follows a producer perspective, and is defined as the amount of water used to produce a product. This is naturally influenced by time, place and conditions of production (Hoekstra 2003). This approach is useful for quantifying the environmental impacts from production (Chapagain 2006). The second approach follows a consumer perspective, and is defined as the amount of water that would have been required to produce a product where it is consumed. In other words, this is a hypothetical quantification of water savings by importing goods produced elsewhere, compared to the amount of water that would have been used if the product was produced domestically (Hoekstra 2003).

Harildstad (2014) summarizes how virtual water is an example of water dependency, and also part of a possible solution for water-scarce countries. Virtual water trade is expected to

become increasingly important, as trade particularly in food will become increasingly global. Referring to Chapagain (2006), her study reports that direct water trade is less viable and commercially attractive than virtual water trade, which is a significant indirect source for many water scarce countries.

3.2.4 Water footprint

The concept of quantifying water use along supply chains relates closely to the idea of virtual water, and has gained increasing momentum since it was introduced by Hoekstra in 2002 (Chapagain & Hoekstra 2003; Chapagain 2006; Chapagain et al. 2006; Ercin et al. 2011; Ercin & Hoekstra 2014; Hoekstra & Chapagain 2008; Hoekstra(ed) 2003). Water footprint is an indicator of freshwater use that not only includes direct water use, but also indirect water use all along the value chain of a given commodity or service, thereby also addressing water risks in the entire value chain. It can be considered a more comprehensive indicator on freshwater resource appropriation compared to a simple measure of water use (DNV GL 2015). The indicator is a tool to quantify the total consumption of water, including the virtual water that is indirectly used as part of imports. This help improve our understanding of the link between business and water, which in turn builds a more comprehensive picture of global water challenges (Harildstad 2014).

> *"The total water use within a country itself is not the correct measure of a nation's actual appropriation of the global water resources. In the case of net import of virtual water into a country, this virtual water volume should be added to the total water use within the country in order to get a picture of a nation's real call on the global resources."*
>
> Chapagain & Hoekstra (2003)

The total water footprint of a person or a nation consists of three components: blue, green and grey water footprint. The blue water footprint (WF) is the consumption of surface and groundwater. The green WF is the consumption of rainwater stored as moisture in soil, and the grey WF refers to pollution and is the volume of freshwater that is needed to dilute pollutants (Hoekstra & Chapagain 2008). These various components of the water footprint have different impacts on the environment; such as use of blue water resources impact other processes, environments or groups of people that rely on that same watershed or river. Green water use on the other hand would not have the same impacts, because it would not divert water resources from other consumers in the same way. Although management of water use

in an entire value chain from cradle to grave of a product is a complex and perhaps daunting task, the water footprint methodology and increasing demand for transparency does add incentives for companies to take responsibility of remote water resources (Chapagain 2006).

3.2.5 Water management

> *"The fact is there is enough water available to meet the world's growing needs, but not without dramatically changing the way water is used, managed and shared. The global water crisis is one of governance much more than of resource availability, and this is where the bulk of the action is required in order to achieve a water secure world."*
>
> UN World Water Assessment Programme (2015)

Water is simultaneously a common good and a critical resource of economic, political, social and environmental importance. There is no direct substitute for water, and the vulnerability of lacking water has become apparent when seeing the impacts of water related issues on company profits, social and economic development, conflict, and on human rights (Morrison et al. 2009b). Thus it has become an increasingly integrated issue of management for particularly large multinational companies, especially in water-intensive industries, in order to address possible water related risks. Integrating water into corporate management practices not only deals with the physical risk of water access, but also what it means for a given company to operate sustainably and responsibly (Harildstad 2014). Water governance is also likely to be a matter of much public and international attention and scrutiny in the future.

Not only are the global drivers for freshwater demand outpacing the resource capacity, but climate-related impacts are causing real and imminent business risks (WWAP 2012). Freshwater is less available, and becoming increasingly polluted from human activities. In Europe alone, about half of aquifers are showing signs of saltwater intrusion due to over-abstraction (Berg 2015), not so much a result of water shortages as of outdated models for natural resource governance. Implications for business might be increased cost of water, increased competition and fluctuating supply, as well as increased regulation. Escalating pollution of water resources may result in added costs from treating wastewater according to more stringent regulations than before, regulatory restrictions for certain industrial activities, health costs for employees, and increased expectations of responsibilities to affected communities (Morrison et al. 2009b).

Water management is the shared responsibility of many different decision-makes and

stakeholders in both public and private sectors, and needs to evoke collective participating in making informed, sustainable decisions (WWAP 2012). Harildstad (2014) outlines the motivations and strategies for corporate water management. Several strategies can be employed in order to improve management: operational and employee engagement, supply chain management, policy engagement, community engagement, partnerships, and disclosure (Lambooy 2011). The motivations for corporate water management are mainly driven by:

i. achieving legal or social license to operate
ii. avoiding operations crises
iii. attracting investors
iv. maintaining corporate values
v. cultivate a competitive advantage

3.2.6 Water stewardship

"Although the central and irreplaceable roles that water occupies in all dimensions of sustainable development have become progressively recognized (…) water [still] often becomes a limiting factor, rather than an enabler, to social welfare, economic development and healthy ecosystems."

UN World Water Assessment Programme (2015)

Since 2010, when the United Nations General Assembly passed the resolution that formally recognized the human right to water and proper sanitation, companies have been increasingly subjected to the expectation to align their water management practices with their responsibility to respect human rights (The CEO Water Mandate 2015a). A comprehensive study on the discourse of corporate water disclosure reports that the concept of purely 'operational water efficiency' has in the recent years become less important to companies than the concept of 'water stewardship' (Daniel & Sojamo 2012).

Water stewardship is different from water management in that it acknowledges and internalizes not only the business risk of water, but also the long-term risk to people – by contributing to river basin management, public policy guidance, standard development, collective action, and partnerships with companies operating in areas of stressed watersheds (WWF 2013). Water stewardship might also mean internalizing responsibilities for adverse impacts on human rights, which includes efforts to account for scope and severity of impacts on affected stakeholders in the same way one accounts for risks to business (The CEO Water Mandate 2015a). The purpose of water stewardship is to take a proactive, not merely reactive position in building holistic resilience of the whole water system.

3.3 Corporate water management

The CEO Water Mandate is firmly positioned within the discourse of corporate social responsibility. For that reason, this study will not elaborate on CSR per say but rather focus on various ways in which to manage water in business. The following section will describe relevant management practices.

3.3.1 ISO 14044 Life Cycle Assessment

Life cycle assessment (LCA) is part of the ISO 14000 environmental management standard series, and is a widely recognized and applied tool for understanding environmental impacts both in business management and research. It allows for identification and measurement of environmental impacts all along the value chain of a commodity or a service, where these data are used as part of implementation of environment management systems (ISO 2006).

LCA is both a methodology and a standard. ISO 140044 describes the method for performing an LCA, while a company can also be certified for implementing the environment management system. The LCA methodology uses data on material and energy inputs for the entire value chain of a commodity or service and their associated emissions to aggregate environmental impacts and their destinations. This uncovers 'hot-spots' for adverse impacts, and highlights where improvements are most effective and most needed. Environmental product declarations (EPDs) are one example of the application of LCAs, which promotes knowledge sharing and development of best practices. LCAs have become mandatory in the EU and in Australia (Daniel & Sojamo 2012).

As a standard for environmental management systems, LCA requires identification of organizational boundaries, stakeholder engagement and policy development, and it provides measurements that in turn are applied to set targets for improvement. These targets need to have a specified timeframe. Although LCA has not traditionally accounted for water use (Daniel & Sojamo 2012), the ISO 14046:2014 standard uses water footprint methodology as part of LCA.

3.3.2 ISO 14046 Water Footprint

The global water management regime consists of a multitude of tools and practices, and paired with a lack of verification schemes (Daniel & Sojamo 2012), the ISO 14046 standard

on water footprint is providing one possible response to the need for "appropriate assessment techniques that can be used in an internationally consistent manner" (ISO 2014).

ISO *14046 Water Footprint – Principles, requirements and guidelines* is also part of the environmental management standards series, and builds on the LCA methodology. The purpose is to identify potential impacts related to water according to relevant geographical locations and time perspectives, and to identify amounts of water use along the entire value chain as well as changes in water quality following the life cycle of a commodity or a service (ISO 2014). Similar to LCA, the quantification of a water footprint is intended as input to a holistic environmental management system, helping companies understand the effects of their water consumption and water pollution so that the overall environmental impact can be addressed.

3.3.3 Global Water Footprint Standard

Similar to the ISO standard for Water Footprint, the methodology of the Water Footprint Network (WFN) is a tool to perform assessment of water inputs and potential pollution along the value chain of a commodity or service, and use these data in management systems. The differences are that the WFN standard identifies blue, green and grey water footprints; and it describes how to perform water footprint accounting for specific consumer groups (such as a country or a municipality) (Water Footprint Network 2011). There are concerns whether its value comes from the rigor of the methodology (Daniel & Sojamo 2012), or if its value lies in helping companies understand their overall links to river basins and water catchments around the world, hence enhancing the resolution of the picture of potential business risks associated with water.

3.3.4 Water Sustainability Tool and Planner

The Global Environmental Management Initiative (GEMI) aims to promote accessible best practice in environmental health and safety around the world. It was established in 1990, and has developed a couple of resources for making visible a company´s water impacts within a financial context (Morrison et al. 2009b). The Water Sustainability Tool is a five-step management tool that helps companies develop and implement a water strategy. The Sustainability Water Planner helps companies assess water risks at facility level, where the company builds water use inventories (ibid). The Tool applies to the company structure as a whole, while the Planner addresses specific water uses of the company production.

3.3.5 Global Water Tool

The Global Water Tool was developed by a working group with the World Business Council for Sustainable Development in 2007. It is an online tool that aims to facilitate collaboration and harmonization of private sector efforts on tackling complexities of water issues for companies with global operations and extended supply chains (Morrison et al. 2009b). The tool matches company specific water use and discharge with validated information on water and sanitation availability for specific geographic areas and watersheds, and it generates detailed input for corporate disclosure (such as GRI water indicators), inventories, risk and performance metrics, and a more detailed mapping of the company supply chain (Lambooy 2011).

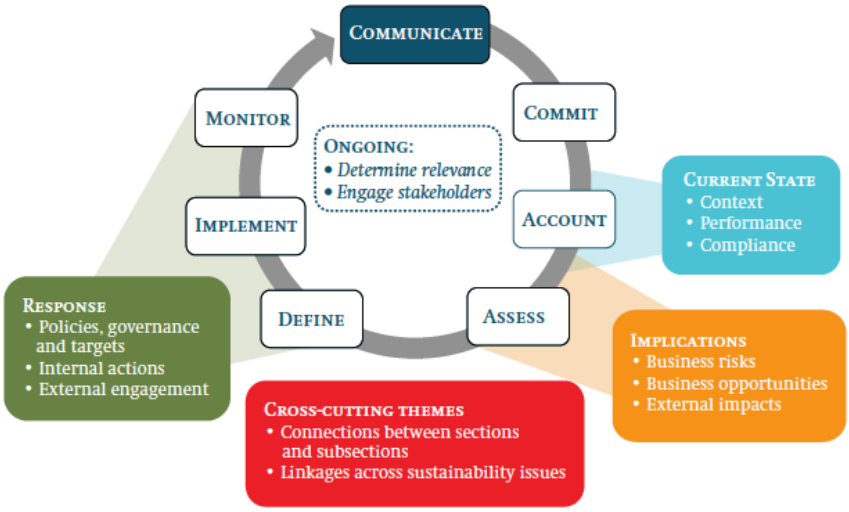
3.3.6 Alliance for Water Stewardship

The Alliance for Water Stewardship (AWS) is a multi-stakeholder organization for water stewardship initiatives such as CDP, WFN Water Footprint Assessment and WWF´s Water Risk Filter to ensure alignment, standardization, and local relevance of water stewardship practices (DNV GL 2015). The AWS has issued an International Water Stewardship Standard in 2014 that is a globally applicable, ISEAL-compliant standard that verifies organizations according to a set of criteria for continuous improvement. The framework aims to help organizations understand, implement, and communicate water stewardship according to practices that are environmentally, socially, and economically beneficial. It is also one of the few certification standards that is applicable not only to water users, but also water providers (i.e. utilities sector) (Morrison et al. 2009b) – a relevant issue for this study.

3.4 Environmental disclosure guidelines

Reporting on environmental and social performance is a key aspect of achieving transparency, accountability and advancement in management systems, and enables organizations, business, private sector and consumers to base decision-making on relevant information. Such guidelines differ from standards and management practices in that its primary purpose is to provide a platform for generation and communication of data on subjects of corporate management. The achievement of such guidelines is that they provide a framework for communicating data in a meaningful, clear, consistent, and comparable manner. This section describes the disclosure guidelines for environmental performance that are relevant to the assessment of corporate reporting to the CEO Water Mandate.

FIGURE 2: A Corporate Water Management Cycle and Its Relation to the Disclosure Framework



NOTE: The UNGC Management Model's "Measure" step has been broken into two components: "Measure" and "Monitor" to align more closely with water-specific management processes

Figure 2 Corporate water management and its relation to the CEO Water Mandate disclosure framework (The CEO Water Mandate 2014)

3.4.1 Global Reporting Initiative

The Global Reporting Initiative (GRI) is an international NGO that develops and published disclosure guidelines for economic, social and environmental performance, and is currently on its fourth generation. GRI is one of the most widely used reporting frameworks, and the guidelines provide a wide range of indicators and principles that can be applied to corporate sustainability reporting, including specific indicators on water use and discharge. The core indicators include (i) total direct water use by source; (ii) total water discharge by quality and destination; and (iii) total number and volume of significant spills (GRI 2013). There are also additional indicators that are not part of the core disclosure, but that from an environmental perspective are highly relevant to addressing impacts related to water. The GRI guidelines do not address indirect water use, i.e. water use 'upstream' in the supply chain.

Part of the utility of specific disclosure is that it also offers a measurement of achievement, i.e. a ranking of how comprehensive the reporting is in light of the indicators provided in the guideline. Via third-party verification of select segments of the reporting, companies that excel in addressing most of the principles in the guidelines are acknowledged accordingly.

3.4.2 Carbon Disclosure Project (CDP)

The Carbon Disclosure Project (CDP) is a not-for-profit organization, which originally (as evident from its name) began as a platform for standardized climate change reporting. CDP collects and communicates data on corporate climate and water performance, on behalf of investors, consumers and governments (CDP 2015a). Following the same model using a questionnaire process, CDP has established itself as a platform for corporate water disclosure (CDP 2015b). In the same way that GRI disclosure guidelines offer principles and indicators that companies can use in their sustainability reporting, CDP has established a water program where companies report on specific water indicators in accordance with guidelines for what to measure and how to disclose it. Similar to GRI, companies are also given scores according to what level of reporting they achieve.

The questionnaire process differs from regular sustainability reporting as companies not only apply the guideline in their own reporting, but they are also required to submit a completed questionnaire to the CDP – which in turn in published on their website to form a database of water reporting. The questions are also more comprehensive and strongly encourage a higher level of detail on the data than GRI guidelines do (ref questionnaire).

3.5 Summary theoretical framework

The relevant tools and standards for corporate water management are summarized in table 2. The outcomes of using these tools and standards serve as input to the process of corporate disclosure, where the data might be used for reporting on specific indicators or described independently in the reporting.

Table 1 Summary of corporate water management tools and standards

Corporate water management summary					
Name	**ISO 14046 Water Footprint**	**Global Water Footprint Standard**	**Global Water Tool**	**Water Sustainability Planner & Tool**	**Alliance for Water Stewardship Standard**
Institution	ISO	WFN	WBCSD	GEMI	AWS
Purpose	Guidelines, principles & guidelines for calculation water footprint of an entire life cycle.	Identify blue, green & grey water use, serves as input to management systems.	Assess water risk in financial context. Strategy development. Build water inventories.	Risk & performance indicators, value chain mapping. Generate data on water indicators.	Stakeholder organization. Alignment & standardization water stewardship practices.
Who	Companies Organizations Nations	Companies	Companies	Companies	Companies Organizations
How	Standard LCA based system analysis	Standard	Online tool	Online tool	Standard

4 Empirical Data Assessment

As part of the global efforts towards achieving Millennium Development Goal 7 and realizing the environmental principles of the UN Global Compact, the CEO Water Mandate has developed and published an extensive body of guidance and principles to help business address water in a meaningful manner. Through advancements in disclosure, business is responding to the push for transparency and accountability to become an increasingly integrated part of management. This chapter will describe the details of the CEO Water Mandate that have been analyzed, and how the assessment of disclosure quality has been operationalized. It will describe the elements of the analysis, and how these are systematized into three content categories. It also provides a summary of outcomes of the assessment, which includes a maturity matrix of the reporting in figure 5.

4.1 CEO Water Mandate disclosure

The CEO Water Mandate has developed a variety of tools and guidelines for corporate reporting on water that deal with both internal operations and stakeholder engagement, such as addressing human rights issues related to water. The Mandate has been critical in helping companies understand and build the business case for water management. In September 2014, the CEO Water Mandate published a new guideline for corporate water disclosure that emphasizes the move towards a common approach for the increasing amount of reporting on water issues (The CEO Water Mandate 2014). It was designed to address the growing challenge of how companies typically "[in]adequately capture the incredibly complex and location-specific nature of water resource dynamics and corporate action on water" (ibid). The guideline was published in cooperation with several of the other significant actors within corporate reporting: PriceWaterHouseCoopers, CDP, the World Resource Institute, and GRI. The CEO Water Mandate does not endorse any particular framework for disclosure, but this most recent guideline does reflect the fact that most of the companies endorsing the Mandate use GRI and CDP for their reporting.

Companies that endorse the Mandate need to annually report on their progress with advancing six core elements: (i) direct operations, (ii) supply chain management, (iii) watershed management, (iv) collective action, (v) public policy, and (vi) community engagement (The CEO Water Mandate 2015c). Another core element is transparency, which is considered inherent in all aspects of the disclosure elements. These six core elements relate

to the disclosure framework as shown in Figure 3 and it is expected that companies report on concrete activities, policies and improvements on all these elements within a five-year period of endorsing the Mandate (The CEO Water Mandate 2008).

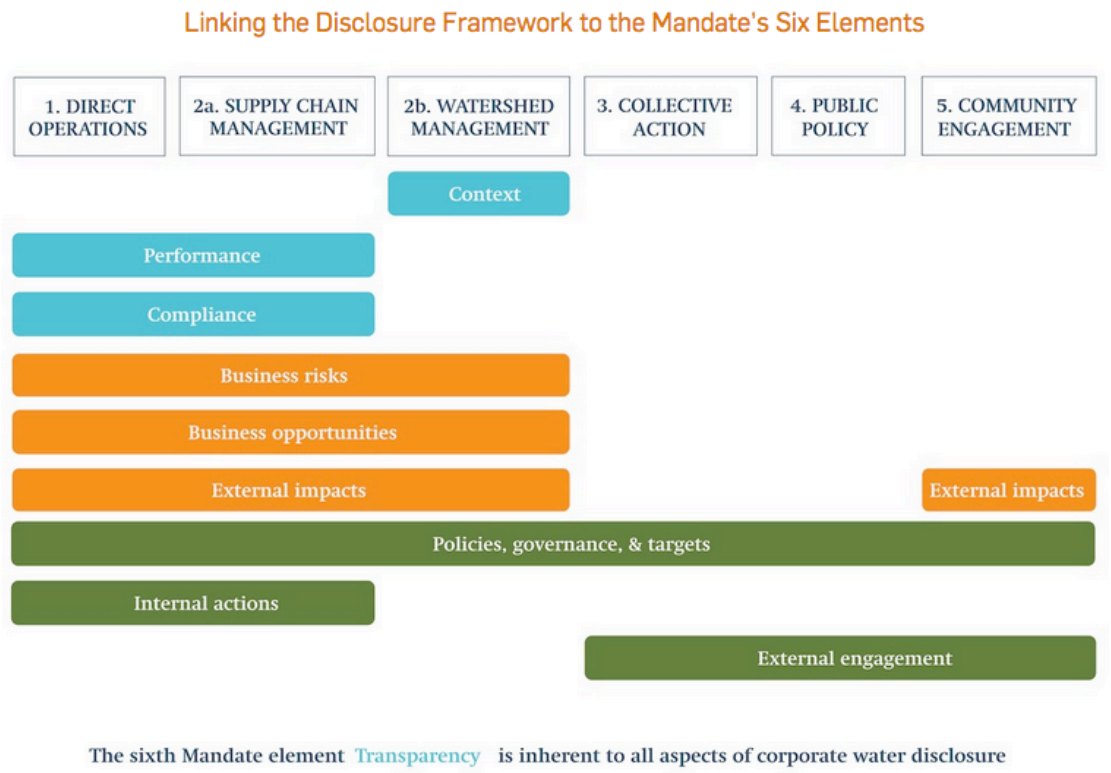


Figure 3 Linking disclosure framework to the six elements of the CEO Water Mandate (The CEO Water Mandate 2014)

4.2 Elements of analysis

The CEO Water Mandate does not prescribe any exact indicators for corporate water disclosure, as it does not endorse any particular reporting framework. However, the Corporate Water Disclosure Guidelines provide descriptions of nine information areas that ideally should be addressed, including also a differentiation in quality of reporting on these (The CEO Water Mandate 2014). The units of analysis for assessing content in environmental and social reporting has been a matter of debate (Stray 2008), but as discussed in Methods and materials this study uses units that are deemed useful to assess the quality of the disclosure on relevant water indicators. Referring to the nine information areas for the Mandate disclosure, and relevant GRI and CDP water indicators, elements analyzed in the present study are found in Appendix A.

The first category simply maps whether companies are non-communicating on their progress or not, and this category does not only reflect a potential lack of communication to the Mandate, but in terms of sustainability reporting as a whole.

The second content category maps and ranks the disclosure practices on water withdrawal and efficiency, amount and potential harm from discharges, number and size of spills, and on reuse and recycling of water as part of value chain optimization. The ranking of the sub-categories is essential in order to assess the quality of disclosure, as some means of disclosure provide a significantly weaker level of accountability (such as percentage reduction against a baseline vs. absolute metrics).

The third content category maps disclosure on practices that go beyond the most common water management practices. This category is central to quality of reporting for two reasons: (i) it maps level of stewardship practices that are moving into more long-term, value-chain oriented and holistic water practices, where these internalize issues such as sustainability of water resources and human rights; and (ii) the subcategories relate specifically to freshwater in a way that is not sufficiently covered in content category 2.

Excluded from the analysis is whether companies report on either framework as a whole (such as the six core elements of the Mandate), nor does the analysis include data on external verification or awarded levels of reporting excellence with any of the frameworks, although this is a feature of the corporate water reporting. The analysis does not pay particular attention to whether water indicators are disclosed in monetary terms or not (Bouten et al. 2011). The elements of analysis does not encompass all environmental or water indicators, but only the ones deemed most relevant in terms of quality of reporting on issues particularly related to freshwater.

4.3 Outcome of assessment

The overall outcome of the assessment is given in Table 2 showing the mean and standard deviation of scoring for each of the 12 content categories together with percentage of companies that have no content on each category.

Table 2 Overall scores of corporate water reporting to the CEO Water Mandate

Content category	Mean	S.D.	% of companies with score 0
Cat 1 Availability of reporting	**0.77**		**23**
Cat 2 State of measurement and disclosure of water indicators	**3.27**	**3.6**	**40**
Cat 2a Total water withdrawal metrics [x]	1.33	1.22	41
Cat 2b Water recycling and reuse [x]	0.43	0.80	77
Cat 2c Total volume and quality of water discharge [x]	0.43	0.78	75
Cat 2d Environmental burden from water discharge and runoff [x]	0.22	0.62	89
Cat 2e Number and volume of significant spills [x]	0.39	0.78	80
Cat 2f Water efficiency	0.48		76
Cat 3 State of water stewardship	**1.06**	**1.02**	**40**
Cat 3a Water footprint	0.31		69
Cat 3b Addressing water scarcity or water risk	0.51		49
Cat 3c Regional disaggregation of data	0.24		76
Total for overall reporting	**5.1**	**4.6**	**23**

[x] = coded by a weighted range. If not, then binary yes/no coding (except overall categories, which are accumulative of subcategories).

Some data is excluded from Table 2 that was originally included in the analysis. Content category 4 *Company UNGC differentiation level* has been excluded all together, because it became clear for the analysis that this content category resulted in a skewed representation. This can be attributed to the fact that these data were not linked to the reporting or reporting content in question, but rather a ranking provided by UNGC that they do for all participants depending on how they communicate on progress to Global Compact – which is not directly related to or affects reporting to the CEO Water Mandate. Hence, the results showed different values for Category 1 and the 'Total for overall reporting', which are values that should be identical. The same number of companies that have not provided any reporting should equal

the number of companies that have not been given any scores on their reporting. Thus content category 4 had to be excluded.

In addition, as is clear from the table, some values for standard deviation measures are left blank. This is because standard deviation has not been calculated for all content categories. The reason for this, as can be seen in detail in Appendix B, is that the coding for these categories is binary, which renders standard deviation an unsuitable statistical measure.

Category 1 – Availability of reporting

Overall, 78% of the companies endorsing the Mandate provide corporate reporting. This, as previously mentioned, includes document types of communication on progress to the Mandate, as well as sustainability reporting and integrated annual reports. Although this is a fairly low level of compliance, there are some possible explanations that do not imply companies are 'non-communicating' on their progress.

Firstly, out of the 23 percent that lack reporting, almost 2/3 of these companies endorsed the Mandate in 2014. As explained in chapter 2.4 Limitations of research this is a likely result of the time of year when this study was conducted. It is fair to assume that most of these companies would have fallen within the selection for this study had it been conducted later in the year, as reporting for a given year is often published some months into the following year. Importantly, 6 of these companies measured and disclosed water indicators prior to endorsing the Mandate, which implies that they did not need to initiate new practices, they simply needed time to publish their reporting.

Secondly, three companies did not publish reports in English, and did not report on specific water indicators with GRI or CDP that could be easily coded without understanding the language (See Appendix C for more detail).

Thirdly, it is important to assess the results on content category 1 in light of the results from the other content categories. Particularly important are the results from subcategory 2a *Total water withdrawal metrics*. Level of transparency and detail of the disclosure are important aspects of accountability. They are also crucial in order to establish and share best practices within and across industry sectors, and these aspects are also some of the driving forces behind organizations such as GRI and CDP. Good data and accurate measurements are crucial in order to build a truthful understanding of any system, which also applies to human

activities and resource use. Therefore the disclosure in Category 2a is ranked depending on the level of transparency and detail of the data.

Category 2 – State of measurement and disclosure of water indicators

Ranking the disclosure is essential to determining the quality of the disclosure. '*Non-comparable data*' refers to when companies report a percentage reduction against a reported baseline year of reporting, or when the data is only reported in terms of water efficiency relative to a given unit of production without disclosing total water use for the entire company. Although this can qualify as disclosure of data, it is deemed not sufficient, particularly with such a high-level initiative that emphasizes the need for transparency (The CEO Water Mandate 2015b).

About 1/3 of the Mandate companies report specific metrics on water withdrawal for their entire company operations, which does provides comparable data for a larger context. However, this level of disclosure does not meet the full requirements of any of the disclosure guidelines, nor can it be said to be equal to the utility of the transparency that comes with fully disaggregated data.

Table 3 Distribution of reporting scores Cat 2a

Content & coding values Cat 2a ***Total water withdrawal metrics***	% of total content in category
No data on water withdrawal reported = 0	41
Non-comparable data = 1	6
Total water data for entire company = 2	32
Water data disaggregated by source of withdrawals = 3	21

Table 3 shows the distribution of scores across Category 2a. 41 percent of the endorsing companies have not reported any data on water withdrawals. This includes the companies that had not yet published any reporting after joining the Mandate in 2014, and is a reflection of the Mandate participants as a whole. If the data is differentiated between companies that have and have not issued reporting that could be included in this study, the results show that almost 19 percent of the Mandate companies that have not reported any data on water withdrawals *have* indeed published reporting. Hence almost half of the 41 percent are reporting, just not on water.

Only 21 percent of the Mandate companies provide data in the manner that is encouraged and asked for by both the Mandate guidelines, by GRI and by the CDP questionnaire – where water withdrawals are reported by type of water resource (see example Figure 4.)

W5.1a Water withdrawals: for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1 **(CDP 2014 question W5.3a amended)**

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rain water	Groundwater (renewable)	Groundwater (non-renewable)	Produced /process water	Municipal water	Wastewater from another organization	Comment

Figure 4 Example of specific water metrics, from CDP Water Questionnaire (2015)

Standard deviations are fairly high for Category 2 as a whole, where these exceed the mean 5 out of 6 times. The highest score possible for the overall category is 12. This indicates that there is significant variation in how companies report, and also that companies generally have quite limited reporting on these indicators. Reporting on water withdrawals and on water efficiency are the two subcategories with highest average score. Subcategory 2d, which addresses assessment of surrounding ecosystems and their potential sensitivity to impacts from company operations, is the indicator that fewest companies report on where as many as 89 percent of the companies do not report on it. This particular content category might also be the one that in traditional views has the least immediate link to a company´s direct operations. Out of the 124 companies that are included in this study, 49 companies had no score while only two companies had a total score of 12 for Category 2. Only one company achieved maximum accumulated score of 16 total across all categories.

Table 4 Company scores on all subcategories of category 2 & 3, and overall total scores

Category 2 score range	No. of companies	**Category 3 score range**	No. of companies	**Total**	No. of companies
0	49	**0**	50	**0**	28
1	3	**1**	28	**1**	15
2	13	**2**	35	**2**	6
3	7	**3**	11	**3**	2
4	16			**4**	10
5	5			**5**	11
6	7			**6**	5
7	6			**7**	13
8	1			**8**	4
9	4			**9**	8
10	6			**10**	3
11	5			**11**	2
12	2			**12**	5
				13	4
				14	5
				15	2
				16	1

Category 3 – State of water stewardship

Of a total possible weighted score of 3, the Mandate companies average on just over 1 on water stewardship practices. Once more, the standard deviation shows that there is a significant variation in the overall reporting on this category. Keep in mind that all subcategories are coded as binary. Reporting on subcategory 3a more often than not requires companies to make use of resources such as employee training or institutions, as it is not yet completely common to have water footprint competencies in-house. Therefore the average score on this particular category might be linked to the maturity of company sustainability and reporting practices as a whole, and it can also be argued that calculating the water footprint might not make as much sense for all types of companies in all sectors.

Subcategories 3b and 3c are crucial for a holistic, long-term perspective on freshwater sustainability – for ecosystems, business and people alike. In order to map and address water risks and water scarcity (the two concepts merged into one category for the purpose of this

study), measures have to be taken at a local level. This is a geographically specific concern, and cannot be addressed otherwise. About 50 percent of the Mandate companies are to some level addressing water scarcity of risk.

Data collection and disclosure on a regionally disaggregated level might require more resources in implementation, but larger companies with facilities in other countries than their headquarters are often keeping track of production with associated costs and material flows regardless – though this does not necessarily translate into disclosure of what amount of water is being used or discharged where. This despite the fact that subcategory 3c is in theory a direct extension of subcategory 2a – as it is clearly encouraged by the disclosure guidelines to include this information in corporate reporting on water. By doing so, the companies add value to measures of accountability and stakeholder engagement, as well as contributing to a better understanding of how specific water resources are being used, which is important information for regulators and communities.

Table 5 Overall reporting on content categories

Content category	Number of companies reporting on each category *
Cat 1 Availability of reporting	**96**
Cat 2 State of measurement and disclosure of water indicators	**75**
Cat 2a Total water withdrawal metrics [x]	73
Cat 2b Water recycling and reuse [x]	34
Cat 2c Total volume and quality of water discharge [x]	31
Cat 2d Environmental burden from water discharge and runoff [x]	14
Cat 2e Number and volume of significant spills [x]	24
Cat 2f Water efficiency	30
Cat 3 State of water stewardship	**74**
Cat 3a Water footprint	38
Cat 3b Addressing water scarcity or water risk	63
Cat 3c Regional disaggregation of data	30
Total for overall reporting	**96**

* Total number of the 124 Mandate companies with any scores that is not 0.

4.4 Summary of empirical data assessment

The assessment of the corporate water reporting of Mandate companies shows overall low scores and thus weak reporting when the content is ranked according to suggested measures of quality. Despite encouragement and expectations of a certain detail of disclosure, particularly with respect to Category 2: *State of measurement and disclosure of water indicators*, there is great variability in what is being reported and at what quality. Only a few companies achieve top-level scores by the criteria applied in this study.

Maturity matrices can be a way of visualizing the level of completeness, or progress (The CEO Water Mandate 2014). This is useful in terms of assessing data in a relative manner. Although this could be done for the individual data points for each company, this would be more an evaluation of the companies themselves rather than the body of reporting as a whole. For this particular study it is useful to in order to get an overview of how companies are

reporting and the estimated quality of that reporting, but it is important to bear in mind that for the content categories with binary values, the data points on the x- and the y-axis necessarily have identical values.

Figure 5 shows the results from the data assessment in the form of a maturity matrix. The various content categories, excluding the total for overall reporting, are represented as their progress towards completeness. The larger data points represent the cumulative scores, which for category 1 is the only data point as there is only one indicator in this content category. The data points in smaller size represent the subcategories. The values determining placement on the x-axis are given by the percentage of companies that have a score for the various content categories (i.e. any score except 0). The values on the y-axis are given by the mean value for each content category, as given in Table 2.

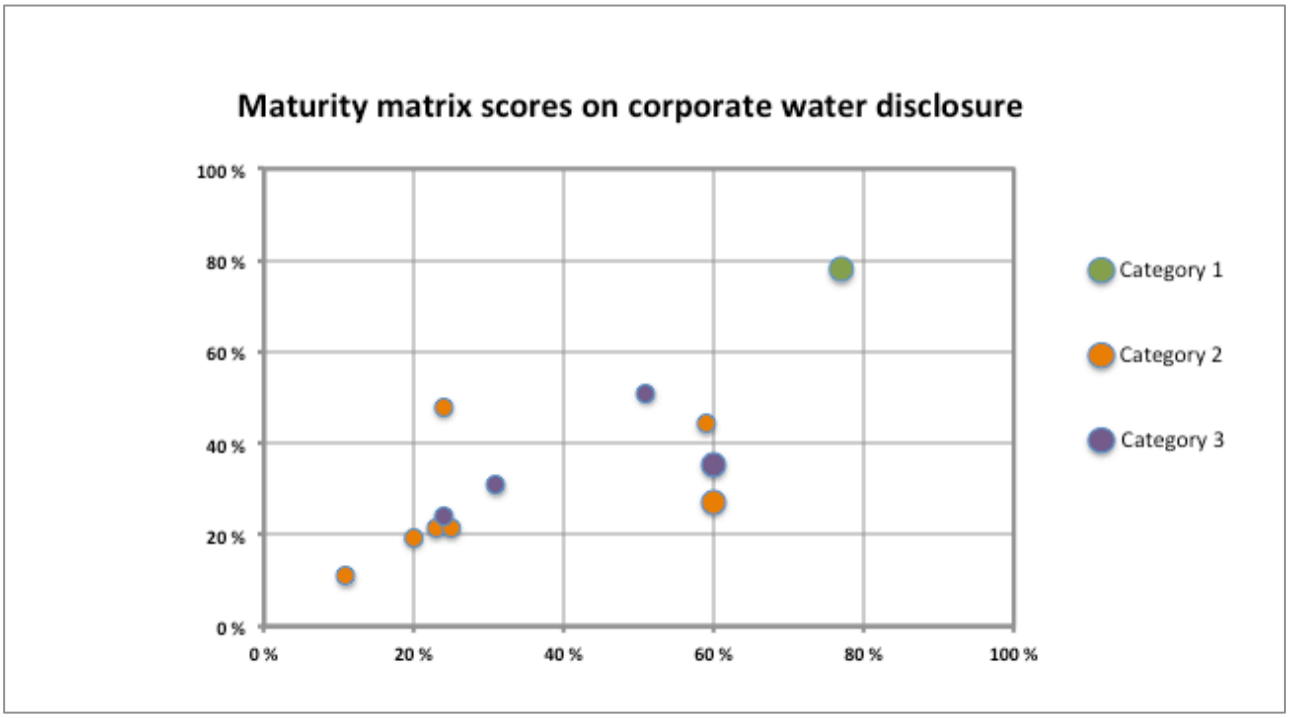


Figure 5 Maturity matrix of corporate water disclosure

5 Analysis & results

This chapter analyzes the disclosure performance of the CEO Water Mandate companies in light of relevant theoretical concepts and frameworks. Section 5.1 will analyze disclosure performance for each of the three content categories, and evaluate these in light of industry specific water challenges. Section 5.2 presents the overall impacts of disclosure practices and the quality of disclosure.

5.1 The CEO Water Mandate companies´ disclosure performance

The empirical data assessment pointed to overall low scores and great variability in what was being reported on by the Mandate companies. This is not a new issue with corporate sustainability reporting (Buhr 1998; Burritt & Welch 1997; Daniel & Sojamo 2012; Guthrie & Parker 1990; Raar 2002; Sethi & Schepers 2013; Stray 2008; Wiseman 1982). However it might be expected that the overall disclosure would be better given the profile of the Mandate as part of an already established global initiative for corporate responsibility. The three content categories of the Mandate disclosure will be related to relevant elements of the theoretical framework to analyze strengths and weaknesses of the Mandate disclosure in light of global water issues.

5.1.1 Category 1: Availability of reporting

As mentioned in chapter 4.3, the results for this content category needs to be understood in light of not only issues of corporate sustainability reporting as a whole, but also in light of the quality of reporting on Category 2a. By looking at the combined percentages of companies that do not provide reporting at all and that provide reporting but no data on water – a total of 42 percent of Mandate companies do in fact not report on water.

There seems to be significant variability in the quality and pattern of reporting. Although the timing of the present study and the issue of companies endorsing the Mandate in 2014 is part of the reason why 42 percent of the companies in effect do not report on water, this is still a significant challenge for the Mandate. Had the data assessment included other aspects of reporting, such as the total volume of reporting on water issues, or the general state of environment management and policies, these variations might be attributed to overall differences in reporting patterns. Although these differences are not quantified in this study,

there are great variations in how companies report, ranging from pioneering their own water initiatives (e.g. Ecolab´s Water Risk Monetizer) to uninformative statements of continued support for the Mandate.

Voluntary standards and initiatives depend on the commitment from those that participate, where the discrepancy between announced and implemented actions is a key source of limited impact and success (Sethi & Schepers 2013). Although this does not necessarily automatically translate into how companies practice corporate sustainability disclosure, it is important to consider that companies need to provide information to external actors in order to demonstrate compliance.

The results for this content category are probably somewhat over-estimating the lack of participation, but it is discerning that the CEO Water Mandate also seems to be suffering from low commitment to action, considering it is an extension of the UN Global Compact system, which has been at the forefront of corporate sustainability for 15 years. Furthermore, when one combines the numbers of companies that do not provide reporting and the companies that do not report on any water indicators, there seems to be added reason for concern about whether the Mandate is successful in "mobilizing a critical mass of business leaders to advance corporate water stewardship" (The CEO Water Mandate 2015d).

5.1.2 Category 2: State of measurement and disclosure of water indicators

The state of measurement and disclosure of water indicators relates to core goals and impacts of water management. Overall, this category is the primary source of weighted data on corporate water disclosure in this study. The quality of disclosure on water indicators relates to the theoretical framework and thus global water challenges in several ways, and these will be analyzed in this section.

The results for this category indicate some key weaknesses of the Mandate, as discussed in chapter 4.3 where the outcome of the assessment described limited reporting and variable quality. The subcategories that are included in Category 2 relate directly to water management practices, risks to business operations and to local communities, and the quality of this reporting reflects how companies observe basic disclosure requirements of

communication on progress to the Mandate. The measured quality is also indicative of how the CEO Water Mandate companies are addressing aspects of global water challenges.

Category 2a: *Total water withdrawal metrics* is as previously mentioned the content category that has the highest differentiation of scores on quality. It is the content category that most Mandate companies report on, but only 21 percent report water withdrawals by source as per guideline requirements. Categories 2c *Total volume and quality of water discharge* and 2d *Environmental burden from water discharge and runoff* are also central to high quality water management and disclosure. These are closely linked, as 2c provides measurement of the wastewater discharge, while 2d estimates the severity of the impacts these discharges have on the receiving ecosystems.

Categories 2b: *Water Recycling and Reuse* and 2f: *Water Efficiency* are not equally important. Water efficiency cannot be improved indefinitely, and has mostly impacts on direct operations of a company more than anything else. Improved efficiency is not likely to reduce total production output, but rather increase it (Alcott 2005). Only 30 Mandate companies report on this binary category, although it should be noted that some companies that have no score on category 2a have reported on water efficiency in category 2f.

Figure 6 presents the distribution of the Mandate companies across nine main economic sectors. Category 2a is particularly relevant in terms of what industries that endorse the Mandate, and how this influences the understanding of risks of poor quality disclosure. These will vary somewhat across economic sectors and industrial processes. Again, corporate water reporting is a key element of environmental management and of demonstrating compliance, and it is important to understand as much detail as possible of the potential impact of poor resource management.

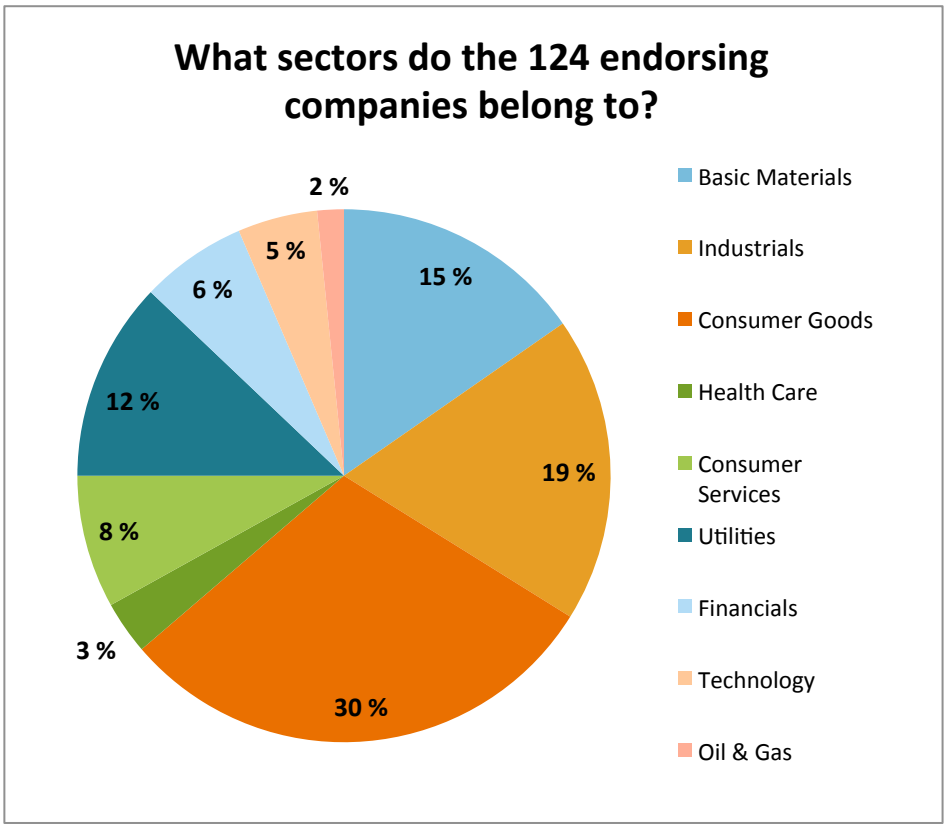


Figure 6 Sector distributions of CEO Water Mandate companies, classified according to the Industry Classification Benchmark standard

There are certain global industries that are more water intensive than others, and because of this position also have more leverage to influence other actors (e.g. value chains or regulators) (Gleick et al. 2014; The CEO Water Mandate 2014; The CEO Water Mandate 2015a). The three largest sectors of this study are also the most water intensive ones, namely: Basic Materials, Industrials and Consumer Goods. 64 percent of the Mandate companies belong to these three sectors. Water intensive industries of interest within these economic sectors are:

- Beverage producers (*14 companies*)
- Textile producers (*3 companies*)
- Food producers (*12 companies*)
- Chemicals (*8 companies*)
- Metals/Mining (*7 companies*)
- Forestry & Paper (*4 companies)*

The three first industries belong to the Consumer Goods sector, while the last three industries belong to the Basic Materials sector.

Consumer Goods: Beverage producers

Beverage producers in this study are mostly manufacturers of soft drinks and bottled water, and breweries. This industry is highly dependent on large volumes of water withdrawals, and has fairly high water consumption, as water is the most important ingredient in their products. As beverage producers have to rely entirely on local water resources in vicinity of the production facilities, because it is not economically feasible to ship water (Daniel & Sojamo 2012), their direct operations are particularly exposed to physical water risks. This also puts them at risk of being in conflict with local communities who share the freshwater resource (Morikawa et al. 2007). For this reason, beverage producers are exposed to reputational risks, due to potential public scrutiny for excessive abstraction of freshwater, particularly (but not only) where there is little regulation or weak governance (Cullet 2011; Morrison et al. 2009b; WWF 2009).

Beverage producers have traditionally published reporting on water of high quality (Morikawa et al. 2007). In the present study, three of the 14 companies achieved no score for category 2a, but this might be attributed to the timing of this study as they all endorsed the Mandate in 2014. 12 of the 14 beverage companies reported on water withdrawals prior to endorsing the Mandate, and 7 out of the 14 beverage producers achieved the highest possible score for category 2a.

Consumer Goods: Textile Producers

Textile producers are in this study only represented by three companies, but these are in return some of the largest textile producers in the world. H&M AB, Levi Strauss & Co, and Nike, Inc. are all endorsers of the CEO Water Mandate. Management of water withdrawals, and transparent disclosure as a means of accountability are important elements of corporate water management for this industry.

Chapagain (2006) reports that cotton production is responsible for 2.6 percent of the world´s total water use, and production of 250 grams of cotton requires 25 cubic meters of water. This in itself exposes the industry to severe physical water risks. The risk further magnifies due to the fact that the agricultural production of the cotton requires large quantities of water, while simultaneously it is typically grown in water scarce regions (Morrison et al. 2009b). If this puts the textile producers in competition over water resources with local communities, the companies also face reputational and regulatory water risks. Furthermore, wastewater

run-off from agro-chemicals can have profound environmental impacts on surrounding ecosystems and freshwater resources, and those that depend on them.

Previous research finds that corporate reporting from textile producers tend to be descriptive and qualitative, with limited disclosure of quantitative data (Morikawa et al. 2007). The quality assessment in the present study supports these findings, perhaps particularly against the backdrop of company profile and company leverage as not only major textile companies but as global brands that have a role in driving the discourse of sustainability within their industry segment (Daniel & Sojamo 2012).

H&M AB is the only textile producer that achieves full score on disclosure quality of category 2a, although this is a shift in reporting that has occurred after the company endorsed the Mandate. Levi Strauss & Co on the other hand does not disclose any comparable data despite clear indications that the company collects detailed data on water withdrawals. Instead the company reporting campaigns extensively for reducing water footprint of consumers (Levi Strauss & Co. 2013).

Consumer Goods: Food producers

Agriculture is responsible for about 70 percent of global water withdrawals (Morrison et al. 2009b). The sheer magnitude of the sector makes it exposed to all types of water risks that come from wide public attention, global demands of production, and general interdependencies between countries and sectors that require food products. 90 percent of water in developing countries is dedicated to food production, and in regions with social challenges the potential competition for water resources is likely to hit hardest those that are already disadvantaged (The CEO Water Mandate 2015a). The most water intensive process of this sector is the irrigation needed for production of raw materials, e.g. grains for consumption, for meat production, or for malteries and breweries. Agriculture is also a significant source of water pollution due to nutrient rich water run-off into local rivers and lakes that causes eutrophication. This poses a significant risk to aquatic ecosystems around the world.

In this study, four companies disclosed low quality data on water withdrawals (i.e. lower half of possible scores), while eight companies disclosed higher quality data (i.e. upper half of possible scores). 10 out of 12 companies reported data on water withdrawals prior to

endorsing the Mandate. Only one of the food producing companies reports high quality data on category 2c, while all companies have no reporting on categories 2d or 2e.

Reporting from this sector is highly variable in terms of what is reported on, and how – which is disconcerting seeing as these companies are part of not only the most water intensive industry in the world, but have also been participants of the UN Global Compact for years.

Basic Materials: Chemicals

Production of chemicals is water intensive, and involves use and discharge of large volumes of potentially harmful substances to both people and environment. This industry is sensitive to physical water risks of access disruption, and it has experienced significant increase in regulation and water-related resolutions the past decade or so (The CEO Water Mandate 2015a). The present study finds that all the companies belonging to this industry measured water withdrawals prior to endorsing the Mandate, proving that water management and disclosure has been implemented for most of the companies for almost a decade. The present study also finds that all companies in this sector provide metrics on water withdrawals of high quality (i.e. upper half of possible scores).

Basic Materials: Metals/Mining

This industry is relevant in terms of water withdrawals due to the vast amounts of water required for mining and refining. These water withdrawals are site specific, directly linked to production facilities, and the water must be thoroughly treated before released back to the environment due to the presence of highly toxic pollutants such as acids. The potential for long-term negative impacts exposes such companies to physical, reputational, regulatory and financial risks (Morikawa et al. 2007; Morrison et al. 2009b). Only one of the Mandate companies in this sector achieves top score for disclosure on water withdrawals, whereas three companies achieve score zero.

Basic Materials: Forestry & Paper

Companies in the forest product sector are often well aware of their dependency on water resources, and the risks associated with this dependency. All four Mandate companies in this sector have high quality disclosure on water withdrawals that achieves the highest or the

second highest score. Three out of the four companies have high quality disclosure on category 2c, which might relate to the harmful chemicals from paper and pulp production that are often subjected to regulation.

Other sectors

The Oil & Gas sector only represents 2 percent of the Mandate companies. The Utilities sector generally reports on the water treatment they perform and the associated environmental savings – without reporting specifically on the water withdrawals in their value chains. This means the disclosure practice is not very precise for this sector, although it holds significant leverage in terms of development and promotion of water efficient technologies. The Financials sector holds similar means of leverage, but generally these companies are not very water intensive as their water withdrawal is mainly for office uses.

5.1.2.1 Summary trends Category 2

One possible explanation for the 41 percent that do not report on category 2a might be that this is symptomatic of management and operational practices not being implemented, and therefore not reported on. Such an assumption would in any case need to be nuanced with the fact that some of the companies which make up the 41 percent that have not reported data on water withdrawals are in the process of developing the policies and practices that are required by the Mandate. 11 Mandate companies that have not reported any data on water withdrawals have actually reported on water usage prior to endorsing the Mandate (see Appendix C Data overview). Furthermore, eight of these companies endorsed the Mandate in 2014, indicating that these might not have had time to provide reporting that falls within the sample of this study (i.e. reporting after date of endorsing). Hence this might be a slight over-estimation of lack of disclosure on all elements in category 2, seeing as category 2a is the indicator that companies primarily report on. Thus, it is reasonable to assume that companies without reporting on 2a have not published high quality disclosure on the remaining elements of category 2.

However, a counter argument might be that there does seem to be a different trend of non-communication for another group of companies: 40 out of the 124 have not reported on water usage prior to or after endorsing the Mandate. This assumption is related to the year each individual company joined the Mandate, and as can be seen from Appendix C these data are not only a result of the timing of this study, since the endorsing years span nearly every year

since 2007. For this particular example then it seems the Mandate is indeed also suffering from either a lack of understanding amongst endorsing companies what is required from the communication on progress, or it relates to a systemic flaw of weak monitoring as discussed by Sethi & Schepers (2013).

5.1.3 Category 3: State of water stewardship

Freshwater is the key link between corporate water use, environmental sustainability and human rights. Thus, it is a key element of water stewardship practices. However, the Mandate companies have generally low frequency of disclosure on elements in Category 3.

Subcategories 3b: *Addressing water scarcity or risk* and 3c: *Regional disaggregation of data* are also central to the overall system of corporate water reporting. The purpose of including these content categories in the analysis is to be able to say something about how companies address freshwater specifically. As the data have shown so far, the Mandate companies are not reporting on water in a manner that is specific enough. When companies report total volumes for their entire company, without disaggregating between what type of water resource they withdraw from – the water volume that is reported, especially for industrial companies, often includes brackish and seawater for cooling purposes. This is an issue for a couple of reasons.

First, seawater and brackish water is generally not subjected to the same regulations as freshwater. These water types do not hold the same economic value as freshwater, nor are they subjected to the same pressures that induce water scarcity and health risks from deteriorating quality. Second, while freshwater is often not only withdrawn from a river or an aquifer and discharged back to the source, significant quantities of water is *consumed*. This relates to the concept of virtual, or embedded, water – not in terms of how water much the supply chain of a product requires, but in terms of how much water is *not* discharged back to the water source because it is part of the product. For agriculture and beverage producers this is in the very nature of their production.

Extraction and consumption of freshwater has a very different impact on people, planet and business than the use of brackish and seawater for industrial cooling – after which the water is often discharged back to the source without any significant alteration of quantity or quality. So when companies that produce food, textiles, grains for beer production, beverages, or that

mine for metals, report one total volume of water withdrawal, the reporting disregards aspects that sets the different water sources apart. By doing so, companies neglect critical features that apply to freshwater alone, and that need to be managed as different from other water resources in order to successfully address key challenges (e.g. risk of conflict, increased water prices, loss of social license to operate).

Category 3c: *Regional disaggregation of data* is reported on by only 30 out of the 124 Mandate companies. The most prominent sectors of the Mandate often have many facilities and operate in a variety of locations, which means that the disclosure is slightly at odds with the nature of how these companies in fact operate. Figure 7 shows the regional distribution of where the Mandate companies are registered.

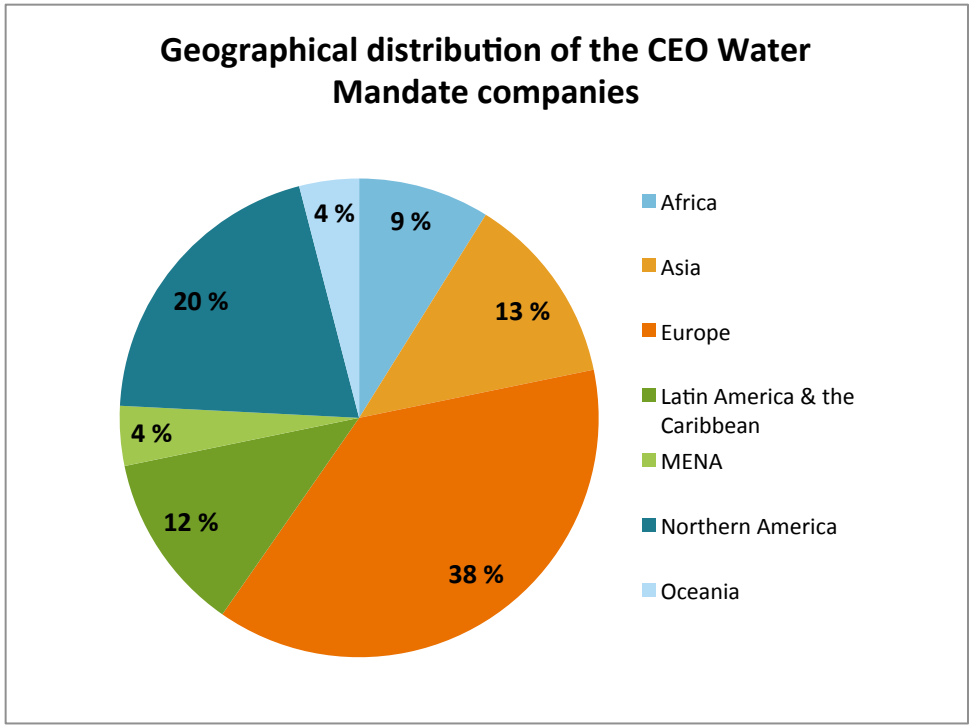


Figure 7 Regional distribution of companies endorsing the CEO Water Mandate

Although water scarcity is a global challenge, it is undoubtedly more pronounced in some regions. More than halve of the Mandate companies are located in Europe and North America, which are not the most critical regions in terms of water scarcity. However, this study finds that the companies that are located in these two regions are in fact the companies that report most extensively on water scarcity or water risk (see Figure 8). This is one of the key reasons why analyzing for content on category 3b is so important: because it is in the concept´s very nature to focus on freshwater resources in a specific geographical location.

Thus, companies are more successful in addressing and mitigating location specific risks, which often relate directly to resource competition, impacts on human health and ecosystem sustainability. A contributing factor to this distribution of reporting on category 3b might also be that many of the textile and beverage producers are registered in Europe or North America, while their production facilities are mainly located elsewhere.

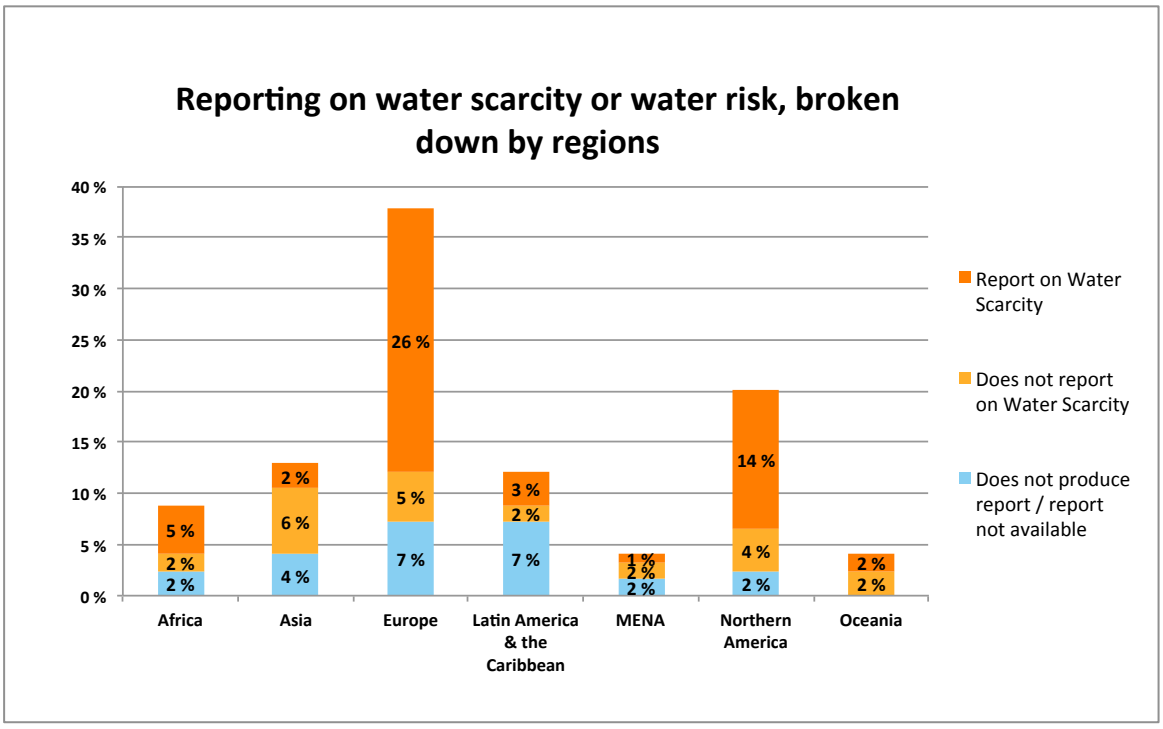


Figure 8 Reporting on water scarcity or water risk to the CEO Water Mandate, broken down by company regions

The overall reporting by Mandate companies on category 3a: *Water footprint* is slightly better, with 30 percent of the companies disclosing either statement of water footprint calculations or the actual results of the calculations. Considering the importance of value chains for an initiative engaging such global and water sensitive sectors, it was expected that more companies would be using the water footprint methodology.

5.2 Ripple effects of corporate disclosure practices

Lofty pronouncements without action are a critical issue for voluntary initiatives. Whether it is done with or without intention, Sethi & Schepers (2013) discuss how proclamations of commitment to change without actual compliance is essentially "bluewashing" of company performance. The article addresses the UN Global Compact specifically, and concludes that

such a “promise-performance gap” challenges the very usefulness and viability of such voluntary initiatives. Another article notes that no news might very well be bad news: companies that report on adverse impacts or lack of compliance with regulations did not elaborate on the details of these (Raar 2002).

The content categories developed for this study apply directly to the Mandate´s success in addressing concerns for business, local communities and surrounding ecosystems – which are all components of potential reputational risks as well as long-term sustainability of water resources (Morrison et al. 2009a; WWF 2013). These content categories represent key elements of maintaining and supporting long-term sustainability of water resources, and of mitigating water risks for all users that depend the water resource. Although the content categories are indeed reflective of the disclosure guidelines issued by the CEO Water Mandate, the quality of disclosure is found to not be satisfactory.

As previously mentioned, about ½ of the Mandate companies disclose data that are not transferable to empirical assessments. If a water resource is poorly managed and over-abstracted, the potential financial risks associated with disruption of freshwater access is likely to affect not only a company´s production abilities, but it might also trigger responsive regulatory action. This could lead to increased costs or extensive requirements for attaining licenses to operate due to more stringent regulation. Insufficient water resource management could potentially cause damage to a company´s reputation, especially if the company has a global business model.

One such example is Coca-Cola. The company relies on a non-export model of production, which makes it fully dependent on access to local water resources. Company compliance and maintaining their license to operate is therefore imperative. After losing their license to operate in the Kerala region in India due to negative public perception of the company and its operations, Coca-Cola responded by developing a global and precautionary water strategy (Daniel & Sojamo 2012). Bad behavior might ultimately cause irreparable damage to public perception of a company, resulting in the loss of its social license to operate.

Disclosure quality is imperative to have meaningful corporate water reporting systems. Daniel & Sojamo (2012) argues that companies who are developing, implementing and promoting water accounting, disclosure, methodology and management principles are in fact contributing to emergence of a private global water governance regime. The article compares

the case of water to that of carbon, where global standards for accounting and disclosure have emerged over a decade or so, as a result of institutional entrepreneurship. Some report that concept of 'water stewardship' has become more important than pursuing operational water efficiency (Sethi & Schepers 2013), and others stress the imperative of addressing water scarcity as a global issue that has significant impact on local water resources (Cullet 2011).

In order for the CEO Water Mandate to successfully address the global challenges of water it is imperative that the endorsing companies implement policies and practices that produce quality of management, and of reporting.

6 Recommendations to the CEO Water Mandate

"The big problem is that the genre´s development so far has been haphazard. No one powerful organization has taken responsibility for its progress. […] winning reports are as notable for their differences as for their similarities. There is little agreement among the followers of best practice as to what the best practice should be."

The Economist (2004)

Drawing upon the results from the analysis in chapter 5, this chapter presents suggestions for improvement of the reporting system in terms of corporate water management.

6.1 Sector specific disclosure

Disclosure guidelines should be tailored to specific industries according to their potential positive and negative impacts on water challenges for business, people and planet. Although the CEO Water Mandate, GRI and CDP all have sector specific guidelines in place (GRI 2014; The CEO Water Mandate 2014), the communication on the critical elements and their intentional as well as adverse impacts needs to be strengthened. This study finds significant variation in quality and frequency of reporting on water indicators. Such haphazard variability of corporate sustainability reporting of water-intensive sectors, with significant global leverage, could potentially reduce the Mandate to just another voluntary initiative without any real impact.

In the words of The Economist: the demands for harmonization of reporting practices, exemplified by GRI "demonstrates the drawbacks of trying to impose the sort of one-size-fits-all format (…)" (2004).

It is unclear how these sector specific guidelines contribute to increased accountability for companies with respect to water. Particularly with respect to the challenges of generating meaningful water reporting for industries such as Utilities and Financial – outlier sectors with off-target reporting, but significant leverage. Water is expanding not only into economic risk, but also into societal and naturally environmental risks. Variation in disclosure of Mandate companies goes a way to demonstrate that the discourse on water is spread thin and under-communicated. This diminishes the Mandate´s actual ability to drive the corporate water disclosure regime in the direction of increased transparency, and thus accountability.

6.2 Emphasizing regional disclosure

By stressing the utility of disclosure of regionally disaggregated data, the CEO Water Mandate would contribute to driving the global regime on corporate water reporting to improve transparency and accountability by linking specific water resources with impacts on the long-term sustainability of these due to companies´ water withdrawals and discharges. The CDP Water Questionnaire (2015b) goes a long way to encourage and request such geographically specific data, but for the sake of the Mandate this has not yet translated into satisfactory disclosure quality.

Chapter 5 found that by analyzing regionally disaggregated data, it was possible to advance the understanding of how water withdrawals could be linked to freshwater specific issues, such as water scarcity, human rights, and potential for conflict.

6.3 Encouraging risk mitigation through value chain engagement

Value chain considerations were overall neglected to a greater extent than they were incorporated in management and disclosure practices. Generally, value chain impacts are larger than those of direct operations (Morrison et al. 2009b).

The water footprint methodology was not widely used by the Mandate companies, despite being a highly useful tool to understand value chain impacts and sensitivities (Chapagain 2006; Chapagain et al. 2006; ISO 2014; Water Footprint Network 2011). Water footprint quantifies specific so-called 'hot-spots' for potential adverse environmental impacts, and for water savings. Although companies with vast, complex value chains cannot be expected to fully and successfully manage these (e.g. textile producers), it is critical for water security of local communities and global companies alike that water resource governance is aligned and focused. Despite the utility of the water footprint methodology to achieve just this, the analysis in chapter 5 finds that the Mandate companies seldom use it.

6.4 Feedback mechanisms

This final recommendation touches upon an issue of voluntary initiatives that reaches far beyond the CEO Water Mandate. Although it might be unrealistic to expect successful monitoring or oversight in light of the amount of resources it would demand, compared to the

effect this might have on water management practices – some sort of feedback mechanism seems to be an unavoidable feature. It is imperative in order to ensure effectiveness and integrity. Although the "name and shame" practice by publicly de-listing companies that free ride has been one of the very few available sanctions (Sethi & Schepers 2013), this still requires what might be unrealistic amounts of resources to successfully implement. Still, this study does argue that market forces and consumer will alone are not sufficient drivers – and the fact of the matter is that policies and strategies are useless unless they produce tangible results.

7 Discussion

This study has quantified and analyzed the content in corporate water reporting by the 124 companies that endorse the CEO Water Mandate. Relevant theory, concepts and frameworks have been applied to give an overview of corporate water management, and relevant guidelines and initiatives have provided the foundation for the development content categories. The outcome of the study is four recommendations on disclosure practices to the CEO Water Mandate.

The following chapter discusses the results and recommendations provided in this study. The chapter also discusses the research questions that have guided the analysis, before finally addressing aspects of quality, such as the validity and reliability of the study.

7.1 Summary of results

The purpose of this study has been to assess corporate reporting on water to the CEO Water Mandate, and the study has been guided by five research questions given in chapter 1.3:

i. What are the current relevant management and reporting practices on water?
ii. How is water addressed as resource in light of global sustainable development?
iii. What do the CEO Water Mandate companies report on water?
iv. How can the quality of this reporting be assessed?
v. How does the content and quality of the reporting to the CEO Water Mandate align with what´s necessary to tackle global water issues?

The first two research questions are covered in Chapter 3 *Theoretical framework*, where relevant institutional frameworks, ISO standards, initiatives and concepts are described. The chapter also provides an overview of water as a global resource, and the tools that are available for managing it, including corporate disclosure guidelines. The third and fourth research questions, *"What do the CEO Water Mandate companies report on water?"* and *"How can the quality of this reporting be assessed?"* are addressed in Chapter 4. Empirical data assessment based on the theoretical framework and disclosure guidelines quantifies the content of the corporate water reporting, and provides analysis of its quality.

The fourth research question is covered in chapters 5 *Analysis & Results* and 6 *Recommendations to the CEO Water Mandate*. Chapter 5 analyzes the empirical data in light of the theoretical framework, focusing on relevant concepts, water risks, and water intensive

industries. Chapter 6 draws upon the results from Chapter 5, and suggests four possible means of improving the corporate water disclosure in terms of frequency and quality of reporting on specific water indicators.

7.1.1 Empirical data assessment

The empirical assessment found that the Mandate companies publish highly variable and overall low quality corporate water reporting. Just over 20 percent of the companies provide no reporting at all, but this might be due to the timing of the present study (ref Chapter 5.1.1). This number is even higher if one considers the companies that have published reporting without any disclosure of data on water. The variability and overall low quality could be a result of lack of monitoring, or lack of consensus on best practices.

The coding scheme and method for ranking of quality of reporting was based on widely accepted and applied disclosure guidelines, such as GRI and CDP Water. The method also incorporated insights from an initial overview of what was reported on by the companies. Previous research and literature have often conducted broad, although less in-depth assessments of corporate sustainability reporting. The assessment undertaken in this study was based on a limited number of indicators, chosen specifically for their relation to freshwater resources. No attempt is made to say anything about how much attention companies pay to water in general, or about companies´ environmental management systems as a whole. No assessment is made on the six core elements of Mandate, nor on environmental or water specific strategies and policies. Hence, the present study should be regarded as a focused cross-section of what the corporate reporting contains.

7.1.2 Disclosure analysis

The analysis of empirical data in relation to global water challenges and concepts found that there is a certain risk associated with the variable understanding of what water data to include in corporate reporting. There is an overall weakness to the Mandate when some participants do not issue water reporting at all, but this becomes a more critical issue when companies that are considered to fulfill the requirement of water disclosure in fact do *not* report any comparable data on water.

Companies that endorse the Mandate are often aware of the risks associated with having water-intensive operations. They are often involved in more than one initiative, and might

have contributed with innovation themselves. Therefore it is disconcerting to see the low quality and significant variability in reporting. In terms of contributing to the global water disclosure regime, as discussed by Daniel & Sojamo (2012), the quality of disclosure on data is more critical than the volume and frequency of reporting. Certain tools and concepts are gaining momentum, and with the institutionalization of the water footprint methodology in the new ISO 14046 standard this can be expected to promote its use, which in turn will improve understanding and disclosure on water significantly in the coming years.

The analysis also found that the majority of companies belong to water intensive sectors, and that incorporating information on specific geographic locations of companies and their operations is imperative for successfully addressing challenges of water resources, particularly freshwater ones. There is however a need for caution with assuming that the quantified quality of reporting reflects quality of management practices. Furthermore, the Mandate companies make up only 1.5 percent of the 8,000 companies participating in the UN Global Compact. For this reason, the overall results from analysis should be understood as the small sample that it is.

7.2 Discussion of recommendations

Freshwater management is a central aspect of the recommendations given in Chapter 6. This study found that the disclosure guidelines of the Mandate are to a very limited extent successful in getting companies to report data in a manner that captures freshwater concern specifically. The primary motivation for including the indicators in Category 3 *State of water stewardship* was to focus on freshwater resources specifically.

Supplier and value chain engagement targets another source of weakness associated with voluntary regulations and initiatives, as discussed by Sethi & Schepers (2013). As participation in the CEO Water Mandate is limited to companies, this is effectively a systematic exclusion of non-corporate organizations and individuals that are key stakeholders of the water resources in question.

Overall challenges with voluntary regimes relate to the potential failure of aspirations to have tangible impacts on the world and its systems. The main challenge of freshwater management seems to be a result not so much of water shortages as it is of outdated models for how to govern natural resources. Efforts to respond to needs of improved corporate water

management has led to proliferation of assessment and disclosure tools, causing companies to spend resources on reporting that ultimately has highly varied content which is not easily comparable. The result of which is reduced value and quality of the reporting (The CEO Water Mandate 2014). Although disclosure guidelines are progressing towards harmonization, the present study does not automatically prescribe harmonized approaches to water reporting in order to solve some of the issues uncovered. It is more important to achieve focused and precise reporting.

7.3 Strengths & limitations

There are some challenges with quantifying quality of corporate sustainability reporting. Several global institutions provide large-scale assessments of corporate sustainability performance and reporting, such as Dow Jones Sustainability Indices and CERES, where they apply different methods of content and quality measurements. These measurements might be frequency of specific words, reporting volumes on particular topics, or whether specific issues are described as prose or translated into monetary terms – and they might be weighted or not. This variability in 'best practice' is also found in the literature, and makes it challenging to decide for or against any specific method.

The present study is unique in that it provides in-depth analysis on quality of corporate water reporting. The strengths of the results relates to the generation of comparable data from assessment of specific content. The method combines aspects from widely used and respected disclosure frameworks on water, making the assessment generally useful for corporate reporting on water. The results apply to a wide range of economic sectors, with emphasis on those that are known to be particularly water-intensive. The results also address global water challenges and how these translate into local considerations in a broad context of impacts.

Limitations of the study and its results might be related to the sampling of reporting and of companies. Although significant global actors in terms of corporate water use are represented, the sampling of companies is fully determined by the composition of the CEO Water Mandate. Hence, the sampling does not strive for statistical distributions across economic sectors, company size or geographical locations. The study does not include assessment of reporting developments over time, which is mainly due to time limitations. Furthermore, the companies that are included in the sample are not representative of the disclosure performance of the Mandate since 2007, as the composition and number of

endorsing companies has changed significantly since then. The study might suffer from a lack of extended context on the corporate reporting of the individual companies, as no overall assessment of the reporting has been made.

The use of binary coding for certain content categories reduces the ranking of quality for certain indicators, although useful in terms developing and understanding of the body of reporting as a whole.

7.4 Validity & reliability

Ensuring valid and reliable results from content analysis relates to two aspects especially: inter-coder reliability, and necessity of some level of interpretation by the researcher when constructing coding schemes. Both these aspects are addressed by relying on the Mandate, GRI and CDP disclosure frameworks, without this method ensuring full mitigation of the risk of possible errors.

Firstly, interpretation of theory is necessary in order to build a relevant coding scheme. As discussed in the previous chapter, measuring quality of corporate sustainability reporting can be done in numerous ways. By selecting content categories from these disclosure frameworks, that are indeed what most Mandate companies use in their reporting, and adapting the coding scheme to account for what theoretically constitutes quality of reporting on water – this study has sought to minimize the subjective interpretation of the researcher.

Secondly, inter-coder reliability depends on the risk of inter-coder errors (i.e. two researchers coding same content in different ways). Relying on the methods used in several corner-stone frameworks for corporate water disclosure serves as a proxy for testing of inter-coder reliability. Reducing the number of content categories also contributes positively here, as this reduces the risk of different interpretations of content, although this does increase the risk of random agreement. Overall, content analysis is a highly transparent method of research, so any obvious issues of validity and reliability are hopefully easily spotted from coding instructions and schemes.

The sampling of materials for data collection is well suited to answer the research questions, and benefits from the fact that most of the companies use third-party verification of their corporate reporting. The internal validity of this study is ensured through continuous incorporation of documents and guidelines published by the CEO Water Mandate or

associated organizations or institutions. The results apply to a wide variety of economic sectors, geographical locations and production processes, which has positive impact on the reliability of the study.

8 Conclusion & further research

Water is becoming an increasingly global resource, and it challenges the traditional approach of silo management where business, civil society, human rights and water trade could be treated as separate. Although traditionally considered an issue for governments, water is a top issue for business in 2015. This study has assessed the content and quality of corporate water reporting from the CEO Water Mandate, and given recommendations for improvements.

Corporate environmental disclosure is a critical feature of accountability, and drives the global regime of corporate reporting. It is therefore vital that the quality of such reporting is understood and measured. This study incorporates relevant theories and concepts, and acknowledged reporting frameworks. The outcome provides a method for coding content in reporting on water, and assessing its quality.

The empirical data assessment is analyzed in light of water challenges and specific characteristics of the various economic sectors that the Mandate companies represent. The results of this study finds that freshwater and seawater are not adequately addressed according to how they impact business, people and planet in very different manners. The recommendations therefore suggest taking measures that relates to freshwater resources specifically. If water resources are exposed to lasting damage by company operations, this can potentially result in loss of social license to operate.

If further research on this topic was to be conducted, then it might be interesting to extent the empirical data assessment to include water indicators that were excluded in this study, and also to assess the environmental reporting of the companies as a whole to build more context. It would also be interesting to incorporate legitimacy theory, and investigate how these reporting practices seem to diffuse throughout economic sectors as part of building consensus on what constitutes legitimate operations.

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10 Appendices

Appendix A – *Units of analysis*

Category	Purpose	Corresponding elements in other frameworks[1]
Cat 1 Available reporting	Mapping if companies provide sustainability reporting	If no reporting, companies should be categorized as 'non-communicating' or similar
Cat 2 State of measurement and disclosure of water indicators	Accumulative scoring of quality on performance reporting	None.
Cat 2a Total water withdrawal metrics	Mapping whether companies report numerical data, and ranking data disclosure according to transparency & accountability	**Mandate**: 'Location specific performance data' **GRI**: environmental indicator EN8 & G4-EN8 **CDP**: question W1.2a, W5.1
Cat 2b Water recycling and reuse	Ranking efforts to mitigate local impacts from withdrawal & discharge, also warrants reduced impact in water footprint calculation	**Mandate**: 'Internal actions', 'implications' **GRI**: environmental indicator EN10 **CDP**: none
Cat 2c Total volume and quality of water discharge	Discharges to environment are directly related long-term impacts on water quality, availability & scarcity for basin/watershed	**Mandate**: 'Location specific performance data' **GRI**: environmental indicator EN21 & G4-EN22 **CDP**: W1.2b, W5.2, W5.2a
Cat 2d Environmental burden from water discharge and runoff on receiving ecosystem	Rank disclosure on characteristics & effects on habitats and their biodiversity value relevant for long-term sustainability & stewardship practices	**Mandate**: 'Context', 'Performance' **GRI**: environmental indicator EN25 & G4-EN26 **CDP**: W1.4, W9
Cat 2e Number and volume of significant spills	Rank disclosure on disclosure of accidents & compliance, which is often "bad news" and typically under-reported	**Mandate**: 'Compliance', 'Business risks', 'External impacts' **GRI**: environmental indicator EN23 & G4-EN24 **CDP**: W1.4, W3.2c & d, W7
Cat 2f Water efficiency	Not asked for by most frameworks, but important for mapping improvements, also on sector level for best practice sharing	**Mandate**: 'Performance' **GRI**: none (but related to Cat 2a & 2b) **CDP**: none
Cat 3 State of water stewardship	Accumulative scoring of quality on stewardship reporting	Defined in present study as measures beyond common management practices
Cat 3a Water footprint	Disclosure of EMS extended to value & supply chain, key to have overview of total impacts	**Mandate**: 'Context', 'Performance', 'Internal actions' **GRI**: none **CDP**:
Cat 3b Addressing water scarcity or water risk	Mapping disclosure of location specific freshwater risks, which implies community engagement	**Mandate**: 'Context', 'Performance', 'Business risk' **GRI**: none **CDP**: W1, W2, W3
Cat 3c Regional disaggregation of data	Mapping level of data detail, central to water stewardship & understanding impacts	Same as Cat 2a
Cat 4 Company UNGC differentiation level	Mapping overall external consideration of reporting practices	None.

[1] Unless otherwise stated, 'Mandate' in other similar frameworks refers to the 2015 CEO Water Mandate *Corporate Water Disclosure: Toward a Common Approach to Reporting Water Issues*.

Appendix B – *Coding descriptions and instructions*

Category	Description and decision rules	Coding values
Cat 1 Availability of data	Publicly available and published reporting (yes/no)	No reporting = 0 Available = 1
Cat 2 State of measurement and disclosure of water indicators	Weighted accumulative score for sub-categories	
Cat 2a Total water withdrawal metrics	Data on company water withdrawals, ranked by level of transparency and disaggregation of data as prescribed by guidelines (weighted range)	No data = 0 Non-comparable data = 1 Total water data = 2 Water data disaggregated by source = 3
Cat 2b Water recycling and reuse	Relative or absolute metrics (yes/no)	No data/not reported on = 0 Partially reported = 1 Fully reported = 2
Cat 2c Total volume and quality of water discharge	Data on company discharge volume and pre-treatment (weighted range)	No data/not reported on = 0 Partially reported = 1 Fully reported = 2
Cat 2d Environmental burden from water discharge and runoff on receiving ecosystem	Consideration surrounding natural environment, its characteristics and susceptibility to impacts (weighted range)	No data/not reported on = 0 Partially reported = 1 Fully reported = 2
Cat 2e Number and volume of significant spills	Report the total number and total volume of recorded significant spills	No data/not reported on = 0 Partially reported = 1 Fully reported = 2
Cat 2f Water efficiency	Measurement and disclosure of water efficiency of company operations (binary)	No data = 0 Fully = 1
Cat 3 State of water stewardship	Weighted accumulative score for sub-categories	
Cat 3a Water footprint	Counted as reporting on calculation of water footprint, simple mention of measure warrants same as no calculation	No calculation/only mention of method = 0 Fully = 1
Cat 3b Addressing water scarcity or water risk	Mention of either warrants yes	No data = 0 Data on either = 1
Cat 3c Regional disaggregation of data	Level of measurement and disclosure of regional disaggregation of water data	No/partial = 0 Fully = 1
Cat 4 Company UNGC differentiation level	Achievement level of disclosure and transparency on Communication on Progress to UNGC	GC Learner = 0 GC Active = 1 GC Advanced = 2
Total		Max score = 18

Appendix C – *Overview companies and reporting*

Company #	Name	Title of reporting	Year of reporting	Links to reports	Where reporting was collected from	Country	Sector name (ICB)	Secto (ICB
1	**AAR Holdings Ltd.**	No current COP	Endorsed in 2014	No COP yet		*Kenya*	Health Care Equiptment & Services	4
2	**AB Electrolux**	Annual Report 2010	2010	http://annualreports.electrolux.com/2010/en/	Company website	*Sweden*	Household Goods & Home Construction	3
		Annual Report 2014	2014	http://www.electroluxgroup.com/en/wp-content/uploads/sites/2/2015/02/Electrolux-Annual-Report-2014.pdf	Company website			
3	**Aequator Groen & Ruimte**	No current COP	Endorsed in 2014	No COP yet		*The Netherlands*	Support Services	2
4	**Agbar - Sociedad General de Aguas de Barcelona, S.A.**	Informe de Responsabilidad Corporativa 2009	2009	http://www.masdesarrollosostenible.com/uploads/pdf/9b6df7061b0a2ebcba1db1abf1890bfd.pd	Company website	*Spain*	Gas, Water & Multi-utilities	7
		Sutainability Report 2013	2013	http://www.masdesarrollosostenible.com/en/sustainable-development-report-2013/accountability/gri-index/specific-basic-content	Company website			
5	**Agricola Chapi S.A.**	No current COP	Endorsed in 2014	No COP yet		*Peru*	Food Producers	3
6	**Akzo Nobel N.V.**	AkzoNobel Report 2009	2010	https://www.unglobalcompact.org/system/attachments/4750/original/AkzoNobel_Report_2009.pdf?1269621554	UNGC Participant Search	*The Netherlands*	Chemicals	1
		Sustainability Report 2013	2013	http://report.akzonobel.com/2013/ar/sustainability/environment/note-18-water.html	Company website			
7	**Allergan**	2015 Sustainability Performance Report	2010	Same as for 2014	Company website	*USA*	Pharmaceuticals & Biotechnology	4
		2015 Sustainability Performance Report	2014	http://www.allergan.com/assets/pdf/Sustainability_Performance_Report.pdf	Company website			
8	**ÁLON**	No current COP	2013	No COP		*Singapore*	Consumer Services	5
9	**Aluminum Corporation of China**	Unknown	2009	Data unavailable (foreign language)		*China*	Industrial Metals & Mining	1
		2013 Social Sustainability Report	2013	Data unavailable (foreign language)	CEO Water Mandate website			
10	**Anadolu Efes Biracilik ve Malt Sanayii A.S**	COP 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/103051/original/AnadoluEfes_Sustainability_Report_2013_eng.pdf?1408562461	UNGC Participant Search	*Turkey*	Beverages	3
11	**Anheuser-Busch InBev NV**	Global Citizenship Report 2010	2010	https://www.unglobalcompact.org/system/attachments/10425/original/FINAL_2010_ABI_GCR_Posted_May_2011_ABI_site.pdf?1306205349	UNGC Participant Search	*Belgium*	Beverages	3
		2014 Global Citizenship Report	2014	http://www.ab-inbev.com/content/dam/universaltemplate/abinbev/pdf/sr/global-citizenship-report/AB_InBev_GCR_2014.pdf	Company website			
12	**Atlas-Atlantic Integrated Consults**	COP 2014	2014	https://www.unglobalcompact.org/COPs/learner/130041	UNGC Participant Search	*Nigeria*	General Indsutrials	2

13	**Avon Metals Ltd**	2009 Sustainability Report	2009	https://www.unglobalcompact.org/system/attachments/4644/original/2009_Sustainability_Report.pdf?1268299813	UNGC Participant Search	*UK*	Industrial Metals & Mining	1
		COP 2013	2013	https://www.unglobalcompact.org/system/attachments/cop_2014/123461/original/United_Nations_Global_Compact_COP_2013.pdf?1416676894	UNGC Participant Search			
14	**Banco do Brasil S.A.**	Annual Report 2010	2010	http://www.bb.com.br/docs/pub/siteEsp/ri/eng/dce/dwn/annualReport2010.pdf	Company website	*Brazil*	Financial Services	8
		2013 Annual Report	2013	http://www45.bb.com.br/docs/ri/ra2013/eng/ra/index.htm	Company website			
15	**Banka BioLoo Pvt Ltd**	No current COP	2014	No COP yet		*India*	Gas, Water & Multiutilities	7
16	**Baosteel Group Corporation**	CSR Report 2013	2009	Same as for 2013	Company website	*China*	Industry & Metals Mining	1
		CSR Report 2013	2013	http://tv.baosteel.com/web/plc/csr/2013CSR_E.pdf	Company website			
17	**Bavaria S.A.**	No current COP	2014	No COP yet		*Colombia*	Beverages	3
18	**Bayer AG**	Annual Report 2009	2009	http://www.bayer.com/en/gb-2009-en.pdfx	Company website	*Germany*	Chemicals	1
		Annual Report 2014	2014	http://www.annualreport2014.bayer.com/en/bayer-annual-report-augmented-version-2014.pdfx	Company website			
19	**Belgicast Internacional, SLU**	No current COP	Endorsed in 2014	No COP yet		*Spain*	Gas, Water & Multiutilities	7
20	**Calvert Investments, Inc.**	COP 2009	2008	https://www.unglobalcompact.org/system/attachments/3470/original/COP.pdf?1262614902	UNGC Participant Search	*USA*	Financial Services	8
		Corporate Sustainability Report 2011 - 2013	2013	https://www.unglobalcompact.org/system/attachments/cop_2014/132111/original/Calvert_Sustainability_Report.pdf?1419794543	UNGC Participant Search			
21	**Carbon Credit Capita**	No current COP	Unknown	No COP		*USA*	Consumer Services	5
22	**CarbonNeutral Company**	No current COP	Unknown	No COP		*USA*	Consumer Services	5
23	**Caribbean Office of Trade & Industrial Development Limited**	No current COP	Unknown	No COP		*Trinidad and Tobago*	Support Services	2
24	**Carlsberg Group**	Communication on Progress 2009	2009	http://www.carlsberggroup.com/csr/ourfocusareas/2009COP/Pages/default.aspx		*Denmark*	Beverages	3
		CSR Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/142931/original/Carlsberg_Group_COP_2014.pdf?1425072290	UNGC Participant Search			
25	**Celsia S.A. E.S.P.**	Reporte Integrado 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/146981/original/Reporte_Integrado_CELSIA_2014.pdf?1426791341		*Colombia*	Electricity	7
26	**Cementos Argos S.A.**	No current COP	Endorsed in 2014	No COP yet		*Colombia*	Construction & Materials	2
27	**CH2M Hill**	Sustainability Report 2011	2010	http://www.ch2m.com/corporate/sr/reports/CH2M-HILL-Sustainability-Report-2011.pdf	Company website	*USA*	Support Services	2
		Sustainability Report 2013	2013	http://www.ch2m.com/corporate/sr/reports/CH2M-HILL-Sustainability-Report-2014.pdf	Company website			
28	**The Coca-Cola Company**	2007/2008 Sustainability Review	2007	https://www.unglobalcompact.org/system/attachments/1075/original/COP.pdf?1262614242	UNGC Participant Search	*USA*	Beverages	3
		The Water Stewardship and Replenish Report 2013	2013	https://www.unglobalcompact.org/system/attachments/cop_2015/143861/original/2013-2014-coca-cola-sustainability-report-pdf.pdf?1425500646	Company website			

29	**Coca-Cola Enterprises Inc.**	2009 Corporate Responsibility and Sustainability Report	2009	https://www.unglobalcompact.org/system/attachments/5467/original/2009_CCE_CRS_Report.pdf?1277153686	UNGC Participant Search	*USA*	Beverages	3530
		Corporate Responsibility & Sustainability Report 2012/2013	2013	https://www.unglobalcompact.org/system/attachments/89391/original/CCE_CR_2014_Full_Report.pdf?1403188608	UNGC Participant Search			
30	**Coca-Cola Hellenic**	Annual Report 2008	2008	http://www.coca-colahellenic.com/~/media/Files/C/CCHBC/Annual%20Reports/ar08-complete.pdf	Company website	*Greece*	Beverages	3530
		Annual Integrated Report 2014	2014	http://www.coca-colahellenic.com/~/media/Files/C/CCHBC/Annual%20Reports/Annual%20Integrated%20Report_2014.pdf	Company website			
31	**Corporation Solar Alliance**	Unknown	2013	Data unavailable (foregin language). https://www.unglobalcompact.org/system/attachments/cop_2014/91421/original/%D0%9E%D1%82%D1%87%D0%B5%D1%82_%D0%BE_%D0%BF%D1%80%D0%BE%D0%B3%D1%80%D0%B5%D1%81%D1%81%D0%B5_2014.pdf?1403869401	UNGC Participant Search	*Ukraine*	Technology Hardware & Equipment	9570
32	**Coway Co., Ltd.**	Sustainability Report 2010	2010	https://www.unglobalcompact.org/system/attachments/11276/original/2010_coway_SR_EN.pdf?1310992012	UNGC Participant Search	*Republic of Korea*	Household Goods & Home Construction	3720
		Intergrated Report 2012	2012	https://www.unglobalcompact.org/system/attachments/89321/original/Integrated_report_coway_2013_en.pdf?1403165220	UNGC Participant Search			
33	**Danone**	Sustainability Report 2008	2008	http://www.danone.com/uploads/tx_bidanonepublications/Danone_Sustainability_Report_2008.pdf	Company website	*France*	Beverages	3530
		Sustainability Report 2013	2013	http://www.danone.com/uploads/tx_bidanonepublications/Danone_Sustainability_Report_2013_01.pdf	Company website			
34	**De Beers Group of Companies**	Report to Society 2009	2009	https://www.unglobalcompact.org/system/attachments/5123/original/De_Beers_Report_to_Society_2009.pdf?1273842744	UNGC Participant Search	*South Africa*	Mining	1770
		CEO Water Mandate COP 2013/2014	2013	http://ceowatermandate.org/files/endorsing/DeBeers_2014.pdf	CEO Water Mandate website			
35	**DGB Financial Group**	2010-2011 Sustainability Report	2010	https://www.unglobalcompact.org/system/attachments/12001/original/DGB_Financial_Group_2010_2011_Sustainability_Report-English.pdf?1316151492	UNGC Participant Search	*Republic of Korea*	Financial Services	8700
		2013-14 Sustainability Report	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/106861/original/DGB_Financial_Group_2013-14_Sustainability_Report.pdf?1410396357	UNGC Participant Search			
36	**Diageo Plc**	Corporate Citizen Report 2008	2008	https://www.unglobalcompact.org/system/attachments/1738/original/COP.pdf?1262614284	UNGC Participant Search	*UK*	Beverages	3530
		Sustainability and Responsibility Performance Addendum to the Annual Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/109611/original/Diageo_S_R_Performance_Addendum_2014.pdf?1411457951	UNGC Participant Search			
37	**Dints International Ltd**	No current COP	Endorsed in 2014	No COP yet		*UK*	General Industrials	2720
38	**The Dow Chemical Company**	2008 Global Reporting Initiative Report	2008	http://www.dow.com/en-us/science-and-sustainability/sustainability-reporting	Company website	*USA*	Chemicals	1350
		2013 Annual Sustainability Report	2013	https://www.unglobalcompact.org/system/attachments/cop_2014/92871/original/GRI_2013_Sustainability_Report.pdf?1404310113	UNGC Participant Search			

39	**DSM NV**	Triple P Report 2009	2009	http://www.dsm.com/content/dam/dsm/cworld/en_US/documents/triple-p-2009-en-planet.pdf	Company website	*The Netherlands*	Chemicals	
		Integrated Annual Report 2014	2014	http://www.dsm.com/content/dam/dsm/cworld/en_US/documents/dsm-integrated-annual-report-2014-planet-in-2014.pdf	Company website			
40	**Ecolab Inc.**	2013 Sustainability Report	2012	Same as for 2013	Company website	*USA*	Support Services	
		2013 Sustainability Report GRI Index	2013	http://www.ecolab.com/~/media/Ecolab/Ecolab%20Home/Documents/DocumentLibrary/Reports/Sustainability/Ecolab_2013SustainabilityReportGRIIndex.ashx	Company website			
41	**Ecopetrol**	Integrated Sustainable Management Report 2012	2012	http://www.ecopetrol.com.co/english/documentos/Report_Ecopetrol_English.pdf	Company website	*Colombia*	Oil & Gas Producers	
		Integrated Sustainable Management Report 2013	2013	http://www.ecopetrol.com.co/especiales/html_ingles/pdf/ecopetrol_2013.pdf	Company website			#N/
43	**Empresas Publicas de Medellin**	No current COP	Endorsed in 2014	No COP yet		*Colombia*	Gas, Water & Multiutilities	
44	**Enel**	No current COP	Endorsed in 2014	No COP yet		*Italy*	Electricity	
45	**Eskom**	COP 2011	2011	https://www.unglobalcompact.org/system/attachments/10981/original/Fact_Sheet_Eskom_Communication_on_Progress_UN_GC_13_June_2011_rev_0.pdf?1309358824	UNGC Participant Search	*South Africa*	Electricity	
		COP 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/108781/original/United_Nations_Global_Compact_COP_Eskom_September_2014.pdf?1411037768				
46	**Euro Mec S.r.l.**	No COP	2010			*Italy*	General Industrials	
		No current COP	2014					
47	**Express Transindo Utama**	Annual Report 2013	2013	https://www.unglobalcompact.org/system/attachments/cop_2014/98051/original/Annual_Report_PT_Express_Transindo_Utama_Tbk_2013.pdf?1406109148	UNGC Participant Search	*Indonesia*	Industrial Transportation	
		No current COP	2014					
48	**Famoc Depanel S.A.**	No current COP	Endorsed in 2014	No COP yet		*Colombia*	General Industrials	
49	**Finlay International Limited**	COP 2008	2008	https://www.unglobalcompact.org/COPs/active/3819	UNGC Participant Search	*Bangladesh*	Food Producers	
		COP 2014	2014	https://www.unglobalcompact.org/system/attachments/59341/original/United_Nations_Global_Compact_-_2014.pdf?1389776948	UNGC Participant Search			
50	**Firmenich**	Sustainability Report 2009	2008	https://www.unglobalcompact.org/system/attachments/5881/original/FirmenichSustainabilityReport2009.pdf?1280955552	UNGC Participant Search	*Switzerland*	Chemicals	
		Sustainability Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/138701/original/FirmenichSustainabilityReport2014.pdf?1423088667	UNGC Participant Search			
51	**F.M. Contracting & Services**	No current COP	Unknown			*Trinidad and Tobago*	Industrials	

52	**Ford Motor Company**	Sustainability Report 2013-2014	2014	http://corporate.ford.com/microsites/sustainability-report-2013-14/water-data.html#b	Company website	*USA*	Automobiles & Parts	3
53	**GDF SUEZ**	2009 Sustainable Development Expert Report	2008	http://www.gdfsuez.com/en/group/publications/page/6/	Company website	*France*	Gas, Water, Multiutilities	7
		GDF Suez Registration Document 2014	2014	http://library.gdfsuez.com/uid_84c6c668-e5e9-4353-a6d2-ccb57c384ce6/beevirtua/beevirtua.html#app=ab16&9557-source=xmlConfs/init.xml&adf3-lang=en&ccb3-pageId=90				
54	**General Mills**	Global Responsibility 2014	2014	https://www.unglobalcompact.org/system/attachments/84021/original/2014_global_respon_report.pdf?1401218300	UNGC Participant Search	*USA*	Food Producers	3
55	**GlaxoSmithKline**	Corporate Responsibility Report 2009	2009	http://www.gsk.com/media/280027/cr-report-2009.pdf	Company website	*UK*	Pharmaceuticals & Biotechnology	4
		Detailed Environment Data 2014	2014	http://www.gsk.com/media/616200/detailed-environment-data-2014.pdf	Company website			
56	**Glencore Xstrata**	Sustainability Report 2010	2010	http://www.glencore.com/assets/sustainability/doc/sd_reports/Sustainability-Report-2010.pdf	Company website	*Switzerland*	Industrial Metals & Mining	1
		Annual Report 2014	2014	http://www.glencore.com/assets/investors/doc/reports_and_results/2014/GLEN-2014-Annual-Report.pdf	Company website			
60	**Grundfos**	Sustainability Data 2012	2012	http://magazines.grundfos.com/Grundfos/SU/UK/GrundfosSustainabilityData2012/	Company website	*Denmark*	Industrial Engineering	2
		Water Activities Report 2014	2014	http://magazines.grundfos.com/Grundfos/SU/UK/2014GrundfosThinksWaterWise/	Company website			
61	**Grupo Argos S.A.**	No current COP	Endorsed in 2014	No COP yet		*Colombia*	General Industrials	2
62	**Grupo Nutresa S.A.**	Annual and Sustainability Report 2013	2013	http://2013report.gruponutresa.com/pdf/annual_and_sustainability_report_2013.pdf	Company website	*Colombia*	Food Producers	3
		Integrated Report 2014	2014	http://2014report.gruponutresa.com/pdf/integrated_report_nutresa.pdf	Company website			
63	**H & M, Hennes & Mauritz AB**	Sustainability Report 2008	2008	https://www.unglobalcompact.org/system/attachments/1935/original/COP.pdf?1262614297	UNGC Participant Search	*Sweden*	Personal Goods	3
		Concious Actions Sustainability Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/152211/original/Conscious_Actions_Sustainability_Report_2014.pdf?1428700290	UNGC Participant Search			
65	**Hayleys PLC**	Annual Report 2008/09	2008	https://www.unglobalcompact.org/system/attachments/2185/original/COP.pdf?1262614313	UNGC Participant Search	*Sri Lanka*	General Indsutrials	2
		Sustainability Report 2012/2013	2013	http://ceowatermandate.org/files/endorsing/Hayleys_2012_2013.pdf	CEO Water Mandate website			
66	**Heineken N.V.**	Sustainability Report 2009	2009	Same as for 2014	Company website	*The Netherlands*	Beverages	3
		Sustainability Report 2014	2014	http://www.theheinekencompany.com/sustainability/reporting?tab=sustainability	Company website			
67	**Hindustan Construction Company Ltd (HCC)**	Sustainability Review 2009-10	2008	https://www.unglobalcompact.org/system/attachments/8136/original/Sustainability_Review_2009-10-__HCC_.pdf?1287744169	UNGC Participant Search	*India*	Construction & Materials	2
		Sustainability Report 2013/2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/112691/original/HCC_Sustainability_Report_2013-14.pdf?1412701657	UNGC Participant Search			

68	**Iberdrola S.A.**	2012 Sustainability Report	2012	https://www.iberdrola.es/webibd/gc/prod/en/doc/IA_InformeSostenibilidad12.pdf	Company website	*Spain*	Gas, Water, Multiutilities	7570
		2014 Integrated Report	2014	http://www.iberdrola.es/reputation-sustainability/environment/environmental-management-strategy-approach-gri/main-environmental-aspects/water/	Company website			
69	**ISAGEN S.A. E.S.P.**	2014 Management Report	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/151871/original/2014-Management-Report.pdf?1428614137		*Colombia*	Electricity	7530
71	**Inditex, Industrias de Diseno Textil, S.A.**	Annual Report 2011	2011	https://www.unglobalcompact.org/system/attachments/17900/original/Grupo_INDITEX_Annual-Report-Inditex-2011.pdf?1349716621	UNGC Participant Search	*Spain*	General Retailers	5370
		Annual Report 2013	2013	http://www.inditex.com/documents/10279/18789/Inditex_Group_Annual_Report_2013.pdf/88b623b8-b6b0-4d38-b45e-45822932ff72	Company website			
72	**Infineon Technologies AG**	Annual Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/139971/original/Infineon_Technologies__Annual_Report_2014.pdf?1423732303	UNGC Participant Search	*Germany*	Technology Hardware & Equipment	9570
73	**Infosys Ltd**	Sustainability Report 2013-2014	2014	http://www.infosys.com/sustainability/Documents/infosys-sustainability-report-2013-14.pdf	Company website	*India*	Software & Computer Services	9530
74	**Koninklijke Philips Electronics N.V.**	Annual Report 2009	2010	https://www.unglobalcompact.org/system/attachments/4596/original/PhilipsAnnualReport2009_FullVersion.pdf?1267710516	UNGC Participant Search	*The Netherlands*	Technology Hardware & Equipment	9570
		Annual Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/143071/original/PhilipsFullAnnualReport2014_English.pdf?1425218101	UNGC Participant Search			
75	**Levi Strauss & Co.**	Annual Report 2008	2008	http://lsco.s3.amazonaws.com/wp-content/uploads/2014/01/2008-Annual-Report.pdf	Company website	*USA*	Personal Goods	3760
		CEO Water Mandate COP 2013	2014	http://levistrauss.com/wp-content/uploads/2014/10/CEO-Water-Mandate-Communication-on-Progress-20131.pdf	CEO Water Mandate website			
77	**Mahou San Miguel**	No current COP	Endorsed in 2014	No COP yet		*Spain*	Beverages	3530
78	**Marshalls plc**	COP Report 2013	2013	https://www.unglobalcompact.org/system/attachments/72361/original/Marshalls_UNGC_COP_Report_2013.pdf?1396351511	UNGC Participant Search	*UK*	Construction & Materials	2350
		COP Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/150221/original/Marshalls_COP_Report_2014.pdf?1427894069	UNGC Participant Search			
79	**Mazaya Investment Group**	COP 2014	2013	https://www.unglobalcompact.org/system/attachments/82251/original/Mazaya_Investment_Company.pdf?1400598273	U	*State of Palestine*	Media	5550
80	**Mazzetti, Inc.**	COP 2012	2011	https://www.unglobalcompact.org/COPs/active/14804	UNGC Participant Search	*USA*	Construction & Materials	2350
		COP 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/93731/original/Communication_on_Progress_2014_Final.pdf?1404709522	UNGC Participant Search			
81	**Merck & Co., Inc.**	Corporate Sustainability Report 2013	2011	http://www.merckresponsibility.com/data/#highchart_modal_"chart"_water_use	Company website	*USA*	Pharmaceuticals & Biotechnology	4570
		CDP Water Disclosure 2014	2014	http://ceowatermandate.org/files/endorsing/MerckCDP2014.pdf	CEO Water Mandate website			

82	**Metito (Overseas) Ltd.**	2008-2009 Sustainability Report	2008	https://www.unglobalcompact.org/system/attachments/1407/original/COP.pdf?1262614263	UNGC Participant Search	*United Arab Emirates*	Gas, Water & Multiutilities	7570
		Sustainability Report 2013-2014	2014	http://www.metito.com/wp-content/uploads/2015/02/Sustainability_Report.pdf	Company website			
83	**Molson Coors Brewing Company**	COP 2010	2008	https://www.unglobalcompact.org/system/attachments/5641/original/MOLSON_COORS_-_COP2010.pdf?1278626321	UNGC Participant Search	*USA*	Beverages	3530
		COP 2014	2014	https://www.unglobalcompact.org/system/attachments/88741/original/MOLSON_COORS_-_COP2014.pdf?1402945088	UNGC Participant Search			
84	**Monsanto Company**	No current COP	Endorsed in 2014	No COP yet		*USA*	Food Producers	3570
85	**Metsa Group**	Sustainability Report 2011	2011	https://www.unglobalcompact.org/system/attachments/17861/original/Mets_Group_Sustainability_Report_2011.pdf?1349438468	UNGC Participant Search	*Finland*	Forestry & Paper	1730
		Sustainability Report 2014	2014	http://www.metsagroup.fi/Taloustietoa/Documents/Vuosikertomukset/MG_SR_2014_small.pdf	Company website			
86	**MillerCoors**	Sustainability Report 2013	2013	Same as for 2014	CEO Water Mandate website	*USA*	Consumer Goods	3000
		Sustainability Report 2014	2014	http://ceowatermandate.org/files/endorsing/MillerCoors_2014.pdf	CEO Water Mandate website			
87	**Nautica**	CEO Water Mandate COP 2012	2011	Same as for 2012		*USA*	Consumer Goods	3000
		CEO Water Mandate COP 2012	2012	http://ceowatermandate.org/files/endorsing/Nautica_2012.pdf	CEO Water Mandate website			
88	**Nedbank Group**	Integrated Report 2011	2011	http://www.nedbankgroup.co.za/financial/Nedbank_ar2011/downloads/Nedbank_Group_AR_01.pdf	Company website	*South Africa*	Financial Services	8700
		Integrated Report 2014	2014	http://www.nedbankgroup.co.za/financial/Nedbank_ar2014/downloads/NedbankIR2014.pdf	Company website			
89	**Nestle S.A.**	Management Report 2008	2008	https://www.unglobalcompact.org/system/attachments/3931/original/COP.pdf?1262614933	UNGC Participant Search	*Switzerland*	Food Producers	3570
		Creating Shared Value Summary Report 2015	2015	http://www.nestle.com/asset-library/Documents/Creating%20Shared%20Value/Performance/Nestl%C3%A9%20CDP%20Water%20Disclosure%202012.pd	Company website			
90	**Netafim**	COP 2009	2008	https://www.unglobalcompact.org/system/attachments/2486/original/COP.pdf?1262614334	UNGC Participant Search	*Israel*	Technology Hardware & Equipment	9570
		Sustainability Report 2012-2013	2013	http://www.netafim.com/Data/Uploads/SustainabilityReport-148%20Long%20version.pdf	Company website			
91	**Nike, Inc.**	Corporate Responsibility Report 07 08 09	2010	https://www.unglobalcompact.org/system/attachments/4516/original/full-report.pdf?1266366679	UNGC Participant Search	*USA*	Personal Goods	3760
		Corporate Responsibility Report 2013	2013	http://www.nikeresponsibility.com/report/content/chapter/targets-and-performance#Water	CEO Water Mandate website			
93	**Olam**	Annual Report 2013	2013	http://olamgroup.com/wp-content/uploads/2014/01/Olam-Annual-Report-2013-Sustainability-Vision.pdf	Company website	*Singapore*	Consumer Goods	3000
		Annual Report 2014	2014	http://olamgroup.com/wp-content/uploads/2014/10/Olam-Annual-Report-2014.pdf	Company website			

94	**Opportunity 2 Excel Limited**	No current COP	2013	No COP		*Ghana*	Support Services	279(
95	**PepsiCo, Inc.**	Corporate Citizenship Report 2008	2008	http://www.pepsico.com/docs/album/sustainability-reporting/past-sustainability-and-gri-reports/pepsico_2008_sustainability_report.pdf?sfvrsn=2	Company website	*USA*	Food Producers	357(
		CEO Water Mandate COP 2012-2013	2013	http://www.pepsico.com/docs/album/environmental-sustainability/pep_2013_sustainability_report.pdf?sfvrsn=2	Company website			
96	**Pernod Ricard**	COP 2010	2010	https://www.unglobalcompact.org/system/attachments/9715/original/PR_2010_COP.pdf?1301315869	UNGC Participant Search	*France*	Beverages	353(
		Registration Document 2031/2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/116241/original/PERNOD_RICARD_-_DDR_2014_-_VEng.pdf?1414067750	UNGC Participant Search			
98	**Postobón**	No current COP	Endorsed in 2014	No COP yet		*Colombia*	Consumer Goods	300(
99	**PricewaterhouseCoopers International Limited - Global Network**	Corporate Responsibility 2008	2008	https://www.unglobalcompact.org/system/attachments/3591/original/COP.pdf?1262614909	UNGC Participant Search	*USA*	Financial Services	870(
		UN Global Compact COP 2014	2015	http://ceowatermandate.org/files/endorsing/Pwc_2014.pdf	CEO Water Mandate website			
100	**Progressive Asset Management, Inc**	No COP	2009	No COP		*USA*	Financial Services	870(
		UN Global Compact Report 2013-2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/116301/original/UNGC_Report_2013-2014.pdf?1414079160	UNGC Participant Search			
101	**Ranhill Berhad**	No COP	2009	No COP		*Malaysia*	General Industrials	272(
		COP 2012	2012	https://www.unglobalcompact.org/system/attachments/21147/original/Ranhill_3rd_COP.pdf?1364880402	UNGC Participant Search			
102	**Reed Elsevier Group plc**	COP 2008	2008	https://www.unglobalcompact.org/system/attachments/1686/original/COP.pdf?1262614281	UNGC Participant Search	*UK*	Media	555(
		Corporate Responsibility Report 2013	2013	http://www.relxgroup.com/corporateresponsibility/Documents/cr-reports/reed_elsevier_cr_report_2013.pdf	Company website			
103	**The Rezidor Hotel Group**	Responsible Business Report 2009	2009	https://www.unglobalcompact.org/system/attachments/4682/original/Rezidor_Responsible_Business_Report_2009.pdf?1268736473	UNGC Participant Search	*Belgium*	Travel & Leisure	575(
		Responsible Business Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/146361/original/FINAL_Rezidor_RB_Report_2014.pdf?1426671513	UNGC Participant Search			
104	**RobecoSAM**	No COP	2009	No COP		*Switzerland*	Financial Services	870(
		COP 2015	2015	https://www.unglobalcompact.org/system/attachments/cop_2015/146361/original/FINAL_Rezidor_RB_Report_2014.pdf?1426671513	UNGC Participant Search			
105	**R R Kabel Ltd.**	COP 2014	2014	https://www.unglobalcompact.org/COPs/learner/104031	UNGC Participant Search	*India*	General Industrials	272(
106	**SABMiller Plc**	Sustainable Development Report 2008	2008	https://www.unglobalcompact.org/system/attachments/3942/original/COP.pdf?1262614934	UNGC Participant Search	*South Africa*	Beverages	353(
		Sustainability Development Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/90221/original/SABMiller_Sustainable_Development_Summary_Report_2014.pdf?1403593602	UNGC Participant Search			

107	**Saint-Gobain**	2008 Annual Report	2009	https://www.unglobalcompact.org/system/attachments/47770/original/saint-Gobain_and_sustainable_development_2008_EN.pdf?1269944147	UNGC Participant Search	*France*	Construction & Materials	2
		Corporate Social Responsibility Report 2013	2013	https://www.saint-gobain.com/sites/sg_master/files/corporate-social-responsability-report-2013.pdf	Company website			
108	**Sociedade de Abastecimento de Agua S/A - Sanasa - Campinas**	No current COP	2014	No COP yet		*Brazil*	Gas, Water & Multiutilities	7
109	**Sasol Ltd.**	Sustainable Development Report 2008	2008	https://www.unglobalcompact.org/system/attachments/3884/original/COP.pdf?1262614929	UNGC Participant Search	*South Africa*	Chemicals	1
		Sustainable Development Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2014/124141/original/Sasol_SDR_A4_Final.pdf?1416990204	UNGC Participant Search			
110	**SEKEM Group**	Report on Sustainable Development 2008	2008	https://www.unglobalcompact.org/system/attachments/3999/original/COP.pdf?1262614938	UNGC Participant Search	*Egypt*	Food Producers	3
		Sustainability Report 2014	2014	http://sustainability.sekem.com/assets/rsd2014en.pdf	Company website			
111	**Siemens AG**	Sustainability Report 2008	2008	https://www.unglobalcompact.org/system/attachments/3460/original/COP.pdf?1262614901	UNGC Participant Search	*Germany*	Technology Hardware & Equipment	9
		Communication on Progress 2014	2014	http://www.siemens.com/annual/14/en/download/pdf/Siemens_AR2014.pdf	Company website			
112	Singaland Asetama	Unknown	Unknown			Indonesia	General Industrials	2
113	**Stora Enso Oyj**	Sustainability Performance 2009	2009	https://www.unglobalcompact.org/system/attachments/5049/original/E_Sustainability_Performance_2009.pdf?1273209832	UNGC Participant Search	*Finland*	Forestry & Paper	1
		Global Responsibility Performance 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/144261/original/Global_Responsibility_Performance_2014.pdf?1425636162	UNGC Participant Search			
114	**Souz-Continent**	No current COP	Endorsed in 2014	No COP yet		*Ukraine*	Alternative Energy	
115	**SUDEF**	Unknown	Unknown			*Ghana*	Consumer Services	5
116	**SunOpta Incorporated**	No COP	2007			*Canada*	Food Producers	3
		CSR Progress Report 2013	2013	http://www.sunopta.com/files/2013_csr.pdf	UNGC Participant Search			
117	**Sustainable Living Fabrics Pty Ltd.**	Sustainability Report 2009	2008	https://www.unglobalcompact.org/system/attachments/8495/original/SLF_Sustainability_Report_2009.pdf?1290036155	UNGC Participant Search	*Australia*	General Industrials	2
		COP 2013/2014	2013	https://www.unglobalcompact.org/system/attachments/86521/original/COMMUNICATION_OF_PROGRESS_2013.pdf?1402016294	UNGC Participant Search			
118	**The Svirin Family Company**	No current COP	Endorsed in 2014	No COP yet		*Russia*	General Retailers	5
119	**Syngenta International AG**	Annual Report 2011	2010	http://www.syngenta.com/global/corporate/en/investor-relations/financial-information-and-presentations/Pages/annual-reports.aspx#year2011	Company website	*Switzerland*	Chemicals	1
		Annual Review 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/147791/original/syngenta-annual-review-2014-english.pdf?1427188693	UNGC Participant Search			
120	**TaKaDu**	No current COP	Endorsed in 2014	No COP yet		*Israel*	Gas, Water & Multiutilities	7

121	**Tata Steel**	Corporate Sustainability Report 2010	2010	https://www.unglobalcompact.org/system/attachments/14530/original/Tata_Steel_Corporate_Sustainability_Report_2010-11.pdf?1331898728	UNGC Participant Search	*India*	Industrial Metals & Mining	1
		Sustainability Report 2013-2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/147391/original/CS_Report-13-14.pdf?1426917744	UNGC Participant Search			
122	**Teck Resources Limited**	Sustainability Report 2013 and CDP Water Disclosure 2014	2014	http://ceowatermandate.org/files/endorsing/COP_2014_CEOWaterMandate_TeckResourcesLtd.pdf	CEO Water Mandate website	*Canada*	Industrial Metals & Mining	1
123	**Tongaat Hulett**	Integrated Annual Report 2012	2012	http://www.tongaat.co.za/imc/annual_reports/ar_2012/downloads/ar_2012.pdf	Company website	*South Africa*	Food Producers	3
		Annual Report 2014	2014	http://www.tongaat.com/imc/annual_reports/ar_2014/downloads/ar_2014.pdf	Company website			
124	**Unilever**	Annual Report and Accounts 2010	2010	http://www.unilever.com/Images/unilever-ar10_tcm244-421849.pdf	Company website	*UK*	Food Producers	3
		Sustainability Report 2014	2013	http://www.unilever.com/sustainable-living-2014/reducing-environmental-impact/water-use/reducing-water-use-in-manufacturing/	Company website			
125	**UPM-Kymmene Corporation**	Annual Report 2010	2010	http://www.upm.com/EN/INVESTORS/Reports-and-Presentations/2010/Documents/UPM_Annual_Report_2010.pdf	Company website	*Finland*	Forestry & Paper	1
		Annual Report 2014	2014	https://www.unglobalcompact.org/system/attachments/cop_2015/143471/original/UPM_annual_report_2014.pdf?1425388140	UNGC Participant Search			
126	**Veolia**	Rapport Annuel et de Dèveloppement Durable 2010	2011	https://www.unglobalcompact.org/system/attachments/10414/original/Veolia_Rapport_Annuel_et_Developpement_Durable.pdf?1306084066	UNGC Participant Search	*France*	Gas, Water & Multiutilities	7
		CSR Performance Digest 2013	2013	https://www.unglobalcompact.org/system/attachments/cop_2014/97721/original/veolia_CSR_report_en_2014v3-3.pdf?1406041786	UNGC Participant Search			
127	**Volkswagen AG**	Sustainability Report 2013	2013	http://ceowatermandate.org/files/endorsing/VW2013.pdf	CEO Water Mandate website	*Germany*	Automobiles & Parts	3
128	**Water Technologies International Inc**	No current COP	Endorsed in 2014	No COP		*USA*	Gas, Water & Multiutilities	7
129	**Westpac Banking Corporation**	Stakeholder Impact Report 2008	2008	https://www.unglobalcompact.org/system/attachments/414/original/COP.pdf?1262614189	UNGC Participant Search	*Australia*	Financial Services	8
		Annual Report 2014	2014	http://2014annualreport.westpacgroup.com.au/docs/default-source/default-document-library/2014-wbc-environment-factpac.pdf?sfvrsn=4	Company website			
130	**Wilmar International Limited**	Sustainability Report 2009	2009	https://www.unglobalcompact.org/system/attachments/8555/original/Wilmar_SR_2009_single.pdf?1290487672		*Singapore*	Food Producers	3
		Annual Report 2014	2014	http://media.corporate-ir.net/media_files/IROL/16/164878/Annual%20Reports/Wilmar_International_Limited_AR_2014.pdf				
131	**Woolworths Holdings**	2011 Good Business Journey Report	2011	http://www.woolworthsholdings.co.za/downloads/2011_good_business_journey_report.pdf	Company website	*South Africa*	General Retailers	5
		2014 Good Business Report	2014	http://www.woolworthsholdings.co.za/investor/annual_reports/ar2014/whl_2014_gbj1.pdf	Company website			

132	**Yara International ASA**	Impact Review 2014	2014	http://www.yara.com/doc/197963_Yara_IR_2014_tags_new_April2014.pdf	Company website	*Norway*	Chemicals	1350
133	**APP Group**	Sustainability Report 2010/2011	2011	https://www.asiapulppaper.com/system/files/APP%20Sustainability%20Report%202010-2011.pdf	Company website	*Indonesia*	Forestry & Paper	1730
		Sustainability Report 2013	2013	https://www.asiapulppaper.com/sites/default/files/download/app_sustainability_report_2013_final.pdf	Company website			

Appendix D – *Coding results*

Company #	Companies // Categories	Category 1	Category 2	Category 2a	Category 2b	Category 2c	Category 2d	Category 2e	Category 2f	Category 3	Category 3a	Category 3b	Category 3c	Total
1	AAR Holdings Ltd.	0	0	0	0	0	0	0	0	0	0	0	0	0
2	AB Electrolux	1	5	2	0	1	0	2	0	1	1	0	0	7
3	Aequator Groen & Ruimte	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Agbar - Sociedad General de Aguas de Barcelona, S.A.	1	4	2	2	0	0	0	0	0	0	0	0	5
5	Agricola Chapi S.A.	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Akzo Nobel N.V.	1	4	2	0	0	0	0	2	2	1	1	0	7
7	Allergan	1	4	2	0	0	0	0	2	0	0	0	0	5
8	ÁLON	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Aluminum Corporation of China	1	0	0	0	0	0	0	0	0	0	0	0	1
10	Anadolu Efes Biracilik ve Malt Sanayii A.S	1	0	0	0	0	0	0	0	1	0	0	1	2
11	Anheuser-Busch InBev NV	1	4	2	0	0	0	0	2	2	0	1	1	7
12	Atlas-Atlantic Integrated Consults	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Avon Metals Ltd	1	0	0	0	0	0	0	0	0	0	0	0	1
14	Banco do Brasil S.A.	1	4	2	2	0	0	0	0	0	0	0	0	5
15	Banka BioLoo Pvt Ltd	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Baosteel Group Corporation	1	1	1	0	0	0	0	0	1	0	0	1	3
17	Bavaria S.A.	1	0	0	0	0	0	0	0	0	0	0	0	1
18	Bayer AG	1	6	2	2	2	0	0	0	1	0	1	0	8
19	Belgicast Internacional, SLU	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Calvert Investments, Inc.	1	4	0	2	0	0	2	0	2	1	1	0	7
21	Carbon Credit Capita	0	0	0	0	0	0	0	0	0	0	0	0	0
22	CarbonNeutral Company	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Caribbean Office of Trade & Industrial Development Limited	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Carlsberg Group	1	4	1	0	1	0	0	2	1	0	1	0	6
25	Celsia S.A. E.S.P.	1	3	1	2	0	0	0	0	0	0	0	0	4
26	Cementos Argos S.A.	0	0	0	0	0	0	0	0	0	0	0	0	0
27	CH2M Hill	1	4	2	0	0	0	0	2	2	0	1	1	7
28	The Coca-Cola Company	1	7	3	0	2	0	0	2	2	1	1	0	10
29	Coca-Cola Enterprises Inc.	1	4	2	0	0	0	0	2	3	1	1	1	8
30	Coca-Cola Hellenic	1	3	3	0	0	0	0	0	2	1	1	0	6

31	Corporation Solar Alliance	1	0	0	0	0	0	0	0	0	0	0	0	1
32	Coway Co., Ltd.	1	2	2	0	0	0	0	0	1	0	0	1	4
33	Danone	1	10	3	2	1	1	1	2	2	1	1	0	13
34	De Beers Group of Companies	1	6	2	2	0	0	2	0	2	1	1	0	9
35	DGB Financial Group	1	0	0	0	0	0	0	0	0	0	0	0	1
36	Diageo Plc	1	10	3	2	1	0	2	2	3	1	1	1	14
37	Dints International Ltd	0	0	0	0	0	0	0	0	0	0	0	0	0
38	The Dow Chemical Company	1	9	3	1	1	2	2	0	2	0	1	1	12
39	DSM NV	1	2	2	0	0	0	0	0	2	1	1	0	5
40	Ecolab Inc.	1	2	2	0	0	0	0	0	1	0	1	0	4
41	Ecopetrol	1	11	3	2	2	2	2	0	2	0	1	1	14
43	Empresas Publicas de Medellin	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Enel	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Eskom	1	4	2	0	0	0	0	2	1	0	1	0	6
46	Euro Mec S.r.l.	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Express Transindo Utama	1	0	0	0	0	0	0	0	0	0	0	0	1
48	Famoc Depanel S.A.	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Finlay International Limited	1	0	0	0	0	0	0	0	0	0	0	0	1
50	Firmenich	1	7	3	0	2	0	0	2	1	0	1	0	9
51	F.M. Contracting & Services	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Ford Motor Company	1	9	3	1	1	0	2	2	3	1	1	1	13
53	GDF SUEZ	1	3	3	0	0	0	0	0	1	0	1	0	5
54	General Mills	1	4	2	0	0	0	0	2	2	1	1	0	7
55	GlaxoSmithKline	1	5	3	2	0	0	0	0	3	1	1	1	9
56	Glencore Xstrata	1	8	3	2	1	0	2	0	2	0	1	1	11
60	Grundfos	1	2	2	0	0	0	0	0	1	0	1	0	4
61	Grupo Argos S.A.	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Grupo Nutresa S.A.	1	5	3	0	0	0	0	2	3	1	1	1	9
63	H & M, Hennes & Mauritz AB	1	3	3	0	0	0	0	0	2	0	1	1	6
65	Hayleys PLC	1	1	1	0	0	0	0	0	0	0	0	0	2
66	Heineken N.V.	1	9	3	0	2	0	2	2	3	1	1	1	13
67	Hindustan Construction Company Ltd (HCC)	1	10	2	2	2	2	2	0	1	0	1	0	12
68	Iberdrola S.A.	1	11	3	2	2	2	2	0	2	0	1	1	14
69	ISAGEN S.A. E.S.P.	1	5	3	0	0	0	2	0	1	0	1	0	7
71	Inditex, Industrias de Diseno Textil, S.A.	1	10	2	2	2	2	2	0	1	0	1	0	12

72	Infineon Technologies AG	1	7	3	2	2	0	0	0	2	0	1	1	1
73	Infosys Ltd	1	11	3	2	2	2	2	0	2	1	1	0	1
74	Koninklijke Philips Electronics N.V.	1	6	2	0	0	2	2	0	1	0	1	0	
75	Levi Strauss & Co.	1	1	1	0	0	0	0	0	2	0	1	1	
77	Mahou San Miguel	1	0	0	0	0	0	0	0	0	0	0	0	
78	Marshalls plc	1	0	0	0	0	0	0	0	0	0	0	0	
79	Mazaya Investment Group	1	0	0	0	0	0	0	0	0	0	0	0	
80	Mazzetti, Inc.	1	0	0	0	0	0	0	0	0	0	0	0	
81	Merck & Co., Inc.	1	3	3	0	0	0	0	0	3	1	1	1	
82	Metito (Overseas) Ltd.	1	0	0	0	0	0	0	0	0	0	0	0	
83	Molson Coors Brewing Company	1	7	3	0	0	0	2	2	2	0	1	1	1
84	Monsanto Company	1	0	0	0	0	0	0	0	2	1	1	0	
85	Metsa Group	1	2	2	0	0	0	0	0	2	1	1	0	
86	MillerCoors	1	2	0	0	0	0	0	2	1	0	1	0	
87	Nautica	1	0	0	0	0	0	0	0	1	1	0	0	
88	Nedbank Group	1	2	2	0	0	0	0	0	1	1	0	0	
89	Nestle S.A.	1	7	3	0	2	0	0	2	3	1	1	1	1
90	Netafim	1	6	2	2	0	0	0	2	2	1	1	0	
91	Nike, Inc.	1	2	2	0	0	0	0	0	2	1	1	0	
93	Olam	1	4	2	0	0	0	0	2	1	1	0	0	
94	Opportunity 2 Excel Limited	0	0	0	0	0	0	0	0	0	0	0	0	
95	PepsiCo, Inc.	1	2	2	0	0	0	0	0	1	0	1	0	
96	Pernod Ricard	1	6	2	0	2	0	0	2	1	0	1	0	
98	Postobón	0	0	0	0	0	0	0	0	0	0	0	0	
99	PricewaterhouseCoopers International Limited - Global Network	1	0	0	0	0	0	0	0	0	0	0	0	
100	Progressive Asset Management, Inc	0	0	0	0	0	0	0	0	0	0	0	0	
101	Ranhill Berhad	1	0	0	0	0	0	0	0	0	0	0	0	
102	Reed Elsevier Group plc	1	4	2	0	2	0	0	0	2	1	1	0	
103	The Rezidor Hotel Group	1	3	1	0	0	0	0	2	0	0	0	0	
104	RobecoSAM	1	0	0	0	0	0	0	0	1	0	1	0	
105	R R Kabel Ltd.	1	0	0	0	0	0	0	0	0	0	0	0	
106	SABMiller Plc	1	5	3	0	0	0	0	2	3	1	1	1	
107	Saint-Gobain	1	4	2	1	1	0	0	0	2	1	1	0	
108	Sociedade de Abastecimento de Agua S/A - Sanasa - Campinas	0	0	0	0	0	0	0	0	0	0	0	0	

109	Sasol Ltd.	1	10	2	2	2	2	2	0	2	0	1	1	
110	SEKEM Group	1	2	2	0	0	0	0	0	2	1	1	0	
111	Siemens AG	1	4	2	0	1	0	1	0	2	1	1	0	
112	Singaland Asetama	0	0	0	0	0	0	0	0	0	0	0	0	
113	Stora Enso Oyj	1	12	3	1	2	2	2	2	3	1	1	1	
114	Souz-Continent	0	0	0	0	0	0	0	0	0	0	0	0	
115	SUDEF	0	0	0	0	0	0	0	0	0	0	0	0	
116	SunOpta Incorporated	1	6	2	2	0	0	0	2	0	0	0	0	
117	Sustainable Living Fabrics Pty Ltd.	1	0	0	0	0	0	0	0	1	1	0	0	
118	The Svirin Family Company	0	0	0	0	0	0	0	0	0	0	0	0	
119	Syngenta International AG	1	11	3	2	2	0	2	2	2	1	1	0	
120	TaKaDu	0	0	0	0	0	0	0	0	0	0	0	0	
121	Tata Steel	1	12	2	2	2	2	2	2	2	0	1	1	
122	Teck Resources Limited	1	10	2	2	2	2	2	0	1	0	1	0	
123	Tongaat Hulett	1	2	2	0	0	0	0	0	2	1	1	0	
124	Unilever	1	4	2	0	0	0	0	2	2	1	1	0	
125	UPM-Kymmene Corporation	1	7	2	1	2	2	0	0	1	1	0	0	
126	Veolia	1	0	0	0	0	0	0	0	1	0	1	0	
127	Volkswagen AG	1	9	3	0	2	0	2	2	2	1	0	1	
128	Water Technologies International Inc	0	0	0	0	0	0	0	0	0	0	0	0	
129	Westpac Banking Corporation	1	2	2	0	0	0	0	0	1	0	1	0	
130	Wilmar International Limited	1	3	1	0	0	0	0	2	1	0	0	1	
131	Woolworths Holdings	1	2	2	0	0	0	0	0	2	0	1	1	
132	Yara International ASA	1	11	3	2	2	2	2	0	3	1	1	1	
	APP Group	1	6	2	2	2	0	0	0	2	0	1	1	