

CARBON DISCLOSURE PROJECT

# Collective responses to rising water challenges

**CDP Global Water Report 2012**  
**On behalf of 470 investors**  
**with assets of US\$ 50 trillion**

Report writer

**Deloitte.**

# Contents



“We have learned from our comprehensive measurement and reporting capabilities for GHG emissions that transparency is a powerful tool for motivating people and organizations to change behavior. We are applying the same principle to our near-term and long-term water risk.”

UPS<sup>1</sup>

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1: Other responding companies include companies that were not invited as part of the Global 500, but chose to answer the CDP Water Disclosure 2012 information request. See page 50 for a complete list of these companies.

# CEO Foreword



**“CDP has pioneered the only global system that collects information about corporate behaviour on water security and climate change, on behalf of market forces, including shareholders and purchasing corporations.”**

Water is the lifeblood of the global economy. It is the element that binds us together, creating deep and complex interdependencies between companies, communities and natural ecosystems and the pressure is growing for companies to build long-term resilience to water scarcity and flooding into their business.

As the Chinese proverb states: Not only can water float a boat, it can also sink it. Water can be a significant driver for innovative and sustainable economic prosperity but its mismanagement can result in significant business failure.

Analysis indicates that current “business as usual” water management practices and levels of water productivity will put at risk approximately US\$63 trillion, or 45 percent of the projected 2050 global GDP (at 2000 prices), equivalent to 1.5 times the size of today’s entire global economy.<sup>2</sup>

Business and economies globally have already been impacted by the increased frequency and severity of extreme water-related events. Poor harvests due to once-in-a-generation droughts have this year rocked the agricultural industry, with the price of grain, corn and soybeans reaching an all time high. Last year, Intel issued a US\$1 billion profit warning and the Japanese automotive industry were expected to lose around US\$450 million of profits as a result of the interruption floods caused to their Thailand-based operations and value chain.

Encouragingly additional research exploring the links between water and economic growth shows that every US\$1 invested in water infrastructure can deliver nearly US\$5 of wider economic benefits over the long term, in

addition to social and environmental benefits.<sup>3</sup>

This year’s CDP Global Water Report is a call to action for every company to treat water with the strategic importance it deserves; to consider the role they should play in tackling water challenges and to provide the leadership required to build a more resilient future.

CDP has pioneered the only global system that collects information about corporate behaviour on water security and climate change, on behalf of market forces, including shareholders and purchasing corporations. Backed by 470 institutional investors, CDP’s goal of enabling better decision making by providing investors, companies and governments with high quality information on how companies are managing their response to natural resource constraints, has never been more important.

Accounting for and valuing the world’s natural capital is fundamental to building economic stability and prosperity and the global economy will favor businesses that take a pro-active approach to water stewardship. Companies that transform their business and work to safeguard valuable water resources have the potential for both short and long-term cost savings, sustainable revenue generation and a more resilient future.

  
**Paul Simpson**

**CEO Carbon Disclosure Project**

2: Finding the blue path to a sustainable economy, March 2011, a report by Veolia Water and IFPRI

3: Exploring the links between water and economic growth, June 2012, a report for HSBC carried out by Frontier Economics

# Executive summary



## Introduction

The 2012 CDP Water Disclosure information request was formally supported by 470 investors representing US\$50 trillion in assets. 318 companies listed on the FTSE Global Equity Index Series (Global 500) were invited to respond because they operate in sectors which are water-intensive or exposed to water-related risks. Responses received provide a valuable insight for investors into how companies are operating in a water-constrained world.

Water-related risks continue to place stress on economies and communities at both local and global scales. The financial impacts of floods, droughts, and overall water quantity and quality are rippling across the world as industries cope with the impacts of the massive floods in Thailand, the most severe US drought in 50 years, and the rising demand for water in developing economies. Swiss Re estimates that flooding impacts 500 million people every year and now rivals earthquake losses at \$15B annually.<sup>4</sup> High impact events like these and smaller, more acute local impacts contribute to the increase in reported water-related risk exposure from Global 500 respondents.

In 2012, water-related impacts are being felt more broadly and more businesses have recognized these growing water-related risks than before. Across the board, respondents report more water-related risks and opportunities. More respondents are assessing water-related risks in their direct operations and supply chains and are also evaluating water-related

opportunities. In addition, respondents report taking more tangible action to manage these issues and seize opportunities.

However, despite increased awareness and activity among some respondents, the Global 500 response rate is static at 60% (191 companies); disappointing given the weight of investor interest in this issue and the increasing proportion of companies reporting water-related impacts, risks and opportunities. The Health Care sector has the highest response rate (77%) while Energy lags for the 2nd year running at just 44%; surprising considering this sector reports the highest exposure to risk.

This report is based on analysis of 185 responses received by August 6, 2012 and investigates how companies are using collaborative approaches to solving some of the most complex water-related problems.

## Key findings – Global 500

### **Water risk is a prominent and rising issue among 2012 respondents**

More than half of Global 500 respondents (53%) have experienced detrimental water-related business impacts such as business interruption and property damage from flooding, with associated financial costs for some companies as high as US\$200 million; this figure is up from 38% last year. Perhaps as a result more respondents (68%) report exposure to water-related risks, up from 59%.

4: [http://www.swissre.com/clients/newsletters/Flood\\_an\\_underestimated\\_risk.html](http://www.swissre.com/clients/newsletters/Flood_an_underestimated_risk.html)



### **Water represents a strategic opportunity to improve financial and brand performance**

71% of respondents reported a total of 319 water-related opportunities such as the sale of new products or services; 79% of opportunities reported with an associated timeframe are expected to materialize now or within the next five years, some with a sales potential of more than €800 million by 2020.

### **Water is still not receiving the boardroom attention it deserves**

The proportion of respondents with board-level oversight of their water-related policies, strategies, or plans is essentially unchanged from 2011 at 58%. Furthermore, the proportion of respondents setting concrete water-related goals and targets has also changed little at 55%. These findings suggest that water is not receiving the boardroom attention that the risks and opportunities related to water imply it should be.

### **Assessing and addressing exposure to water-related supply chain risk is on the rise**

There has been a marked increase in awareness of supply chain risks with 71% of respondents now able to state whether or not they are exposed to such risk (up from 62% in 2011). 29% of respondents remain unaware however. Similarly, more respondents (39%) are now requiring their key suppliers to report on water-related risks than ever before (up from 26% in 2011) although there remains plenty of room for improvement.

### **Setting the stage – Collective action as an approach to addressing risks and opportunities<sup>5</sup>**

Companies traditionally work independently to tackle water-related issues. While these initiatives drive efficiency or quality improvements, they are often limited in scope. Given the complexity and scale of water challenges and the interdependencies between companies, communities and natural ecosystems, stand-alone actions may no longer be enough. Global 500 companies realize that working collectively with a range of partners, beyond the boundaries of their direct operations, can effectively build resilience and add value across their business as well as for the other users of this shared resource.

74% of respondents report taking some form of collective action to address water-related issues with benefits ranging from increased business continuity, securing licenses to operate and increased brand value alongside the opportunity to gain fresh ideas, increase the momentum for change and pool resources.

This year's respondents indicate that collective action will continue to be featured prominently in companies water strategies and, in turn, overall business strategies. As the strategic importance of water-related issues grows it is anticipated that more Global 500 companies will leverage collective action in response.

5: The CEO Water Mandate defines collective action as coordinated engagement among interested parties within an agreed-upon process in support of common objectives. Respondents engaged in public policy, collective action, supply chain and watershed management and community engagement were classified as taking collective action in our analysis.

# 2012 Signatory Investors

## Signatories

470 financial institutions with assets of US\$50 trillion were signatories to the 2012 CDP Water Disclosure information request dated February 1, 2012

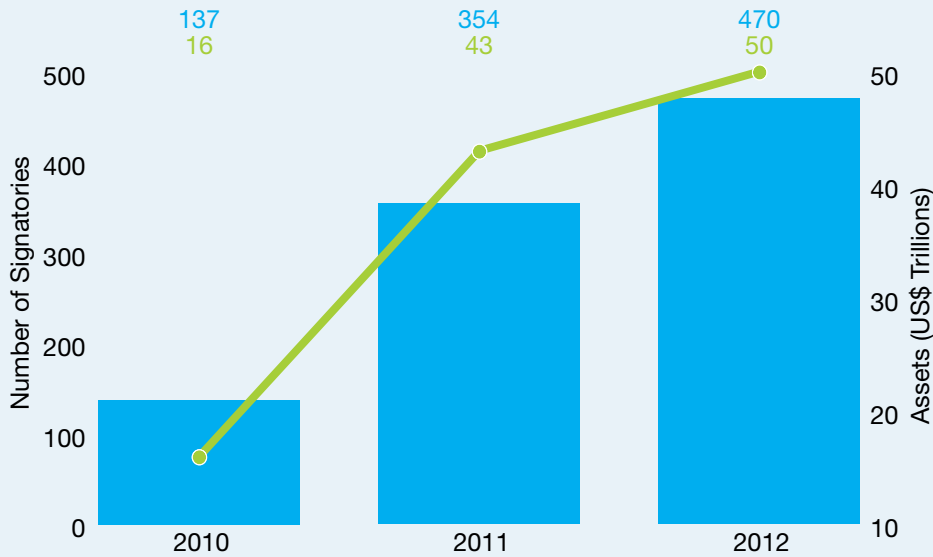
Aberdeen Asset Managers  
 ABRAPP - Associação Brasileira das Entidades Fechadas de Previdência Complementar  
 Achmea NV  
 Active Earth Investment Management  
 Acuity Investment Management  
 Addenda Capital Inc.  
 Advanced Investment Partners  
 Aegon N.V.  
 AEGON-INDUSTRIAL Fund Management Co., Ltd  
 AK Asset Management Inc.  
 Alberta Investment Management Corporation (AIMCo)  
 Alberta Teachers Retirement Fund  
 Alcyone Finance  
 AllenbridgeEpic Investment Advisers Limited  
 Allianz Elementar Versicherungs-AG  
 Allianz Global Investors Kapitalanlagegesellschaft mbH  
 Allianz Group  
 Altira Group  
 AmpegaGerling Investment GmbH  
 Amundi AM  
 APG Group  
 Apsara Capital LLP  
 AQEX LLC  
 Arisaig Partners Asia Pte Ltd  
 ASB Community Trust  
 ASM Administradora de Recursos S.A.  
 ASN Bank  
 Assicurazioni Generali Spa  
 ATI Asset Management  
 Australian Ethical Investment Limited  
 AustralianSuper  
 Avaron Asset Management AS  
 Aviva Investors

Aviva plc  
 Baillie Gifford & Co.  
 BaltCap  
 Banca Monte dei Paschi di Siena Group  
 Banco Comercial Português S.A.  
 Banco do Brasil S/A  
 Banco Nacional de Desenvolvimento Econômico e Social - BNDES  
 Banco Popular Español  
 Banco Sabadell, S.A  
 Banco Santander  
 Banesprev – Fundo Banespa de Seguridade Social  
 Bank of America Merrill Lynch  
 Bank Vontobel  
 Bankhaus Schelhammer & Schattera Kapitalanlagegesellschaft m.b.H.  
 Bankinvest  
 Banque Degroof  
 Banque Libano-Francaise  
 Barclays  
 Basellandschaftliche Kantonalbank  
 BASF Sociedade de Previdência Complementar  
 Bâtirente  
 Baumann and Partners S.A.  
 Bayern LB  
 BayernInvest Kapitalanlagegesellschaft mbH  
 BBC Pension Trust Ltd  
 BBVA  
 Bedfordshire Pension Fund  
 Beetle Capital  
 BEFIMMO SCA  
 Berenberg Bank  
 Blom Bank SAL  
 Blumenthal Foundation  
 BNP Paribas Investment Partners  
 Boston Common Asset Management, LLC  
 BP Investment Management Limited  
 British Airways Pension Investment Management Limited  
 British Columbia Investment Management Corporation (bcIMC)  
 BT Investment Management  
 CAAT Pension Plan  
 Cadiz Holdings Limited  
 Caisse de dépôt et placement du Québec  
 Caisse des Dépôts  
 Caixa Beneficente dos Empregados da Companhia Siderurgica Nacional - CBS

Caixa de Previdência dos Funcionários do Banco do Nordeste do Brasil (CAPEF)  
 Caixa Econômica Federal  
 California Public Employees' Retirement System  
 California State Teachers' Retirement System  
 California State Treasurer  
 Calvert Investment Management, Inc  
 Canada Pension Plan Investment Board  
 Canadian Labour Congress Staff Pension Fund  
 CAPESESP  
 Capital Innovations, LLC  
 CARE Super Pty Ltd  
 Catherine Donnelly Foundation  
 Catholic Super  
 CBRE  
 Cbus Superannuation Fund  
 CCLA Investment Management Ltd  
 Celeste Funds Management  
 Central Finance Board of the Methodist Church  
 Ceres  
 Change Investment Management  
 Christian Brothers Investment Services  
 Christian Super  
 Christopher Reynolds Foundation  
 Clean Yield Asset Management  
 ClearBridge Advisors  
 CM-CIC Asset Management  
 Colonial First State Global Asset Management  
 COMGEST  
 CommInsure  
 Commonwealth Bank of Australia  
 Commonwealth Superannuation Corporation  
 Compton Foundation, Inc.  
 Concordia Versicherungsgruppe  
 Connecticut Retirement Plans and Trust Funds  
 Co-operative Financial Services (CFS)  
 Daegu Bank  
 Daesung Capital Management  
 Daiwa Asset Management Co. Ltd.  
 Daiwa Securities Group Inc.  
 Dalton Nicol Reid  
 de Pury Pictet Turrettini & Cie S.A.  
 DekaBank Deutsche Girozentrale  
 Delta Lloyd Asset Management  
 Deutsche Bank AG  
 Development Bank of Japan Inc.  
 Dexia Asset Management

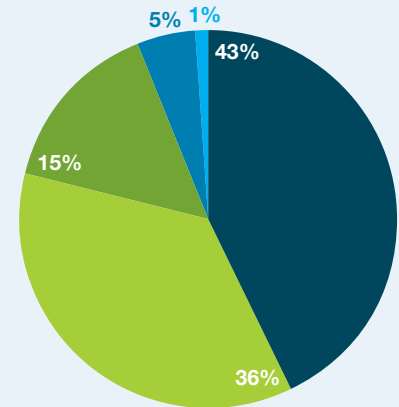
## 1 CDP WATER DISCLOSURE INVESTOR SIGNATORIES & ASSETS (US\$ TRILLION) AGAINST TIME

- CDP Water Disclosure Signatories
- CDP Water Disclosure Signatory Assets



## 2 2012 SIGNATORY INVESTOR BREAKDOWN

- 192 Asset Managers
- 158 Asset Owners
- 68 Banks
- 22 Insurance
- 6 Other



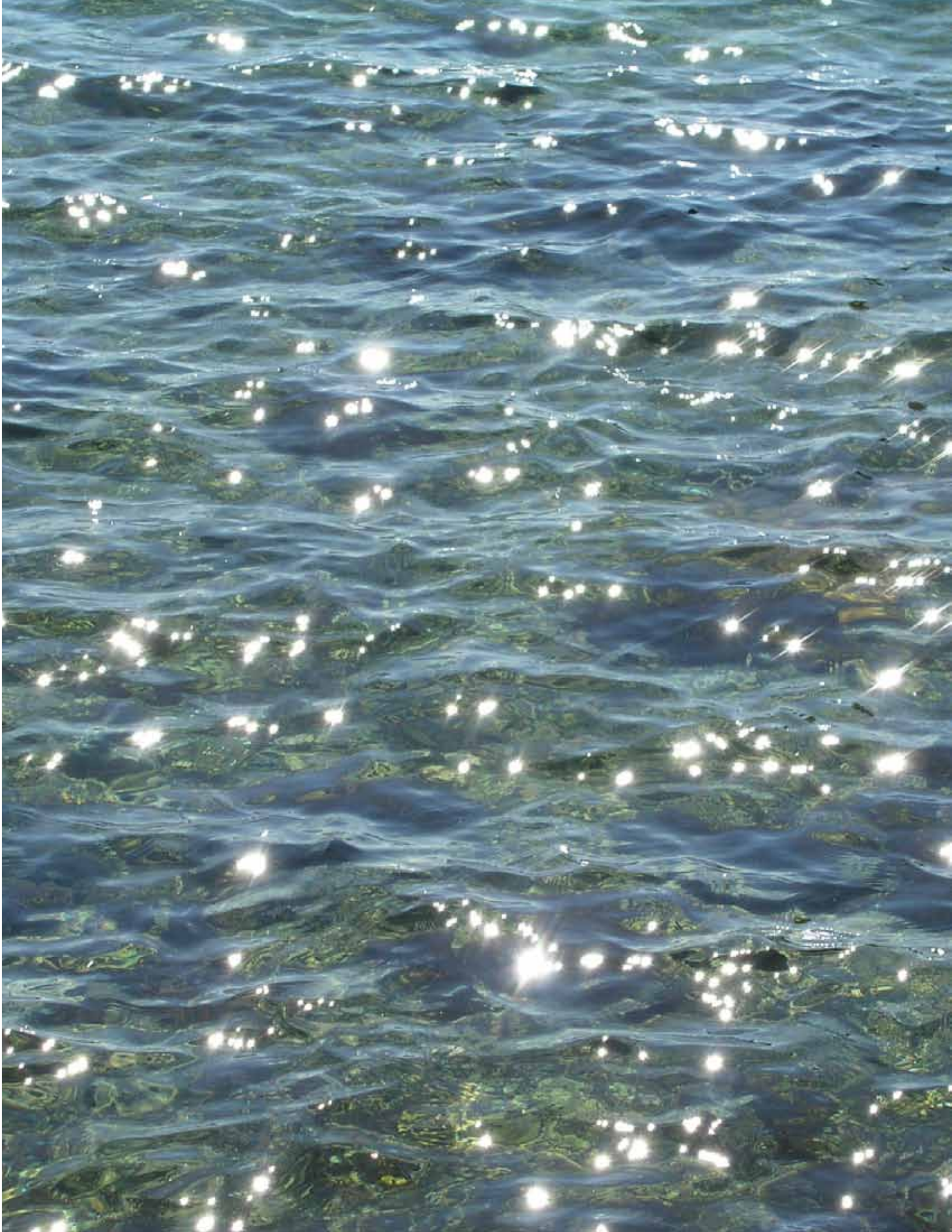
Domini Social Investments LLC	FAPES
Dongbu Insurance	Fundação Itaipu BR - de Previdência e Assistência Social
Earth Capital Partners LLP	Fundação Promon de Previdência Social
Ecclesiastical Investment Management	Fundação Rede Ferroviária de Seguridade Social - Refer
Ecofi Investissements - Groupe Credit Cooperatif	Fundação Vale do Rio Doce de Seguridade Social - VALIA
Edward W. Hazen Foundation	FUNDIAGUA - Fundação de Previdência da Companhia de Saneamento e Ambiental do Distrito Federal
EEA Group Ltd	Futuregrowth Asset Management
Elan Capital Partners	Generali Deutschland Holding AG
Element Investment Managers	Gjensidige Forsikring ASA
Environment Agency Active Pension fund	Global Forestry Capital SARL
Epworth Investment Management	GLS Gemeinschaftsbank eG
Equilibrium Capital Group	GOOD GROWTH INSTITUT für globale Vermögensentwicklung mbH
equinet Bank AG	Governance for Owners
Erste Asset Management	Government Employees Pension Fund ("GEPP"), Republic of South Africa
Essex Investment Management Company, LLC	GPT Group
ESSSuper	Greater Manchester Pension Fund
Ethos Foundation	Green Cay Asset Management
Etica Sgr	Green Century Capital Management
Eureka Funds Management	GROUPAMA EMEKLILIK A.Ş.
Eurizon Capital SGR	GROUPAMA SIGORTA A.Ş.
Evangelical Lutheran Church in Canada Pension Plan for Clergy and Lay Workers	Groupe Crédit Coopératif
Evangelical Lutheran Foundation of Eastern Canada	Groupe Investissement Responsable Inc.
F&C Investments	GROUPE OFI AM
FAELCE - Fundacao Coelce de Seguridade Social	Harbour Asset Management
FAPERS- Fundação Assistencial e Previdenciária da Extensão Rural do Rio Grande do Sul	Harrington Investments, Inc
Fédérés Gestion d'Actifs	Hauck & Aufhäuser Asset Management GmbH
FIDURA Capital Consult GmbH	Hazel Capital LLP
FIM Asset Management Ltd	Healthcare of Ontario Pension Plan (HOOPP)
FIM Services	Helaba Invest Kapitalanlagegesellschaft mbH
FIPECq - Fundação de Previdência Complementar dos Empregados e Servidores da FINEP, do IPEA, do CNPq	Henderson Global Investors
First Affirmative Financial Network, LLC	Hermes Fund Managers
Firststrand Group Limited	HESTA Super
Five Oceans Asset Management	HIP Investor
Florida State Board of Administration (SBA)	Holden & Partners
Folksam	HSBC Holdings plc
Fondation de Luxembourg	HUMANIS
Forma Futura Invest AG	Hyundai Marine & Fire Insurance Co., Ltd
FRANKFURT-TRUST Investment-Gesellschaft mbH	Hyundai Securities Co., Ltd.
Fukoku Capital Management Inc	IBK Securities
FUNCEF - Fundação dos Economistas Federais	IDBI Bank Ltd
Fundação AMPLA de Seguridade Social - Brasiletos	Illinois State Board of Investment
Fundação Atlântico de Seguridade Social	Ilmarinen Mutual Pension Insurance Company
Fundação Banrisul de Seguridade Social	Impax Group plc
Fundação de Assistência e Previdência Social do BNDES -	Industrial Bank of Korea

**“Calvert views water as both a critical global sustainability challenge and significant investment opportunity. CDP data will help us evaluate company performance across our funds, including the Calvert Global Water Fund.”**

**Bennett Freeman,  
Senior Vice President,  
Sustainability  
Research and Policy,  
Calvert Investments**

Industrial Development Corporation	Newton Investment Management Limited	SNS Asset Management
ING Group N.V.	NGS Super	Social(k)
Insight Investment Management (Global) Ltd	NH-CA Asset Management Company	Socrates Fund Management
Instituto Sebrae De Seguridade Social - SEBRAEPREV	Nikko Asset Management Co., Ltd.	Solaris Investment Management
IntReal KAG	Nipponkoa Insurance Company, Ltd	Sompo Japan Insurance Inc.
Investec Asset Management	NORD/LB Kapitalanlagegesellschaft AG	Sopher Investment Management
Investing for Good CIC Ltd	Nordea Investment Management	SouthPeak Investment Management
Irish Life Investment Managers	Norfolk Pension Fund	SPF Beheer bv
JPMorgan Chase & Co.	Norges Bank Investment Management	Sprucegrove Investment Management Ltd
Jubitz Family Foundation	North Carolina Retirement System	Standard Chartered
Jupiter Asset Management	Northern Ireland Local Government Officers' Superannuation Committee (NILGOSC)	Standard Chartered Korea Limited
Kaiser Ritter Partner Privatbank AG	NORTHERN STAR GROUP	Standard Life Investments
KB Kookmin Bank	Oddo & Cie	State Street Corporation
KBC Asset Management	OECO Capital Lebensversicherung AG	StatewideSuper
KCPS Private Wealth Management	OKOWORLD	Strathclyde Pension Fund
KDB Asset Management Co., Ltd.	OMERS Administration Corporation	Stratus Group
Kennedy Associates Real Estate Counsel, LP	Ontario Teachers' Pension Plan	Superfund Asset Management GmbH
KEPLER-FONDS Kapitalanlagegesellschaft m. b. H.	OP Fund Management Company Ltd	Sustainable Capital
Keva	OPF Management & Co. Limited	Sustainable Development Capital
KfW Bankengruppe	Opplysningsvesenets fond (The Norwegian Church Endowment)	Svenska Kyrkan, Church of Sweden
Killik & Co LLP	OPTrust	Swift Foundation
Kiwi Income Property Trust	Oregon State Treasurer	Swisscanto Asset Management AG
Kleinwort Benson Investors	Orion Energy Systems	Syntrus Achmea Asset Management
KLP	Osmosis Investment Management	T. SINA KALKINMA BANKASI A. .
Korea Technology Finance Corporation (KOTEC)	Parnassus Investments	TD Asset Management (TD Asset Management Inc. and TDAM USA Inc.)
KPA Pension	Pax World Funds	Telluride Association
Kyrkans pensionskassa	Pensioenfonds Vervoer	TerraVerde Capital Management LLC
La Banque Postale Asset Management	Pension Protection Fund	TfL Pension Fund
La Financiere Responsable	Pensionsmyndigheten	The Brainerd Foundation
Lampe Asset Management GmbH	Perpetual Investments	The Bullitt Foundation
LBBW Asset Management Investmentgesellschaft mbH	PETROS - The Fundação Petrobras de Seguridade Social	The Central Church Fund of Finland
LD Lonmodtagernes Dyrtidsfond	PFA Pension	The Children's Investment Fund Management (UK) LLP
Legal & General Investment Management	PGGM Vermogensbeheer	The Co-operative Asset Management
Legg Mason Global Asset Management	Phillips, Hager & North Investment Management	The Daly Foundation
LGT Capital Management Ltd.	PhiTrust Active Investors	The Environmental Investment Partnership LLP
Light Green Advisors, LLC	Pictet Asset Management SA	The Joseph Rowntree Charitable Trust
Living Planet Fund Management Company S.A.	Pioneer Investments	The Korea Teachers Pension (KTP)
Lloyds Banking Group	PKA	The Pension Plan For Employees of the Public Service Alliance of Canada
Local Authority Pension Fund Forum	Pluris Sustainable Investments SA	The Pinch Group
Local Government Super	PNC Financial Services Group, Inc.	The Russell Family Foundation
Local Super	Pohjola Asset Management Ltd	The Sandy River Charitable Foundation
Logos portföy Yönetimi A. .	Portfolio 21 Investments	The Sisters of St. Ann
London Pensions Fund Authority	PREVHAB PREVIDÊNCIA COMPLEMENTAR	The United Church of Canada - General Council
Lothian Pension Fund	PREVI Caixa de Previdência dos Funcionários do Banco do Brasil	The University of Edinburgh Endowment Fund
LUCRF Super	PREVIG Sociedade de Previdência Complementar	The Wellcome Trust
Lupus alpha Asset Management AG	Provincial Rheinland Holding	Threadneedle Asset Management
MainFirst Bank AG	Prudential Investment Management	TOBAM
MAMA Sustainable Incubation AG	Psagot Investment House Ltd	Tokio Marine Holdings, Inc
Maple-Brown Abbott	PSP Investments	Toronto Atmospheric Fund
Marc J. Lane Investment Management, Inc.	Q Capital Partners Co. Ltd	Trillium Asset Management Corporation
Maryland State Treasurer	QBE Insurance Group	Triodos Investment Management
MATRIX GROUP LTD	Rabobank	Tri-State Coalition for Responsible Investment
McLean Budden	Raiffeisen Fund Management Hungary Ltd.	Union Asset Management Holding AG
Meeschaert Gestion Privée	Raiffeisen Kapitalanlage-Gesellschaft m.b.H.	Union Investment Privatfonds GmbH
Mercy Investment Services, Inc.	Rathbones / Rathbone Greenbank Investments	Unionen
Mergence Investment Managers	RCM (Allianz Global Investors)	UNISON staff pension scheme
Meritas Mutual Funds	Rei Super	UniSuper
MetallRente GmbH	RLAM	Unitarian Universalist Association
Metzler Asset Management GmbH	Robeco	United Methodist Church General Board of Pension and Health Benefits
Midas International Asset Management, Ltd.	Robert & Patricia Switzer Foundation	Universities Superannuation Scheme (USS)
Miller/Howard Investments	Rockefeller Financial (trade name used by Rockefeller & Co., Inc.)	Vancity Group of Companies
Mirae Asset Global Investments	Rose Foundation for Communities and the Environment	VCH Vermögensverwaltung AG
Mirae Asset Securities Co., Ltd.	Royal Bank of Canada	Veris Wealth Partners
Missionary Oblates of Mary Immaculate	Royal Bank of Scotland Group	Vermont State Treasurer
Mistra, Foundation for Strategic Environmental Research	RPMI Railpen Investments	Vexiom Capital Group, Inc.
Mitsubishi UFJ Financial Group	RREEF Investment GmbH	VicSuper
Mitsui Sumitomo Insurance Co.,Ltd	Russell Investments	Victorian Funds Management Corporation
Mizuho Financial Group, Inc.	SAM Group	VietNam Holding Ltd.
Mn Services	Sampension KP Livsforsikring A/S	Vinva Investment Management
Momentum Manager of Managers (Pty) Limited	Samsung Fire and Marine Insurance	Voigt & Coll. GmbH
Monega Kapitalanlagegesellschaft mbH	Samsung Securities	Waikato Community Trust
Mongeral Aegon Seguros e Previdência S/A	Sanlam Life Insurance Ltd	Walden Asset Management, a division of Boston Trust & Investment Management Company
Mountain Cleantech AG	Santa Fé Portfolios Ltda	WARBURG - HENDERSON Kapitalanlagegesellschaft für Immobilien mbH
MTAA Superannuation Fund	Santam	WARBURG INVEST KAPITALANLAGEGESELLSCHAFT MBH
Mutual Insurance Company Pension-Fennia	Sarasin & Cie AG	Water Asset Management, LLC
Natcan Investment Management	SAS Trustee Corporation	West Yorkshire Pension Fund
Nathan Cummings Foundation, The	Schroders	WestLB Mellon Asset Management (WMAM)
National Australia Bank Limited	Scottish Widows Investment Partnership	Westpac Banking Corporation
National Bank of Canada	SEB	WHEB Asset Management
National Grid Electricity Group of the Electricity Supply Pension Scheme	SEB Asset Management AG	White Owl Capital AG
National Grid UK Pension Scheme	Sentinel Investments	Winslow Management, A Brown Advisory Investment Group
National Pensions Reserve Fund of Ireland	SERPROS - Fundo Multipatrocinado	Woori Bank
National Union of Public and General Employees (NUPGE)	Service Employees International Union Pension Fund	York University Pension Fund
Nativus Sustainable Investments	Seventh Swedish National Pension Fund (AP7)	Youville Provident Fund Inc.
NATIXIS	Shinhan Bank	Zegora Investment Management
Nedbank Limited	Shinhan BNP Paribas Investment Trust Management Co., Ltd	Zevin Asset Management
Needmor Fund	Shinkin Asset Management Co., Ltd	Zurich Cantonal Bank
NEI Investments	Siemens Kapitalanlagegesellschaft mbH	
Nelson Capital Management, LLC	Signet Capital Management Ltd	
Neuberger Berman	Smith Pierce, LLC	
New Alternatives Fund Inc.		
New Mexico State Treasurer		
New York State Common Retirement Fund (NYSCRF)		





# Investor Perspective



**“The CDP Global Water report provides investors with critical information on how companies identify, manage and mitigate risks and opportunities related to water”**

NBIM is exposed to water-related risks through its long-term investments in about 8,000 companies, many of which rely on water as an input or output factor in their operations and supply chains. Mapping such risks can be challenging for a diversified investor but is fundamental in ensuring the long-term security and success of our investments. We welcome the release of the 2012 CDP Global Water report for the critical information it provides on the water-related risks companies face.

The report shows that a higher proportion of companies in 2012 identified water as a substantive risk or opportunity compared with the previous year. While this increased awareness is positive, companies need to follow through with concrete plans if they are to manage these risks and opportunities across their value chains.

The 2012 report also shows that, for a third year in a row, an increased number of companies identified water-related risks in their supply chains. While we welcome this positive development, a significant proportion of companies still remained unaware of the supply chain risks they faced and had not yet developed plans to manage them. This is of particular concern to NBIM as companies in sectors such as food and beverage often face greater water-related risks in their supply chains than in their direct operations.

Experience shows that collective action is an effective way of managing water-related risks and opportunities. As water is a shared local resource, companies can benefit from working with other stakeholders to develop shared solutions. Businesses that engage with local communities and NGOs can gain a better understanding of that community’s relation to and need for water. Those that engage with local governments are better able to influence water policies and manage regulatory risks. Engaging with peers and suppliers allows companies to share best management and reporting practices.

The CDP Global Water report provides investors with critical information on how companies identify, manage and mitigate risks and opportunities related to water. It also gives examples of how companies may improve their water management through collective action. As a lead sponsor of the CDP Water Disclosure initiative since 2009, NBIM looks forward to a continued joint effort to promote transparent water reporting and water stewardship among companies.

**Jan Thomsen**  
Chief Risk Officer  
Norges Bank Investment Management (NBIM)

# Collective Action – Water Stewardship



**“Disclosing water-related information has the potential to create value and mitigate operational, regulatory and reputational risks.”**

Water is a shared resource. As a result, long-term solutions to address water-related risks require collective action. While terminology is still evolving, the notion of collective action stands out as the term that effectively describes the approach for stakeholders to come together to address a wide range of water-related issues to, among other things, improve water quality, protect watersheds, secure supply and maintain a ‘license to operate’.

The very nature of water drives collective action. Water has economic, environmental, social and cultural dimensions. As a result, stakeholders are concerned about the equitable use of water and solving the water scarcity and quality challenges within a watershed. Collective action has been used so effectively that we now see competitors come together in innovative partnerships to address water-related issues. We are also witnessing collaborations between environmental NGOs, industry and government. The logic is straightforward, water should be available for everyone or it will be available for no one.

The adoption of collective action initiatives reflects a strategic shift in thinking about water as a management issue to embodying water stewardship as a business strategy. When we view water as a shared resource that we do not own, and not as a compliance or efficiency issue, longer-term and more effective solutions are generated that solve a host of related issues for various stakeholders.

Innovation is not just about technology development, it is seen in collective action and the partnerships that are being forged to address water risks within the public and private sectors.

Collective action and public disclosure are important components of water stewardship. As we have seen with CDP’s climate change work, business value is created when companies begin to publically disclose carbon and climate change related information. Similarly, disclosing water-related information has the potential to create value and mitigate operational, regulatory and reputational risks. Water is a business resource and disclosing is just the beginning of water-related value creation and water stewardship.

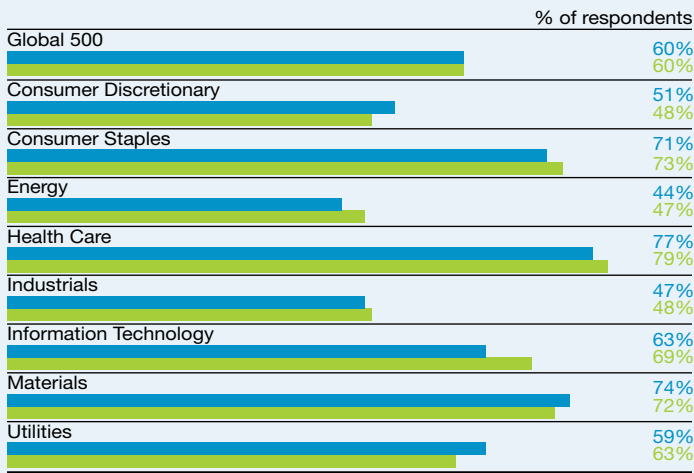
Again, this year we are proud to be part of this effort by CDP to increase the awareness of the importance of addressing water scarcity risks and resultant business risks and opportunities. We recognize the efforts of those companies that responded to the information request, to those investors participating in CDP Water Disclosure and to our colleagues from Molson Coors and Norges Bank Investment Management (NBIM) who have shaped a very successful 2012 CDP Water Disclosure program.

**Will Sarni**  
Director and Practice Leader, Enterprise Water Strategy  
Deloitte Consulting LLP

# Global 500 Insight

## 3 RESPONSE RATES BY SECTOR

- 2012
- 2011



### Response rate remains static

**60%** (191) of 318 companies responded to the 2012 CDP Water Disclosure information request, the same proportion as in 2011.

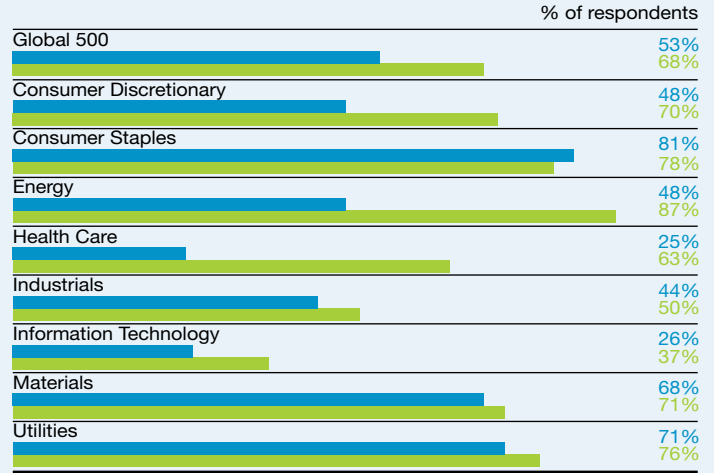
The static response rate is disappointing given the weight of investor interest in this issue and the increasing proportion of companies reporting water-related impacts, risks and opportunities.

The Health Care sector leads once again with a 77% response rate while the Energy sector has the lowest response rate for the 2nd year running at just 44%.

The Energy sector has recorded the lowest response rate of any sector for each of the past two years. This is surprising considering that the proportion of respondents reporting exposure to risk has risen significantly to 87% from 72% in 2011 and is markedly higher than the Global 500 average (68%). Despite widespread exposure to risk, relatively few respondents report board-level oversight of their water policies, strategies or plans (39%), and even fewer report setting concrete targets or goals (30%).

## 4 REPORTED EXPOSURE TO WATER RELATED BUSINESS IMPACTS AND RISKS

- Suffered water-related business impacts in past five years
- Exposed to risks in direct operations or supply chain



### Impacts are being felt more broadly and awareness is rising

**53%** of respondents have experienced water-related detrimental impacts in the past 5 years, up from 38% in 2011. **Freeport-McMoRan**, for example, is investing \$300 million to construct a desalination plant and pipeline near the Pacific Ocean to meet long-term water supply needs at one of its mines and **Iberdrola** reports a 22.1% rise in procurement costs totaling €9.6 million due to lower water availability.

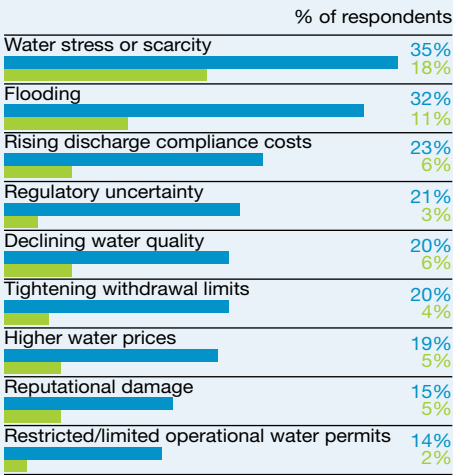
**68%** of respondents identify water as a substantial risk to their business, up from 59% in 2011. Risks are reported more frequently across direct operations than across supply chains.

Companies report a total of **852** risks. Of these risks, **62%** are reported to have the potential to impact business now or within five years (see Figure 11).

The proportion of respondents in the Consumer Staples sector that has experienced water-related impacts in the past five years has doubled since last year (from 40% in 2011 to 81% this year) and is significantly higher than for Global 500 respondents overall. Examples include increasing regulation of water discharges, flood damage and a lack of municipal infrastructure to supply water to new locations.

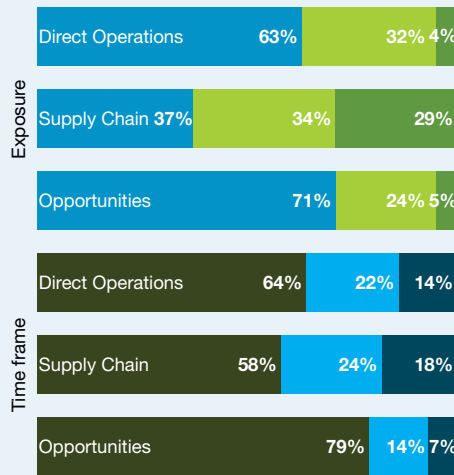
## 5 TYPES OF WATER-RELATED RISK REPORTED IN DIRECT OPERATIONS AND SUPPLY CHAIN

- Direct operations
- Supply chain



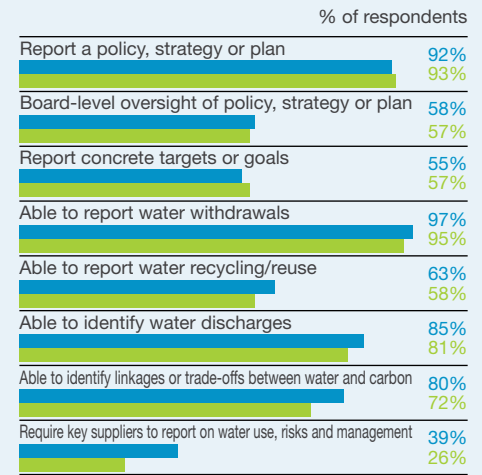
## 6 WATER-RELATED RISK AND OPPORTUNITY: REPORTED EXPOSURE AND TIMEFRAME

- Yes
- No
- Don't Know
- (0-5 years)
- (> 5 years)
- Unknown



## 7 WATER MANAGEMENT AND GOVERNANCE

- 2012
- 2011



### Water represents a strategic opportunity to improve company financial and brand performance

71% of respondents report that water-related issues offer substantial opportunities for their business, up from 63% in 2011.

Of the 319 reported opportunities, 79% have the potential to generate a substantive change in business now or in the next five years.

### Awareness of supply chain risk has improved markedly

The proportion of respondents requiring their key suppliers to report on their water use, risks and management has risen to 39% up from 25% in 2011<sup>6</sup> and the proportion unable to state whether or not they are exposed to supply chain risks has fallen to 29% from 38% in 2011<sup>7</sup>. While this is progress, there remains plenty of room for improvement.

### Water-related issues are not featured as prominently in the boardroom as risks and opportunities imply they should be

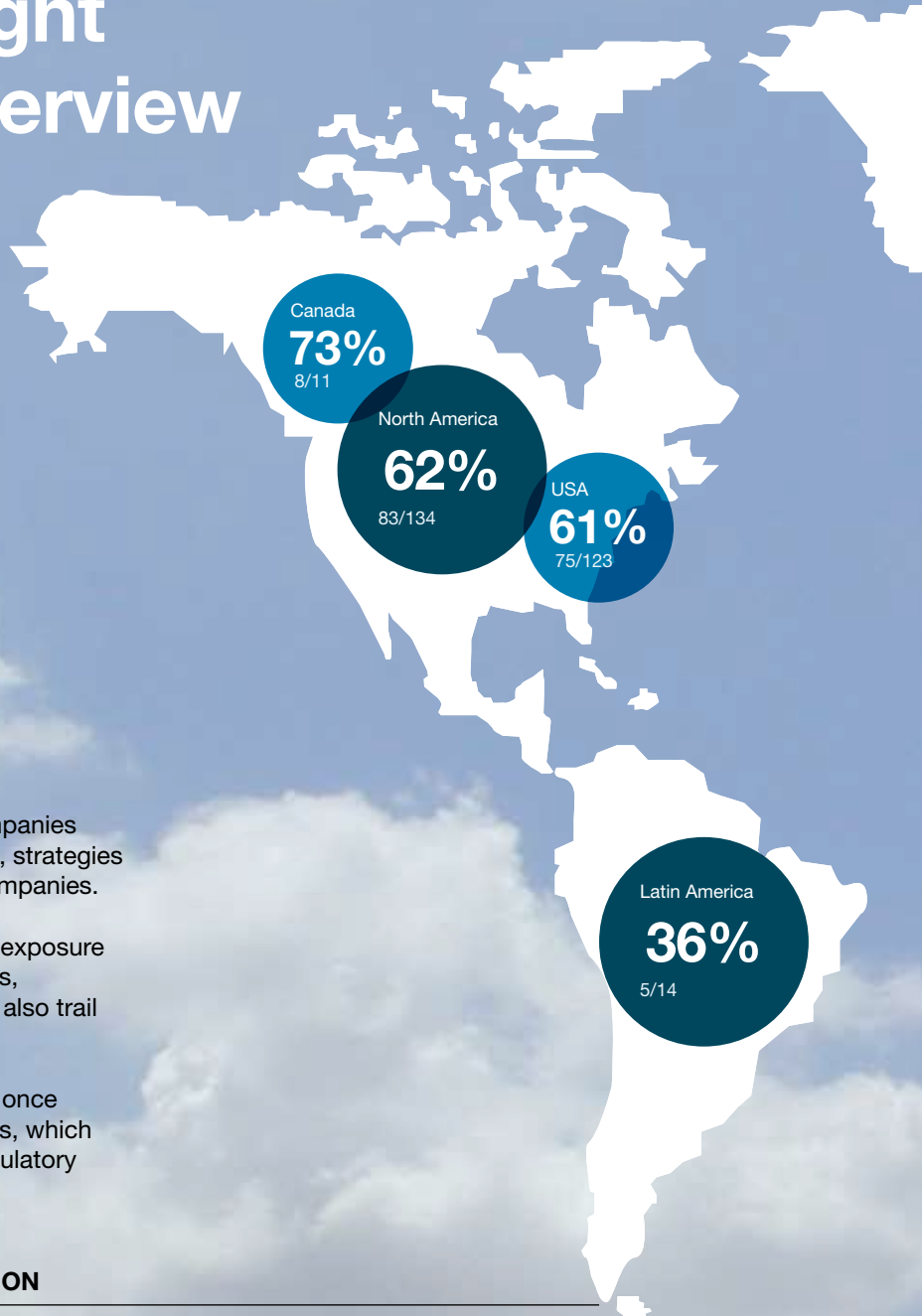
There is a clear and urgent need for companies to develop effective management responses to water-related issues. Although there has been an increase in the proportion of companies able to provide key water accounting data, there has been minimal change in the number of companies setting concrete goals and targets and the proportion of companies giving board-level oversight to their water-related policies, strategies or plans.

“Disclosure of water data helps build trust with stakeholders such as investors, business partners and the community.”

CLP Holdings

6: The figure was 22% in 2010.  
7: The figure was 47% in 2010.

# Global 500 Insight Geographic Overview



A strikingly low proportion of North American companies report board-level oversight of their water policies, strategies or plans compared to European and Japanese companies.

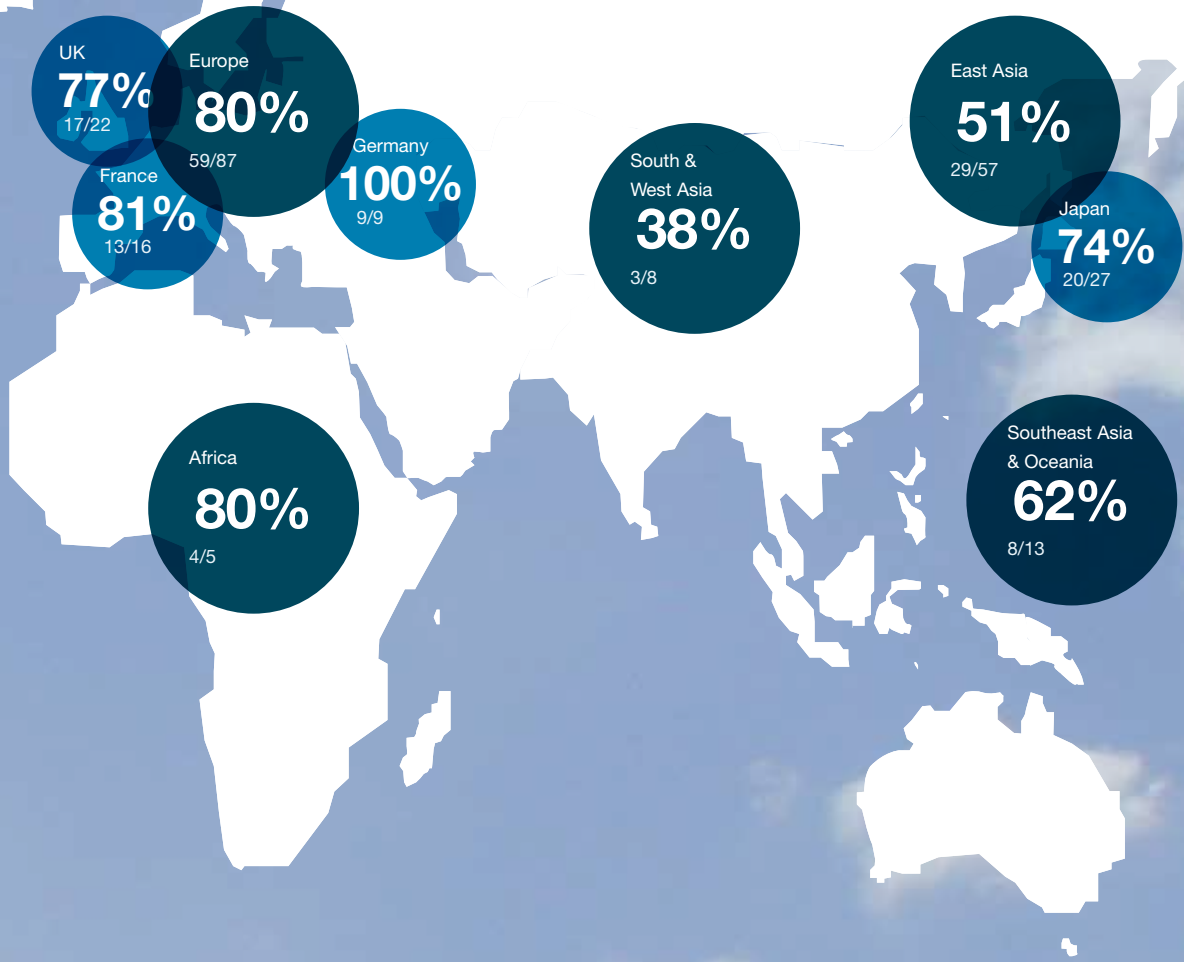
In particular, while all Canadian companies report exposure to water-related risks, just a third give their policies, strategies or plans board-level oversight and they also trail in setting concrete water-related goals or targets.

European – and particularly German – companies once again lead in their response to water-related issues, which may in part be attributed to Europe’s stringent regulatory landscape.

## 8 KEY METRICS BY GEOGRAPHICAL REGION

Responses <sup>8</sup>	North America	Latin America	Africa	Europe	South and West Asia	East Asia	Southeast Asia and Oceania
Response rate	62%	36%	80%	68%	38%	51%	62%
Total responses	83/134	5/14	4/5	59/87	3/8	29/57	8/13
Water policy, strategy or plan in place	86%	80%	100%	97%	67%	90%	88%
Board-level oversight of policy, strategy or plan	35%	40%	100%	75%	67%	79%	38%
Concrete targets or goals in place	52%	80%	50%	63%	0%	34%	63%
Able to identify operations in water-stressed regions	92%	80%	100%	95%	67%	93%	88%
Exposed to risks in direct operations or supply chain	63%	80%	100%	73%	67%	52%	63%
Identifying opportunity	69%	80%	100%	76%	33%	62%	38%

8: To preserve anonymity, two non-public responses from the United Kingdom are excluded from percentages, except for number of responses and response rate.



**9 RESPONSE SUMMARY FOR COUNTRIES WITH 8 OR MORE RESPONDENTS**

Responses <sup>8</sup>	North America		Europe			East Asia
	Canada	United States	France	Germany	United Kingdom	Japan
Response rate	73%	61%	81%	100%	77%	74%
Total responses	8/11	75/123	13/16	9/9	17/22	20/27
Water policy, strategy or plan in place	83%	79%	93%	100%	100%	82%
Board-level oversight of policy, strategy or plan	33%	32%	71%	100%	71%	73%
Concrete goals or targets in place	17%	50%	79%	67%	50%	27%
Able to identify operations in water-stressed regions	100%	83%	86%	100%	100%	82%
Exposed to risks in direct operations	100%	49%	64%	89%	71%	41%
Exposed to risks in supply chain	33%	26%	43%	56%	43%	27%
Exposed to risks in direct operations or supply chain	100%	55%	71%	89%	71%	41%
Identifying opportunity	83%	62%	64%	89%	71%	50%

# Collective Responses to Rising Water Challenges

## Introduction

It is hard not to be overwhelmed by the gravity of the world's water crisis. 780 million people lack access to improved or uncontaminated water sources.<sup>9</sup> 1.4 billion people live in river basins where water use exceeds minimum recharge levels.<sup>10</sup> 2.5 billion people live without basic sanitation.<sup>11</sup> Agricultural production requirements, the demand for energy, a rising middle class in emerging markets, urbanization, and growth in global economic activity all contribute to the increased demand for water, which is growing at twice the rate of population increase.<sup>12</sup>

Any single company will likely have difficulty contributing meaningful solutions to the above challenges. However, there is increasing activity among companies to work collectively to address many water-related issues. Through collective action, companies are engaging with communities, partnering with competitors and NGOs and working with governments to achieve various water-related goals. These goals are linked to tangible business value (such as improving access to water supplies, reducing water dependency and securing licenses to operate) while meeting the needs of the communities where companies operate. The groundswell of collective action and the rise of its strategic importance, among respondents and in the marketplace, are the reasons collective action marks the theme of this year's CDP Global Water Report.

## What is collective action?

The CEO Water Mandate defines collective action as coordinated engagement among interested parties within an agreed-upon process in support of common objectives. It can take a variety of forms, ranging from an informal exchange of ideas to highly structured joint decision making, implementation and accountability.<sup>13</sup> The CEO Water Mandate Guide to Water-Related Collective Action provides further guidance and a stepwise process that can support a company's internal consideration of and preparation for water-related collective action.

For collective action to be effective, it is important that companies develop a clear understanding of who needs to be involved (Participants), why they might want to be involved (Motivations), what the desired outcomes are (Goals) and how these outcomes will be achieved (Methods).

For the purposes of this report, goals and actions relating to community engagement (reported by 56% of respondents), supply chain and watershed management (43%), collective action (38%) and public policy (24%) are considered collective action initiatives; 74% of respondents report at least one collective action initiative. This report provides insight into the motivations for pursuing them, the forms some of these initiatives take and the potential business value that can be realized.

**“Our goal is to be a ‘responsible water steward’ and this entails actively engaging with communities close to operations to ensure mutually beneficial outcomes.”**

### Anglo American Platinum

9: World Health Organization (WHO) and United Nations Children Fund (UNICEF) Joint Monitoring Programme on Water Supply and Sanitation. (2012). Progress on Drinking Water and Sanitation 2012 Update. Available at <http://www.unicef.org/media/files/JMPreport2012.pdf>

10: United Nations Development Programme (2006). Human Development Report “Beyond Scarcity”. Available at [http://hdr.undp.org/en/media/HDR2006\\_English\\_Summary.pdf](http://hdr.undp.org/en/media/HDR2006_English_Summary.pdf)

11: Water Supply and Sanitation Collaborative Council (WSSCC) retrieved September, 5, 2012 from <http://www.wsscc.org/topics/sanitation/sanitation-overview>

12: FAO Water (n.d.) retrieved September, 5, 2012 from <http://www.fao.org/nr/water/issues/scarcity.html>

13: The CEO Water Mandate - Guide to Water-Related Collective Action, Beta 1.0 August 2012

## 10 COLLECTIVE ACTION DESIGN FRAMEWORK



Image: Courtesy of Mike Auraz, Executive Strategy Director at Undercurrent



## Why collaborate?

Companies traditionally work independently to tackle water-related issues. While these initiatives drive efficiency or quality improvements, they are often limited in scope. Given the complexity and scale of water challenges and the interdependencies between companies, communities and natural ecosystems, stand-alone actions may no longer be enough. Many companies are starting to realize that collective action, which extends beyond the boundaries of their direct operations, can effectively build resilience and add value across their business as well as for the other users of this shared resource.

Collective action often involves a variety of partners such as governments and regulators, non-governmental organizations (NGOs), local communities and suppliers, all of whom are likely to have varying levels of expertise and a range of motivations for collaborating. For collective action to be effective, it is essential that these motivations are well understood and a set of common objectives are agreed upon by all partners. In many instances, addressing root problems leads to mutually beneficial outcomes. For example, **The Coca Cola Company** (TCCC), which seeks to achieve “sustainable, quality growth,” has a global partnership with World Wildlife Fund (WWF), whose mission is the conservation of nature and the protection of natural resources for people and wildlife. WWF’s involvement has helped TCCC to shape and implement its global water strategy while raising global awareness of water-related issues. Outcomes to date include advancing conservation of seven of the world’s most important freshwater basins while improving water efficiency within TCCC’s operations.

Global 500 companies report a variety of reasons for collaborating, with the majority of activities focused on addressing risks and capitalizing on opportunities.

**“Given that water is a shared resource, its management has become a sensitive social, cultural and environmental issue, particularly in times of water scarcity; thus, solutions to improve water supply, quality and sanitation conditions require an approach involving collective actions and partnerships. This is expected to give us a competitive advantage if we align our corporate water strategies with public policy goals and multi-stakeholder initiatives... Through early and continuous contact with stakeholders, we could understand, anticipate and respond to emerging issues and expectations. Open dialogue may also be helpful in preventing and reducing the risk of future water-related disputes and disruptions.”**

**Endesa**

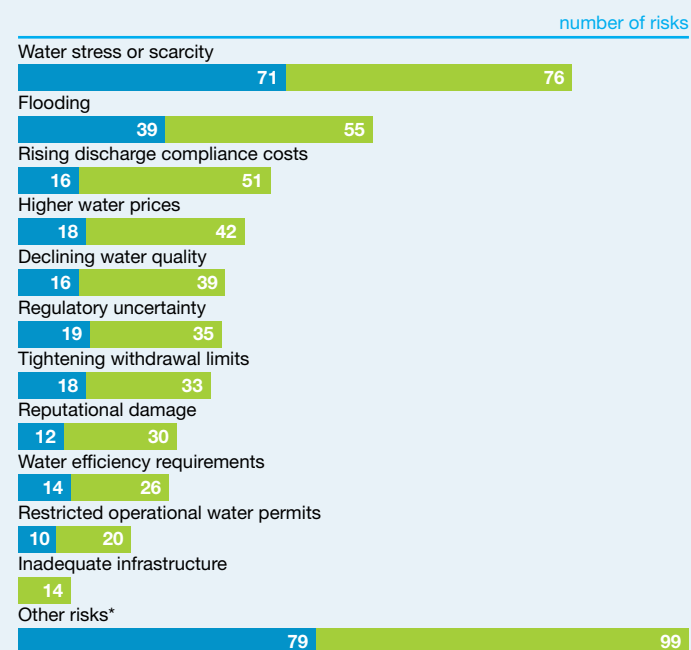
## Risk drives collective action

The assessment, management and mitigation of water-related risks are the main drivers for collective action reported by Global 500 companies. These risks, and awareness of them, are growing. The proportion of respondents reporting that they have experienced water-related business impacts in the past five years has increased dramatically to 53% in 2012, up from 38% in 2011. **Exelon**, for example, announced that it would retire its Oyster Creek, New Jersey nuclear plant ten years earlier than planned due to the potential upgrade cost, of over US\$800 million over the remaining life of the plant, of having to meet more stringent water permitting conditions; and **Sasol Limited** reports production losses in 2010 of approximately R130 million (\$15.6 million) due to flooding of a portion of the Sasol Synfuels plant.

Furthermore, 68% of respondents identify water as a substantial risk to their business<sup>11</sup>, a marked increase from 2011 (59%). Given that the majority of these risks are reported to have the potential to impact businesses now or within the next five years (see Figure 11), there is clearly an urgent need for companies to develop effective management responses. However, the proportion of Global 500 respondents that report board-level oversight of water-related policies, strategies or plans and the proportion of respondents setting concrete goals and targets has changed little since 2011 (see Figure 7 in the Global 500 Insights section of this report) suggesting that a stronger response is needed.

### 11 REPORTED WATER RELATED RISKS AND THEIR TIMEFRAMES<sup>14,15</sup>

- Near term (0-5 years)
- Long term (>5 years or unknown)



Risks to direct operations account for 79% of the 852 risks reported, no doubt reflecting the greater visibility that respondents have of their direct operations as compared to their supply chains. Water stress or scarcity is the most frequently reported risk (147 risks reported), followed by flooding (94) and regulation of discharge quality and volumes leading to higher compliance costs (67). A number of companies have turned to collective action to address these risks.

### Collective approaches to risk assessment

Assessing water-related risks across complex systems is challenging; many respondents report collaborating with partners to understand better their exposure to water-related risks. **PepsiCo**, for example, is working with the Water Center at Columbia University on a Supply Chain Water Risk project to understand and anticipate extreme weather events to ultimately minimize disruption across their agricultural supply chain.

A number of companies, such as **Dow Chemical**, **DuPont**, **Unilever** and **Rio Tinto**, have collaborated with various NGOs to develop water risk assessment tools that can be used by a range of stakeholders:

- World Business Council for Sustainable Development (WBCSD) Global Water Tool used by companies such as **Apache**, **Lockheed Martin** and **Thermo Fisher Scientific**
- WWF-DEG Water Risk Filter used by companies such as **Anadarko Petroleum**, **Newmont Mining** and **Nokia**
- World Resources Institute (WRI) Aqueduct used by companies such as **Asian Bamboo**, **Deere & Company** and **Imperial Tobacco**

Some have gone further. For example, **The Coca Cola Company** has donated its previously proprietary geospatial analytics on global water stress, socio-economic drought and long-term water implications associated with population growth, economic development and climate change to WRI in support of its Aqueduct Alliance.

14: Refers to impacts reported in either direct operations or supply chain  
 15: Risks shown are those identified more than 10 times by companies across direct operations and supply chain. Litigation and product-related risks were also reported

\* Other risks also include other physical and other regulatory risks

### Securing operating permits

**Teck Resources** recognized the value of community engagement after the former owners of a mine in Chile failed to consult properly on future water source requirements for production expansion. Fearing a negative impact on the quantity and quality of water supplies, farmers in the area initiated legal action and the local government stopped pending environmental permits for the mine. In response to this, Teck sought to engage communities of interest and find new solutions, which included the establishment of an alternative water supply through the construction of a 27 km pipeline. The company also agreed to exchange their higher quality water supply with the lower quality supply of the local drinking water company to provide additional benefits to the community. “This experience reinforced the value of community engagement around water and led in part to the creation of a Teck water standard.”

### Responding to water quality risks and regulatory uncertainty

**Sanofi** is working with stakeholders in the pharmaceutical sector and the academic world to expand scientific knowledge of pharmaceuticals in the environment to improve understanding of the environmental risks associated with its marketed products. “The aim of these projects is to assess the potential impact of pharmaceuticals in the environment, including on human health...The Group leads programs to detect and quantify active pharmaceutical ingredients and their degradation products within effluents at its industrial sites.”

### Securing sustainable supplies of water

**Nestlé** reports that in 2010, the Western Cape region of South Africa experienced its worst drought in 132 years, and in response Nestlé introduced a multi-pronged approach which included engineering interventions and awareness campaigns. The program is part of the company’s work with organizations including the South African Government, the Water Resources Group (WRG) and several multi-national companies to help close the water gap by 2030, ensuring the availability of water in the future. “In 2011, we launched phase two of the program, a...project to optimize water use further up the value chain engaging with 17 dairy farmers, five of whom work within the dam’s catchment area, to increase milk production. Local experts, including Nestlé Agricultural Services, are providing training and financial assistance to help with soil moisture monitoring, soil fertility management, irrigation scheduling and the use of drought-resistant crops. Phase three, which will run from 2012 to 2015, will involve engineering work to convert the factory into a zero water intake facility.”

### Identifying and addressing water risks across the value chain

**SABMiller’s** South African operation, SAB Ltd, established a public-private partnership with WWF and GIZ, the German Agency for International Cooperation, to analyze potential water risks to its facilities in the country. The Water Futures Partnership brings together businesses, NGOs and government agencies to share learning, address shared water risks and promote better watershed management. The partnership carried out one of the first comprehensive water footprint assessments with SAB Ltd. The findings identified a number of potential water risks, including two priority areas: (1) understanding the vulnerabilities in their agricultural supply chain and (2) identifying local and catchment-level actions to protect the company’s brewery at Polokwane against risks relating to potential water scarcity and water quality. The company reports that work programs to collaborate with local authorities and other relevant stakeholders are now active in both projects.

### Responding to water withdrawal limitations

**Exelon** reports that “seasonal variations of temperature and river flow rate could potentially limit water intake needed by the Limerick nuclear plant. To address these limitations, Exelon collaborated with numerous regulatory agencies and environmental stakeholders to develop a flow augmentation alternative that allows mine water to be used to supplement flow in the Schuylkill River, allowing the plant to continue to use the Schuylkill rather than the Delaware River as its primary source. This project is in the last year of a 7 year pilot and has demonstrated that mine water can be a viable option. It has been administratively extended pending final approval of the amended and combined Delaware River Basin Commission docket.”

### Delivering supply chain resilience

**Woolworths Limited** has extended its Fresh Food Futures Program initiative and investment on water efficiency into the supply chain to build supply chain resilience. The initiative is a \$3.25 million commitment to sustainable farming projects and building leadership capacity in agriculture, improving water use and supporting the development of a water footprint tool for the horticulture industry. In addition to the Fresh Food Futures program, Woolworths has invested more than \$17 million to directly support farmers and to invest in sustainable farming practices.

## Collective action in a pre-competitive landscape

While many companies may find competitive advantage in their management of water-related issues, working collaboratively with competitors can help provide cost-effective solutions to industry-specific risks that enable all parties to remain competitive while improving their business resilience.

A number of respondents report that they are working collectively with their peers through trade and other associations to tackle some of the more complex water-related issues efficiently and effectively. Examples include:

The Sustainable Apparel Coalition (SAC) is an industry-wide group of over 60 leading apparel and footwear brands such as **H&M**, retailers such as **Target**, suppliers such as **DuPont** and NGOs working to reduce the environmental and social impacts of apparel and footwear products around the world.<sup>16</sup> SAC has developed the “Higg Index” to measure sustainability and environmental impact across the industry’s supply chain taking into account water and energy use, waste, chemicals and toxicity. Use of the index is expected to drive business value and innovation in the global apparel and footwear supply chain by reducing risk, uncovering efficiencies and creating a common means to communicate sustainability efforts to stakeholders.

**BASF**, **Bunge** and **General Mills** are all members of Field to Market, a consortium of industry, grower groups, NGOs, academics and government agencies committed to improving the sustainability of production agriculture.<sup>17</sup> Field to Market has developed peer-reviewed metrics (including water use and CO<sub>2</sub> emissions) for determining the environmental profile of crop production, issued national reports on agricultural sustainability performance and developed an online tool for growers to assess their own operations and identify areas of improvement. According to Bunge, “the group is currently working to develop metrics on water quality and biodiversity.”

**Hess**, **Marathon Oil** and **Noble Energy** are members of the International Petroleum Industry Environmental Conservation Association (IPIECA), an initiative dedicated to bringing the industry together on environmental and social issues.<sup>18</sup> IPIECA’s multi-disciplinary Water Task Force aims to improve understanding of how and why water is an important resource along the oil and gas supply chain. So far they have produced guidelines for upstream fresh water management; they are promoting greater consistency in identification of water risk at the global and local scale, sharing good practice, and promoting consistent freshwater reporting. Hess reports that IPIECA worked with the World Business Council for Sustainable Development in 2011 to create a customized Global Water Tool for the oil and gas industry.

**AngloGold Ashanti**, **BHP Billiton** and **Xstrata** are all members of the International Council on Mining & Metals (ICMM) with the goal to improve sustainable development performance in the Mining & Metals industry.<sup>19</sup> According to BHP Billiton, ICMM is testing a framework for water reporting and accounting, developed by the Minerals Council for Australia and the Sustainable Minerals Institute, with their members. They are considering the framework’s international applicability and alignment as well as developing a better understanding of water accounting that is meaningful for its members and the mining industry.

Identifying and coordinating collective action initiatives can sometimes be difficult and there are projects being developed to ease the process. One such project is the **CEO Water Mandate’s Water Action Hub** (the Hub), a partnership with the International Business Leaders Forum, GIZ, the UN Global Compact and Deloitte. The Hub, which is an online tool, allows companies to more easily identify and collaborate with businesses, relevant governments, NGOs and local communities to advance sustainable water management on a location-specific basis. The Hub features a mapping function that visually places each facility or organization within watershed maps to help organizations understand stakeholder initiatives in their watersheds of interest.

“A responsible, sustainable use of water requires commitment from many different stakeholders.”

**Bayer**

“Inspiring people to adopt new behaviours is central to our Plan. We encourage consumers to use better laundry habits on-pack.”

**Unilever**

16: <http://www.apparelcoalition.org/>

17: <http://www.fieldtomarket.org/members/>

18: <http://www.ipieca.org/>

19: <http://www.icmm.com/>

## Capitalizing on opportunities through collective action

Taking collective action often enables a company to capitalize on specific opportunities. This year, 71% of respondents report a total of 319 opportunities that have the potential to generate a substantive change in their business operation, revenue or expenditure with 78% of these opportunities occurring now or within the next five years (see Figure 12).

Cost saving opportunities are reported most frequently (25% of opportunities identified), followed by sales of new products or services (24%) and increased brand value (16%). Many of these opportunities are associated with collective action, and as respondents' understanding of water continues to grow, more companies will likely recognize the impacts water can have on operating results.

## Responding to customer requirements

Many respondents recognize that collaborating with their customers to provide solutions to water-related challenges presents a growing opportunity in an increasingly water-stressed world. 24% of respondents, including **Intel**, **Johnson Controls** and **Unilever** report that sales of new water-related products and services are an opportunity for their business, with audiences ranging from household consumers to businesses across a diverse range of markets.

As part of the Field to Market program, for example, **Bunge** and **Kellogg** have partnered to pilot a life cycle analysis for corn milled in a Bunge facility in Nebraska and used to create Kellogg's cereals. The program includes measurement of water used and greenhouse gas emissions generated by farm production, industrial processing and transportation.

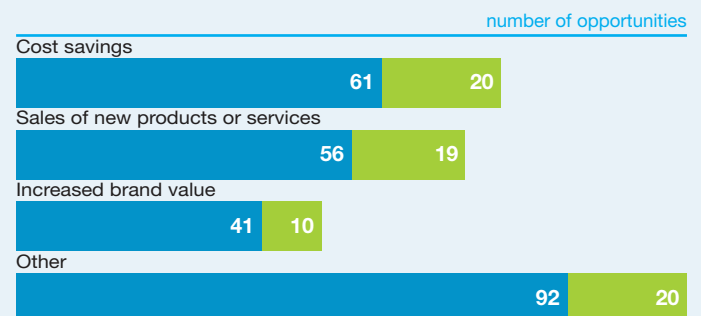
**Bayer's** CropScience subgroup has a strategy to exploit opportunities associated with sales of new products by focusing on research to increase yield and stress resistance of plants, assisting customers who are faced with water-related issues. This includes in-house research and collaboration with research institutions across the globe. Bayer reports, for example, that in the last two years it has signed cooperation contracts to accelerate the development and introduction of wheat varieties that are more drought tolerant, have higher yields and require less fertilizer and water.

“ST is committed to ensuring the continuity of water supply in the areas in which we operate. This means engaging in regular discussions with local stakeholders. This generates a positive reputation and image and increases brand value as well as ensuring a stable and sustainable relationship with local authorities, stakeholders, etc. Consequentially, positive financial impacts may be seen through an increase in margins and market shares.”

## STMicroelectronics

### 12 REPORTED WATER-RELATED OPPORTUNITIES AND THEIR TIMEFRAMES

- Near term (0-5 years)
- Long term (>5 years or unknown)



## Capitalizing opportunities

### Realizing cost savings through supply chain interventions

**Cisco Systems** worked with its printed circuit board assembly partners to reduce water use in processes for Cisco products. Up to 20 million gallons of water were being used each year to wash their printed circuit boards after they were soldered. By implementing a new soldering practice, the wash stage of the process became unnecessary. This led to a significant reduction in the amount of waste water produced requiring treatment and disposal. The result is less water use and increased assembly efficiency, saving Cisco Systems over US\$1 million per year with no adverse impact on product quality.

### Offering advanced, integrated solutions to water-related challenges for farmers

**Syngenta** is aware of the exposure to water-related issues within the agricultural supply chain. The company recognized that timely, appropriate advice on agronomy solutions can help farmers make the best choices for their crops but that sharing information regularly over large, sometimes remote, areas is not always possible. To address this need, “Syngenta has been working with **Nokia LifeTools** to set up an easy-to-use, graphical interface that works anywhere on Nokia cell phones. With this wireless application, Syngenta can provide growers with crop specific tips on pest and disease management.”

### Engaging product users to promote water-saving behavior

**Colgate Palmolive (C-P)**, using their Global Oral Health Education Program which promotes oral health education and prevention in communities worldwide, has distributed videos, books, software and interactive activities in approximately 30 languages for use in the classroom and home. The program includes integrated messaging about the importance of water conservation. “Our program has reached 650 million children in 80 countries since 1991. Colgate also collaborated with a major retail partner in Central America and China on a multimedia campaign that encouraged shoppers to save water by turning off the faucet while brushing their teeth. C-P Portugal, Denmark and Sweden also launched in-store category and brand activation initiatives to educate consumers about saving water while brushing their teeth, washing dishes and cleaning floors.”

### Collaborating with suppliers to realize cost savings

**Marvell Technology Group** reports that its “supply chain includes wafer manufacturing and metal finishers that are significant water users. The upstream supply chain of raw material mining and production are heavily dependent on water availability and large volumes of water discharge. The cost of our upstream supply chain directly impacts cost of components. Marvell intends to leverage Electronics Industry Citizenship Coalition work in working with our supply chain to implement water conservation as part of our Global Citizenship Initiatives. We are enhancing our brand in addition to helping our suppliers to manage water costs.”

### Sharing proprietary information to improve the greater good

**Bristol-Myers Squibb** recognizes that water-related issues such as precipitation extremes or changing patterns may increase the potential for illness and increase the demand for new products. As part of this understanding, the largest coordinated effort to date to combat Neglected Tropical Diseases (NTDs) has occurred. 13 pharmaceutical companies, including Bristol-Myers Squibb, the U.S., U.K. and U.A.E. governments, the Bill & Melinda Gates Foundation, the World Bank and other global health organizations have pledged to bring a unique focus to defeating these diseases. As part of this coordinated effort, Bristol-Myers Squibb will provide access to select proprietary compound libraries to third parties, including the Drugs for Neglected Diseases initiative (DNDi), to help develop potential new medicines for targeted NTDs.

### Realizing savings and increasing brand value through collective action

**Sasol Limited** is “actively supporting the development of [a] National water off-setting mechanism which will enable Sasol to direct appropriate effort and funds to initiatives (in the catchments) which will have a bigger impact on reducing the water scarcity risk than applying the effort/funds internally...Delivering on the collective action water conservation projects with municipalities and supporting the development and implementation of a water off-set model would provide a mechanism for realizing savings and increase brand value.”

## Future expectations of the Global 500

Collective action is emerging as an effective means for companies to address water-related challenges and capitalize on opportunities. As the strategic importance of water-related issues grows, Global 500 companies are leveraging collective action in response. As the implications of water-related issues are further associated with the cost of doing business and as water-related opportunities prominently feature in company growth strategies, aligning company policies, goals and actions around water is expected to become a priority.

Mitigating risks and seizing business opportunities offer distinct justifications for companies to engage in collective action initiatives. As we have seen, many companies are reducing their exposure to water-related risks and, in partnership, identifying ways in which water-related issues can have a tangible positive impact on company performance. Effective collaboration offers companies the chance to benefit from each other's experience, gain fresh ideas, increase the momentum for change, pool resources, enhance credibility and legitimacy, and become better water stewards.

This year's respondents indicate that collective action will continue to be featured prominently in company water strategies and, in turn, overall business strategies. As the shape and form of collective action evolves, companies should be sure to link these actions with priority water-related issues and monitor their effectiveness. Collective action is not a substitute for a robust water strategy and companies should continue to act independently in relation to some issues, particularly in establishing specific concrete targets and goals.

At its best, collective action can lead to a strong sense of shared interests, shared responsibility, and shared benefits. It has the potential to change the dynamic of the marketplace and we look forward to learning about the outcomes of these actions in responses to CDP's Water Disclosure information request in 2013 and beyond.

**“The increasing challenges from water scarcity, droughts and flooding create a commercial opportunity for companies that provide solutions. Santander is active in analyzing trends in the provision of solutions and may invest in those companies which present related growth opportunities. Investment in growth markets can produce new and enhanced revenue streams for the bank.”**

**Banco Santander**

# Company Perspective



Across the Molson Coors organization, we are committed to reducing water use and preserving and protecting the watersheds where we operate. The heritage of Molson Coors began with water: the salts perfect for brewing in the water beneath Burton-on-Trent in the UK, the abundant waters of the St Lawrence River in Montreal, Canada and the crisp Rocky Mountain waters from Golden Colorado. It's only natural that today, Molson Coors is committed to reduce our water use and preserve and protect the quality of the watersheds where we brew. Partnerships encouraging community engagement in solving local water-related issues are integral to our water strategy.

We believe the best way to add value is by using our water expertise to raise awareness of water-related issues, and take steps to protect and strengthen local watersheds and minimize opportunity for conflict. Across our operations we have established community partnerships/forums that encourage employee and community engagement in solving local water issues. We have had a partnership with the Clear Creek Watershed Foundation (CCWF) since 1997, being one of the founding members since the watershed feeds our iconic Golden, Colorado brewery. We have engaged with stakeholders in our watersheds in Tadcaster and Alton in the UK and in Toronto, Canada, to identify and address critical water issues together. We believe that collective action initiatives provide a cost-effective solution to address water-related issues that go beyond our own operations.

Molson Coors is committed to transparent reporting, especially the disclosure of business-critical water-related information through CDP Water Disclosure. Greater transparency leads to the development of a more robust approach to water management which enables us to mitigate the risks and identify opportunities that add real value to our business, and the communities in which we operate.

**Peter Swinburn**  
President & CEO  
Molson Coors Brewing Company

**“Greater transparency leads to the development of a more robust approach to water management which enables us to mitigate the risks and identify opportunities”**



# Sector Summaries



# Consumer Discretionary

## RESPONSE RATE

51%

(23/45)

2011 Response Rate: 48% (22/46)

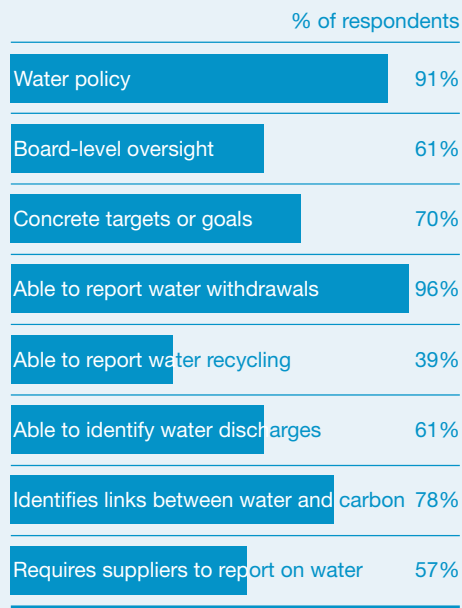
### Sector Response Rate Breakdown

Auto Components: 4/5  
 Automobiles: 6/11  
 Hotels, Restaurants & Leisure: 4/5  
 Household Durables: 2/2  
 Internet & Catalog Retail: 0/3  
 Media: 1/3  
 Multiline Retail: 1/2  
 Textiles, Apparel & Luxury Goods: 2/6  
 Specialty Retail: 3/8

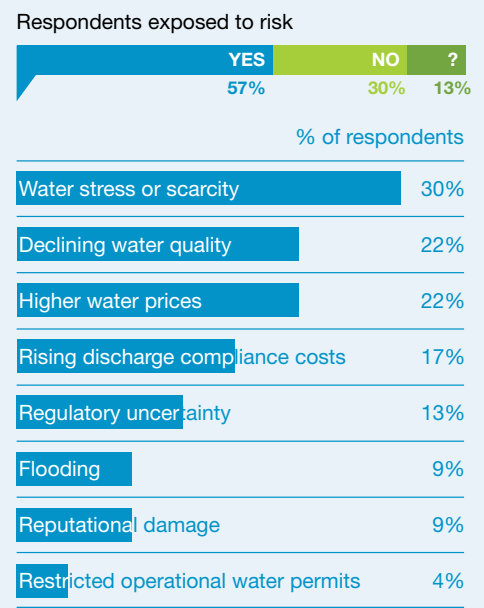
## KEY FINDINGS

- Respondents in the Consumer Discretionary sector are increasingly aware of the opportunities that water presents.
- Encouragingly, an increasing percentage of respondents are able to identify whether or not their supply chains are exposed to water-related risks. Further, this sector has more respondents than any other requiring key suppliers to report on their water use, risks and management.
- A large proportion of respondents set concrete water-related targets and goals. However, the sector lags the Global 500 across every water accounting indicator, which may suggest that they are unable to track progress against their targets effectively.

## MANAGEMENT AND GOVERNANCE



## RISKS IN DIRECT OPERATIONS\*



\* Water withdrawal limits and inadequate infrastructure were also reported by 4% of respondents

## LEADING PRACTICE

### General Motors

#### Management & Performance

General Motors is improving the water efficiency of its manufacturing plants. The assembly plant in San Luis Potosi, Mexico, for example, was designed with a zero discharge concept. 90% of the facilities waste water is treated on-site and re-used in the manufacture of vehicles. This has resulted in reductions of well water consumption of 20 million gallons per year and each vehicle is now manufactured with 50% recycled water.

### Hennes & Mauritz (H&M)

#### Engagement

H&M has created the Cleaner Production Programme to engage suppliers on water performance. H&M focuses on those suppliers located in water scarce areas, as defined by the WBCSD. Thus far, the program has engaged 21 mills and helped to generate 10-30% water savings per factory.

## Risk exposure in Direct Operations

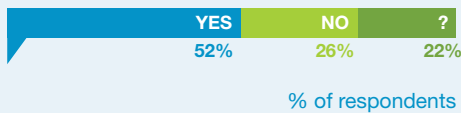
57% of respondents report exposure to water-related risk in their direct operations and 63% of these risks for which a timeframe was reported, have the potential to impact businesses now or within the next five years. Water stress or scarcity, declining water quality and higher water prices are reported most frequently; and although flooding was frequently cited by other sectors, it represents only 9% of the risks reported by Consumer Discretionary respondents.

Many companies recognize that incremental changes across multiple retail outlets can add up to substantial savings and risk reduction. For example, **Starbucks** began installing a new, manually operated hand-meter faucet to replace dipper wells across their outlets. This allowed the company to conserve approximately 100 gallons (378 liters) of water per store per day.

A large proportion of respondents set concrete water-related targets and goals, but the sector lags the Global 500 across every water accounting indicator including the ability to report discharges.

## RISKS IN SUPPLY CHAIN

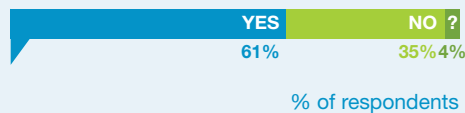
Respondents exposed to risk



Risk	% of respondents
Water stress or scarcity	30%
Declining water quality	9%

## OPPORTUNITIES

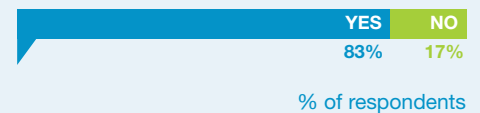
Respondents identifying opportunities



Opportunity	% of respondents
Brand value	35%
Cost savings	30%
New sales	17%
Other	17%

## ACTIONS

Respondents reporting actions



Action	% of respondents
Direct operations	87%
Community engagement	57%
Supply chain or watershed management	43%
Transparency	30%
Collective action	22%
Public policy	9%

### Risk exposure in Supply Chain

52% of Consumer Discretionary respondents report exposure to supply chain risk; notably higher than 37% of Global 500 respondents. Many report that they sell goods but do not necessarily produce or manufacture them, and as a consequence, their supply chains are more exposed to water-related risks than their direct operations. Recognizing this, the percentage of respondents requiring their suppliers to report on their water use, risks and management has risen significantly to 57% from 41% in 2011.

Partnerships and collaborations with suppliers are commonly used to address supply chain risks: *“Our Product Design and Development team is...working with the Clean by Design program aimed at reducing the environmental impact of the textile industry. A select group of fabric mills participated in a pilot where low-cost and no-cost investments were identified to reduce waste, water and energy use at the mills. These investments have a payback period under a year and represent thousands of dollars in annual savings.” Target Corporation*

### Seizing Opportunities

A significantly higher proportion of respondents are identifying water-related opportunities this year (61%) than in 2011 (41%). Interestingly, 40% of the opportunities identified are related to increased brand value, far more than the Global 500 average of 16%. This may be because the majority of companies are in the automobile or hotels, restaurants & leisure industries where strong brands drive sales. Of the opportunities identified, 89% are anticipated to materialize now or within the next five years.

### Case Study

#### Volkswagen (VW)

VW has set a target to reduce its water consumption by 25% by 2018 over 2010 levels. In order to reach this goal and to identify which processes are responsible for the highest water consumption, VW calculated water footprints along the life cycles of three cars. In doing so, VW learned that water consumption occurs in 43 countries worldwide and nearly 90% of the water is consumed indirectly throughout its supply chain. By considering the complete lifecycle of its products, the company now has a broader understanding of its impacts and can more effectively target reduction activities.

**“Water availability is a vital challenge both locally and globally...Water, a particularly precious resource for the Group’s businesses, especially for the Wines & Spirits and Perfumes & Cosmetics businesses, is the subject of intense scrutiny” LVMH**

# Consumer Staples

## RESPONSE RATE

# 71%

(32/45)

2011 Response Rate: 73% (27/37)

### Sector Response Rate Breakdown

Tobacco: 6/8

Beverages: 7/8

Food Products: 6/11

Food & Staples Retailing: 6/11

Personal Products: 5/5

Household Products: 2/2

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	100%
Board-level oversight	59%
Concrete targets or goals	78%
Able to report water withdrawals	100%
Able to report water recycling	33%
Able to identify water discharges	89%
Identifies links between water and carbon	96%
Requires suppliers to report on water	48%

## RISKS IN DIRECT OPERATIONS\*

Respondents exposed to risk

YES	NO
74%	26%

	% of respondents
Water stress or scarcity	55%
Flooding	38%
Declining water quality	31%
Rising discharge compliance costs	24%
Tightening withdrawal limits	24%
Higher water prices	17%
Reputational damage	17%
Inadequate infrastructure	14%

\* Difficulty obtaining operational permits was also reported by 14% of respondents

## KEY FINDINGS

- The proportion of respondents in the Consumer Staples sector that has experienced water-related impacts in the past five years has doubled since last year and is significantly higher than for Global 500 respondents.
- All respondents are able to identify whether or not they are exposed to risks in direct operations, perhaps contributing to the higher proportion reporting that water poses a substantial risk to their business than for the Global 500 overall.
- The supply chain remains a significant source of risk; an increase in the proportion of respondents engaging with key suppliers indicates that respondents are attempting to tackle this issue.

## LEADING PRACTICE

### Heineken Governance

As part of its 'Brewing a Better Future' integrated sustainability program, Heineken has introduced incentives for all senior managers linked to sustainability targets, including water. While many companies in the Consumer Staples sector have established water related targets or goals, linking the achievement of these goals to incentives illustrates an additional level of commitment in water stewardship.

### Anheuser Busch InBev Engagement

AB InBev recognizes that their brewing operations have an environmental impact across the entire value chain. As a result the company created the Labatt Fresh Water Alliance to support the Canadian Land Trust Alliance, an NGO established to preserve land and water resources for the benefit of the public. In Brazil they also launched the CYAN Movement, a broad campaign involving a variety of partners and awareness-raising initiatives to draw attention to the importance of water conservation.

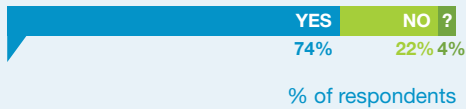
## Risk exposure in Direct Operations

The proportion of Consumer Staples respondents reporting water-related impacts in the past five years has doubled to 81% from 40% in 2011, and is significantly higher than for Global 500 respondents overall (53%). All 32 Consumer Staples respondents are able to identify whether or not they are exposed to risk, perhaps contributing to the higher proportion (78%) reporting that water poses a substantial risk to their business than for the Global 500 overall (68%).

The proportion of respondents reporting exposure to risk in their direct operations has increased to 74% from 64% in 2011, with the majority of these risks having the potential to impact businesses now or within the next five years.

## RISKS IN SUPPLY CHAIN

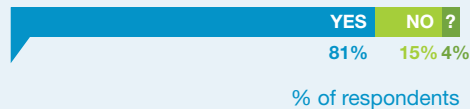
Respondents exposed to risk



Risk	% of respondents
Water stress or scarcity	28%
Declining water quality	17%
Flooding	14%
Regulatory uncertainty	10%
Tightening withdrawal limits	10%
Higher water prices	7%
Water efficiency requirements	7%
Reputational damage	7%

## OPPORTUNITIES

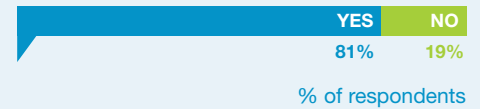
Respondents identifying opportunities



Opportunity	% of respondents
Cost savings	48%
Brand value	24%
New sales	14%
Other	38%

## ACTIONS

Respondents reporting actions



Action	% of respondents
Direct operations	93%
Supply chain or watershed management	72%
Community engagement	62%
Collective action	59%
Transparency	38%
Public policy	28%

### Risk exposure in Supply Chain

As with direct operations, almost all respondents (96%) are able to state whether or not they are exposed to water-related risk across their supply chains (yes and no responses) up from 76% in 2011. Perhaps as a result, a growing proportion of respondents (74% up from 60% in 2011) report exposure to a range of supply chain risks; this is double the figure for the Global 500 of 37%, and is consistent with the fact that 74% of respondents report that they source their key inputs or raw materials from regions subject to water-related risk compared to 43% for the Global 500.

As might be expected, there has been an increase in the percentage of respondents engaging with key suppliers (48% up from 32% in 2011) although there remains room for improvement.

Respondents have identified a wider variety of risks across the supply chain than in 2011 reflecting an improved understanding of water issues.

### Seizing Opportunities

81% of Consumer Staples respondents identify water-related opportunities that have the potential to generate substantive changes to their business. While respondents report exposure to risk, they are also finding innovative ways to mitigate these risks while seizing opportunities to reduce costs, ensure business continuity, increase brand value and sell new products or services. Most opportunities (75%) are available now or are expected within the next 5 years.

The Altadis Foundation, part of **Imperial Tobacco Group**, for example, implemented a 'Water Guardian Project,' a collaborative initiative in southern Brazil which rewards leaf growers who help conserve the region's water resources and thus ensure security of tobacco supply for the company.

### Case Study

#### Unilever

As part of its Sustainable Living Plan, **Unilever** has developed a range of targets including one to halve the water associated with the consumer use of products by 2020 in seven water scarce countries. Comfort One Rinse is a fabric conditioner developed by the Company that requires only one bucket of water for rinsing instead of three, saving 30 litres of water per wash. These products are now used in 12.5 million households worldwide, a 60% increase on 2010.

**“Due to the fact that the scarcity of water is a risk shared by all of society, SABMiller is working with governments, NGOs and other stakeholders. This is a complex issue, and acting alone is not enough.” SABMiller**

## RESPONSE RATE

# 44%

(25/57)

2011 Response Rate: 47% (25/53)

**Sector Response Rate Breakdown**  
 Oil, Gas & Consumable Fuels: 24/50  
 Energy Equipment & Services: 1/7

## KEY FINDINGS

- The Energy sector has recorded the lowest response rate of any sector for each of the past two years.
- The proportion of respondents reporting exposure to risk in their direct operations has risen significantly since 2011 and is markedly higher than the Global 500 average. Regulatory uncertainty is cited most frequently.
- Despite widespread exposure to risk, relatively few respondents report board-level oversight of their water policies, strategies or plans, and even fewer report setting concrete targets or goals.

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	96%
Board-level oversight	39%
Concrete targets or goals	30%
Able to report water withdrawals	91%
Able to report water recycling	87%
Able to identify water discharges	100%
Identifies links between water and carbon	70%
Requires suppliers to report on water	30%

## RISKS IN DIRECT OPERATIONS\*

Respondents exposed to risk	
YES	NO
87%	13%
% of respondents	
Regulatory uncertainty	48%
Water stress or scarcity	30%
Flooding	22%
Rising discharge compliance costs	22%
Tightening withdrawal limits	17%
Declining water quality	13%
Water efficiency requirements	13%
Reputational damage	13%

\* Difficulty obtaining operations permit was also reported by 13% of respondents

## LEADING PRACTICE

### Statoil

#### Risk assessment

Statoil has developed an “Environmental Impact Factor” tool to carry out environmental risk assessments for its onshore and offshore activities. The tool helps prioritize management actions and reduce the potential risk of contamination of soil, surface water and groundwater.

### Genovus

#### Seizing opportunity

Genovus reports that it has patented an innovative approach to reuse blowdown water within its oil sands projects to create additional steam. The process has increased the efficiency of steam production from around 80% to 93% as well as improving the company’s water recycling rate while reducing its emissions, water use and energy consumption.

## Risk exposure in Direct Operations

A greater proportion of respondents report exposure to risk in their direct operations (87%) than in 2011 (72%), and a high proportion of these risks (65%) have the potential to impact businesses now or within the next 5 years. Significantly, the proportion of respondents reporting regulatory uncertainty as a risk this year has doubled since 2011 (48% and 24% respectively), with many highlighting regulatory uncertainty around the use of water in hydraulic fracturing:

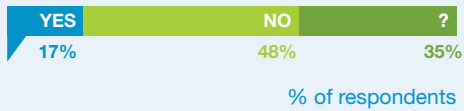
*“The uncertain regulatory environment surrounding hydraulic fracturing, water procurement and water disposal has caused delays in operations and increased the cost of doing business.”*

### Noble Energy

However, relatively few respondents report board-level oversight of their water policies, strategies or plans (39%) and fewer have set concrete targets or goals (30%).

## RISKS IN SUPPLY CHAIN

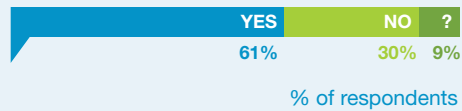
Respondents exposed to risk



Water stress or scarcity	9%
Litigation	4%
Product risk	4%
Regulatory uncertainty and reputational damage	4%
Rising discharge compliance costs	4%
Water efficiency requirements	4%

## OPPORTUNITIES

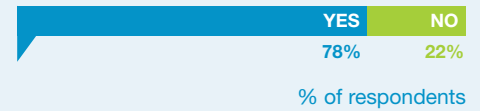
Respondents identifying opportunities



Cost savings	35%
New sales	13%
Other	30%

## ACTIONS

Respondents reporting actions



Direct operations	91%
Community engagement	52%
Collective action	35%
Transparency	17%
Public policy	13%
Supply chain or watershed management	13%

### Risk exposure in Supply Chain

Relatively few (17%) respondents report exposure to supply chain risks (compared to 37% for the Global 500), largely reflecting the sector's position as an upstream supplier but also the diversity of suppliers and the easily substitutable nature of equipment (such as pipes) used by Energy companies.

*"The supply chain is not considered at risk due to water related issues because equipment, pipe and chemicals are in relative abundance and are typically unaffected by water issues such as a drought or declining water tables."*

#### Apache

However, a few respondents such as **Hess** have recognized they do face a competitive risk if their frac fluid suppliers have less environmentally friendly fluids. Consequently Hess is pursuing the use of environmentally friendly and biodegradable additives in place of more commonly used additives from their vendors.

### Seizing Opportunities

61% of Energy respondents identify water-related opportunities that have the potential to generate substantive changes to their business and 74% of these opportunities are expected to materialize now or within the next 5 years. Many of these opportunities are associated with cost savings (37%); for example, **Sasol** is working on water conservation projects with municipalities and supporting the development and implementation of a water off-set model that could provide a mechanism for realizing savings.

A focus on water reduction technologies has allowed companies such as **Baker Hughes** to recycle around 1.4 million barrels of produced oilfield water, saving a large volume of fresh water for agriculture and general population needs.

While pursuing reputational benefits by using wastewater from a nearby paper mill, **BG Group** has realized further potential for commercial opportunities. The company now recognizes that the established infrastructure for treating wastewater can also be leveraged to supply water to other nearby operators.

### Case Study

#### Talisman Energy

Responsible water use and conservation are part of Talisman Energy's shale operations strategy. The company has partnered with environmental NGOs including WRI to assess water-related risks and it conducts baseline assessments of water quality and quantity to monitor, evaluate and mitigate the impact of its activities. Part of Talisman's strategy involves increased transparency by making available the composition of its hydraulic fracturing fluids on [www.fracfocus.ca](http://www.fracfocus.ca) and engaging with fluid suppliers to improve the process, reuse and storage of those fluids.

**"The use of water plays a crucial role in developing natural gas resources. Protecting this natural resource and using it wisely is important to continued success." Encana<sup>20</sup>**

20: Other Responding Company

# Health Care

## RESPONSE RATE

# 77%

(24/31)

2011 Response Rate: 79% (23/29)

### Sector Response Rate Breakdown

Pharmaceuticals: 15/18

Biotechnology: 5/5

Health Care Equipment & Supplies: 3/7

Life Sciences Tools & Services: 1/1

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	88%
Board-level oversight	54%
Concrete targets or goals	75%
Able to report water withdrawals	100%
Able to report water recycling	67%
Able to identify water discharges	83%
Identifies links between water and carbon	75%
Requires suppliers to report on water	25%

## RISKS IN DIRECT OPERATIONS

Respondents exposed to risk

YES	NO ?
58%	38% 4%

	% of respondents
Flooding	38%
Water stress or scarcity	33%
Rising discharge compliance costs	29%
Tightening withdrawal limits	25%
Declining water quality	21%
Reputational damage	21%
Higher water prices	17%
Water efficiency requirements	13%

## KEY FINDINGS

- Health Care has the highest response rate of all sectors.
- Significantly more Health Care respondents report exposure to water-related risk than in 2011. This likely reflects both heightening water risk and a greater awareness of that risk.
- However, a third of respondents are unable to state whether or not their supply chains are exposed to risk and just a quarter require key suppliers to report on their water use, risks and management, so the full extent of the sector's vulnerability to supply chain risk is not well understood.

## LEADING PRACTICE

### Merck & Company *Leveraging carbon and water linkages*

Merck has established an energy team to analyze and identify water and energy savings simultaneously. Since 2009, the group has reduced emissions of greenhouse gases by 10% and water use by 9.3% by designing and selecting equipment that is both energy and water-efficient and by developing leading practices.

### GlaxoSmithKline (GSK) *Contributing to a greater social good*

GSK recognizes that water quality is strongly associated with human health. As such, the company developed its Personal Hygiene and Sanitation Education Program (PHASE) in coordination with NGOs to help address diarrheal disease. PHASE educates local populations on leading sanitary practices and partners with NGOs to help to improve water quality and sanitation in high density urban settlements. PHASE was recently implemented in Nairobi, Mumbai and Rio de Janeiro and now incorporates oral healthcare.

## Risk exposure in Direct Operations

Significantly more Health Care respondents report exposure to water-related risk in either their direct operations or supply chains (63%) than in 2011 (45%). 58% report that their direct operations are exposed to water-related risk (up from 41% in 2011), with 68% of these risks cited as being immediate or potentially occurring within the next five years.

Alongside risks from water scarcity and flooding, several respondents report the accumulation of Active Pharmaceutical Ingredients (APIs) in aquatic environments as a risk.

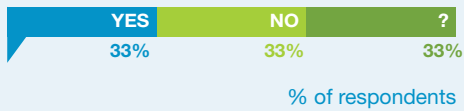
*"We expect a general increase in environmental regulatory controls and permit requirements for managing all aspects of our environmental footprint, especially water. We expect additional water use and water quality controls in locations where water scarcity or quality becomes an issue."*

**Bristol-Myers Squibb**



## RISKS IN SUPPLY CHAIN

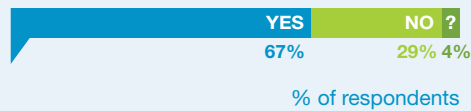
Respondents exposed to risk



Water stress or scarcity	17%
Flooding	17%
Rising discharge compliance costs	17%
Tightening withdrawal limits	8%
Higher water prices	4%
Water efficiency requirements	4%
Reputational damage	4%
Inadequate infrastructure	4%

## OPPORTUNITIES

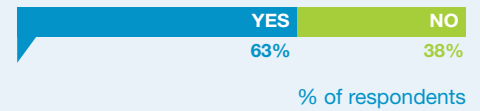
Respondents identifying opportunities



Cost savings	29%
New sales	25%
Brand value	17%
Other	13%

## ACTIONS

Respondents reporting actions



Direct operations	88%
Community engagement	42%
Supply chain or watershed management	38%
Transparency	38%
Collective action	33%
Public policy	25%

### Risk exposure in Supply Chain

33% of respondents report exposure to supply chain risks that have the potential to cause a substantive change to businesses (up from 23% in 2011), with the majority of these risks, including increasing discharge compliance costs and water stress, reported as immediate or within the next 5 years.

However, 33% of respondents are unable to state whether or not they are exposed to supply chain risks and only 25% (the lowest of any sector) require key suppliers to report on their water use, risks and management leading to the conclusion that the full extent of the Health Care sector's vulnerability to water-related supply chain risk is not well understood.

### Seizing Opportunities

The percentage of respondents identifying water-related opportunities has increased sharply to 67% from 45% in 2011. Many opportunities identified by pharmaceutical companies focus on generating solutions to global water issues, including changing global weather patterns and impacts on the spread of disease. For instance, 13 pharmaceutical companies are collaborating to address neglected tropical diseases such as roundworms and elephantiasis while others are addressing the water-intensity of agricultural products.

**Bayer AG** notes, for example, that “as agriculture accounts for roughly 70% of fresh water consumed in the world, and as water is a major rate-limiting factor for agriculture in areas with water scarcity, we concentrate major activities in the agricultural sector ensuring the supply of food for a growing population through research and promotion of water-efficient products and farming techniques.”

### Case Study

#### Pfizer

Pfizer is working with suppliers to better understand their withdrawal from and discharge to ground and surface water. A program initiated this year (2012), should result in conserving water, understanding quality monitoring, improving wastewater treatment and increasing recycling practices. The program includes building supplier awareness through training and sharing recommended practices, partnering with suppliers to build capacity in analyzing and responding to watershed risk and conducting assessments of water usage and impacts. Pfizer is currently gathering water data from suppliers to establish water use baselines, help set targets and provide routine progress reports using a sustainability scorecard.

“Water shortages have in the past occurred at more than half our locations.”  
Allergan

# Industrials

## RESPONSE RATE

# 47%

(18/38)

2011 Response Rate: 48% (21/44)

### Sector Response Rate Breakdown

Industrial Conglomerates: 4/10

Machinery: 5/10

Aerospace & Defense: 4/10

Electrical Equipment: 0/2

Trading Companies &

Distributors: 3/4

Building Products: 1/1

Construction & Engineering: 1/1

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	94%
Board-level oversight	56%
Concrete targets or goals	50%
Able to report water withdrawals	100%
Able to report water recycling	44%
Able to identify water discharges	72%
Identifies links between water and carbon	67%
Requires suppliers to report on water	33%

## RISKS IN DIRECT OPERATIONS\*

Respondents exposed to risk	
YES	50%
	50%
% of respondents	
Water stress or scarcity	28%
Higher water prices	22%
Flooding	17%
Regulatory uncertainty	17%
Reputational damage	17%
Tightening with drawal limits	11%
Product risk	11%
Declining water quality	6%

\* Water efficiency requirements was also reported by 6% of respondents

## KEY FINDINGS

- The proportion of Industrials respondents reporting that they are exposed to water-related risk in their direct operations or supply chains has almost doubled between 2011 and 2012, indicating an increased awareness and understanding of the issue. However, a significant proportion of respondents has yet to map its supply chain risk.
- Industrials respondents are leaders in identifying water-related opportunities.

## LEADING PRACTICE

### General Electric (GE)

#### Management & Performance

GE implemented “Kaizen Blitz” water reduction opportunities at select facilities. The activities were so effective that GE exceeded its water reduction goal of 20% from its 2006 baseline. This goal was revised to 25% in 2009 and again in 2011 the company reported a 35% reduction from 2006.

### UPS<sup>21</sup>

#### Governance

UPS has built a global water stewardship program based around transparency, consumption and conservation, and engagement and awareness. Through measuring and reporting GHG emissions, UPS learned that transparency motivated behavior change and is applying this strategy to water.

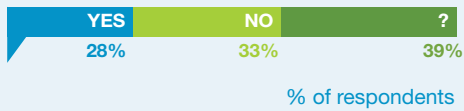
## Risk exposure in Direct Operations

50% of respondents report exposure to water-related risks in their direct operations compared to 29% in 2011. This increase is likely due to heightening water risk and greater awareness of that risk. This figure remains low compared to the Global 500 (63%) and is surprising given that all Industrials respondents report that they have facilities located in water-stressed regions.

Of the risks reported in direct operations, 38% are reported as near-term (0-5 years) while 62% are longer-term or have an unknown timeframe. This does not necessarily indicate that most risks are longer-term, but rather, it may indicate an inability to identify the associated timeframes. **Deere & Company** reports that while it is not a large water user, water is essential to its operations and water scarcity could impact its operations in the future.

## RISKS IN SUPPLY CHAIN

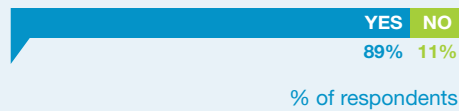
Respondents exposed to risk



Risk	% of respondents
Water stress or scarcity	11%
Higher water prices	11%
Rising discharge compliance costs	11%
Restricted operational water permits	6%
Water efficiency requirements	6%
Tightening withdrawal limits	6%
Product risk	6%
Reputational damage	6%

## OPPORTUNITIES

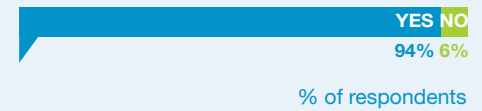
Respondents identifying opportunities



Opportunity	% of respondents
New sales	61%
Cost savings	11%
Brand value	6%
Other	33%

## ACTIONS

Respondents reporting actions



Action	% of respondents
Direct operations	83%
Community engagement	61%
Supply chain or watershed management	50%
Transparency	39%
Collective action	28%
Public policy	17%

### Risk exposure in Supply Chain

The percentage of respondents reporting exposure to supply chain risks has doubled to 28% from 14% in 2011.

However, a significant proportion of Industrials respondents has not yet mapped its supply chain risks, with 39% reporting that they do not know if they are exposed to supply chain risk, 61% unable to identify whether their key inputs and raw materials come from water stressed regions and only 33% requiring key suppliers to report on their water use, risks and management.

**Lockheed Martin** assumes that its suppliers face similar potential reputational risks as it does itself. *“Our suppliers must remain competitive by demonstrating responsibility towards conserving water resources and minimizing their operational impacts on water quality...Suppliers will be driven to implement new practices to reduce water in their operations in order to remain competitive among other suppliers.”*

### Seizing Opportunities

89% of Industrials respondents report water-related opportunities (up from 76% in 2011), the highest of all sectors. 80% of opportunities reported with an associated timeframe are expected to materialize now or in the next 5 years, with the sale of new products or services most frequently reported.

**Atlas Copco** for example recognizes that its customers in the mining and textile industries are often water intensive while simultaneously operating in areas of water stress or scarcity. The company reports that their customers challenges present a strong business opportunity for Atlas Copco to innovate and develop new products.

### Case Study

#### Saint-Gobain

Saint-Gobain incentivizes environmentally-conscious behaviour through its Environment Emeralds award scheme. The scheme rewards the most exemplary projects across a range of categories including water stewardship. In 2011 the company’s Worcester Campus in Massachusetts, USA, was awarded a Water Emerald for significantly reducing the use of well water in their furnace equipment cooling process. Rewarding and incentivizing environmentally-conscious behavior illustrates a positive and proactive level of commitment to water stewardship.

**“Water pollution due to discharges from VINCI’s operations is a significant risk...A major water pollution [incident] could lead to reputational damage...loss of projects and a reduction of market shares. This would impact our revenue.”**  
VINCI

# Information Technology

## RESPONSE RATE

63%

(19/30)

2011 Response Rate: 69% (22/32)

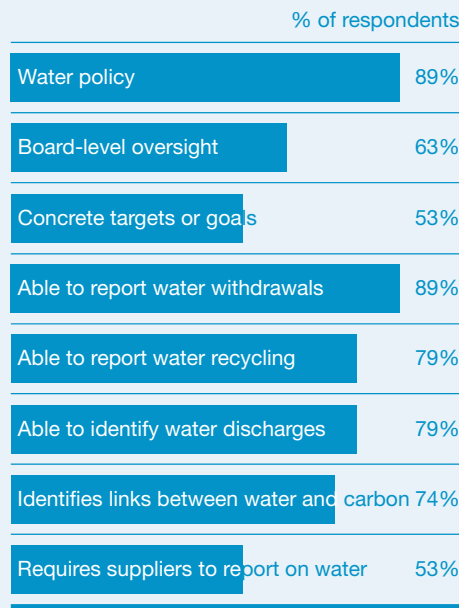
### Sector Response Rate Breakdown

Semiconductors & Semiconductor Equipment: 3/4  
 Software: 2/3  
 Electronic Equipment, Instruments & Components: 5/6  
 Communications Equipment: 2/4  
 Computers & Peripherals: 6/7  
 Internet Software & Services: 1/4  
 IT Services: 0/2

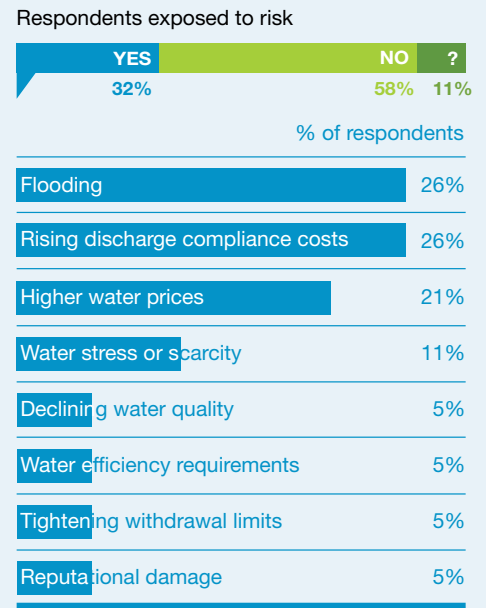
## KEY FINDINGS

- The IT sector continues to have limited visibility of its exposure to water-related supply chain risks with a high proportion of respondents unable to state whether or not this poses a substantive risk to their business.
- However, respondents are taking steps to address this as there has been a sharp increase in the number of respondents engaging with suppliers.

## MANAGEMENT AND GOVERNANCE



## RISKS IN DIRECT OPERATIONS\*



\* Water operations permit and regulatory uncertainty were also reported by 5% of respondents

## LEADING PRACTICE

### Nokia

#### Water Footprinting

Nokia is gaining a broad understanding of its water-related impacts by applying a risk lens to its water lifecycle analysis (LCA). Using a combination of LCAs, the WBCSD's Global Water Tool and WWF-DEG's Water Risk Filter helps to inform the company and its suppliers of the most impactful goals and targets.

### Taiwan Semiconductor Manufacturing (TSMC)

#### Engagement

TSMC is focused on collaboration with governments to address water-related issues. The company's "Water Risk Mitigation Team" has partnered with various levels of governments to encourage responsible practices for water recycling, reuse, and wastewater treatment. Part of this strategy includes sharing its practices through the Association of Science Park Industries. TSMC's practices have resulted in six out of TSMC's seven facilities in Taiwan winning the Ministry of Economic Affairs' "Water Saving Award".

## Risk exposure in Direct Operations

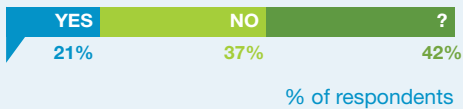
The IT sector has the lowest proportion of respondents reporting exposure to water-related risks in direct operations (32%), though 70% of risks reported with an associated timeframe have the potential to have a substantive impact on companies now or within the next 5 years. Respondents state that their low reliance on water in direct operations and effective siting practices are the primary reasons for low reported risk.

Intel recognizes the importance of siting its operations: "prior to conducting business in any region/location in the world we conduct a comprehensive site selection assessment which includes water availability, local infrastructure availability as well as a review of the social and community impacts associated with any new construction and placement of a new campus. All of these criteria have "showstopper" criteria."

63% of respondents report having operations located in water-stressed regions. However, water stress or scarcity is not one of the most frequently reported risks.

## RISKS IN SUPPLY CHAIN

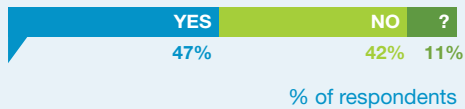
Respondents exposed to risk



Risk	% of respondents
Flooding	16%
Declining water quality	11%
Water stress or scarcity	11%
Rising discharge compliance costs	11%
Regulatory uncertainty	11%
Higher water prices	5%
Reputational damage	5%

## OPPORTUNITIES

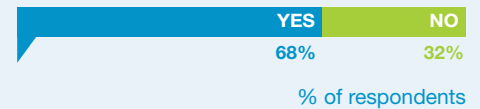
Respondents identifying opportunities



Opportunity	% of respondents
New sales	26%
Cost savings	21%
Brand value	21%
Other	5%

## ACTIONS

Respondents reporting actions



Action	% of respondents
Direct operations	79%
Community engagement	42%
Supply chain or watershed management	37%
Collective action	32%
Transparency	32%
Public policy	26%

### Risk exposure in Supply Chain

Some respondents report the March 2011 tsunami in Japan or the extreme flooding in Thailand later in the year as having an impact on their supply chain. These events highlighted the vulnerabilities that many sectors, including the IT sector, are exposed to through their supply chains. Despite this, 42% of respondents are unable to state whether or not water poses a substantive risk to their business through their supply chain and are unable to identify whether their key inputs or raw materials come from regions subject to water-related risk.

Respondents appear to be attempting to address this issue as demonstrated by the sharp increase in the number of respondents requiring their key suppliers to report their water use, risks and management; up to 53% from 32% in 2011.

While only 21% of respondents report that they are exposed to supply chain risks, the majority of the risks have the potential to have a substantive impact on companies now or within the next 5 years. For instance **Hewlett-Packard**

reports that water quality and water scarcity has the potential to force the relocation of supplier operations and “an increased cost of water due to water scarcity...could have drastic effects on the supply chain and market as a whole.”

**“As water management issues continue to mount and costs continue to increase, information technology and collaborative innovation will play an instrumental role helping communities, businesses, and governments deal with the tremendous complexity ahead.”**  
**IBM**

### Seizing Opportunities

Fewer respondents report water-related opportunities than any other sector (47% compared to 71% for the Global 500). Of those opportunities reported however, three quarters are available now or are expected within the next 5 years.

### Case Study

#### Dell

Dell reports that while it is a relatively low water user, its standards for water use remain high. The company has established water use and efficiency targets for its own operations and it holds all of its tier 1 suppliers to the same social and environmental responsibility standards that Dell itself observes. Part of that engagement has been to partner with competitors across the industry to develop the Electronics Industry Citizenship Coalition Code of Conduct (EICC), which establishes performance requirements for all suppliers to the electronics industry. Further, the company encourages all of its tier 1 suppliers to provide CDP Water Reports through the CDP Supply Chain program to assist in establishing a process to manage and measure water consumption.

# Materials

## RESPONSE RATE

# 74%

(31/42)

2011 Response Rate: 72% (34/47)

### Sector Response Rate Breakdown

Chemicals: 12/18

Metals & Mining: 18/23

Construction Materials: 1/1

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	97%
Board-level oversight	77%
Concrete targets or goals	42%
Able to report water withdrawals	100%
Able to report water recycling	81%
Able to identify water discharges	97%
Identifies links between water and carbon	90%
Requires suppliers to report on water	39%

## RISKS IN DIRECT OPERATIONS

Respondents exposed to risk	
YES	NO ?
68%	29% 3%
% of respondents	
Flooding	55%
Water stress or scarcity	45%
Tightening withdrawal limits	35%
Rising discharge compliance costs	32%
Declining water quality	26%
Restricted operational water permits	26%
Higher water prices	23%
Reputational damage	23%

## KEY FINDINGS

- A significantly higher proportion of Materials respondents has experienced water-related impacts in the past five years than Global 500 respondents. A greater proportion also reports exposure to risks in direct operations, with the majority of these risks expected to impact businesses now or within the next five years.
- Respondents in the sector are attempting to improve their understanding of supply chain risks with more respondents requiring key suppliers to report their water use, risks and management.
- The response to risk is strong with a high proportion of respondents reporting board level oversight of their water policies, strategies or plans but the sector lags the Global 500 in setting concrete targets or goals.

## LEADING PRACTICE

### Syngenta International *Capitalizing opportunities*

Syngenta reports that it offers advanced, integrated solutions and training programs to help growers use limited natural resources efficiently to increase farm productivity, improve quality of produce and build sustainable rural economies. “Syngenta’s plant growth regulator MODDUS® can reduce the amount of water required to grow wheat by 10%.”

### BASF

#### *Opportunity assessment*

BASF provides a range of products to meet current and future water needs: water production; water use; and water purification. BASF estimates these products to have the potential to generate more than €800 million in sales to 2020.

## Risk exposure in Direct Operations

A significantly higher proportion of respondents has experienced water-related detrimental impacts in the past five years (68%) than have Global 500 respondents (53%). Financial impacts include approximately €6 million associated with typhoon damage (**Asian Bamboo**)<sup>22</sup> and approximately AU\$80 million for an initiative seeking to decrease the environmental risks and production time loss caused by high variability in precipitation (**Anglo American**).

A greater proportion of respondents report exposure to risks in direct operations (68%); the majority of risks reported with associated timeframes (77%) are expected to impact businesses now or within the next five years. This is consistent with the finding that 32% of respondents have the majority of their operations located in regions subject to water-related risk, more than double the Global 500 average (15%).

22: Other Responding Company

## RISKS IN SUPPLY CHAIN

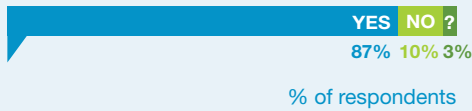
Respondents exposed to risk



Risk	% of respondents
Water stress or scarcity	26%
Flooding	19%
Higher water prices	10%
Declining water quality	6%
Restricted operational water permits	6%
Rising discharge compliance costs	6%
Tightening withdrawal limits	6%
Water efficiency requirements	6%

## OPPORTUNITIES

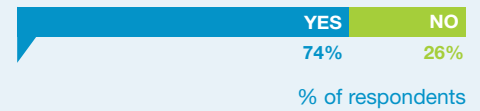
Respondents identifying opportunities



Opportunity	% of respondents
Cost savings	35%
New sales	29%
Brand value	26%
Other	42%

## ACTIONS

Respondents reporting actions



Action	% of respondents
Direct operations	100%
Community engagement	58%
Collective action	42%
Supply chain or watershed management	39%
Transparency	39%
Public policy	32%

The response to these risks is strong with 97% of respondents reporting having a water policy, strategy or plan and 77% giving these board-level oversight. However, although the 31 respondents are able to report water withdrawals, the sector lags the Global 500 in setting concrete targets or goals (42% compared to 55%).

### Risk exposure in Supply Chain

The proportion of respondents reporting exposure to supply chain risk has remained consistent from 2011 to 2012 at 35% with the majority (69%) of these risks expected to impact businesses now or within the next five years. Despite this, 26% of respondents are still unable to state whether or not their supply chain is at risk from water-related issues. However, more respondents now require key suppliers to report their water use, risks and management: 39% in 2012 compared to 26% in 2011, which suggests that companies in the sector are attempting to improve their understanding of supply chain risks.

### Seizing Opportunities

87% of respondents report opportunities; 89% of reported opportunities with associated timeframes are expected to materialize now or within the next five years.

**Antofagasta**, for example, is pursuing an opportunity that allows for the continued development of specific mine sites. The company's mines in Chile have pioneered the use of non-desalinated sea water in the beneficiation of copper, such that sea water constitutes 40% of total water consumption. However while the initiative has reduced demand on local and regional water sources, the use of seawater will increase the carbon footprint of each mine due to the need to pump to high elevations.

### Case Study

#### Rio Tinto

Rio Tinto's water strategy is based on water performance, understanding the value of water, and engaging on water. The company's global water standard requires every operation to develop site specific targets that must be supported by a monitoring, checking, and corrective action program to verify compliance with targets. The site specific targets are informed by risk tools that help to identify the local value of water.

**“Being a responsible water user is an opportunity for us – it helps build stronger relationships with local communities and governments and enhances our social license to operate: being responsible makes it easier for us to do business.” Anglo American**

# Utilities

## RESPONSE RATE

# 63%

(19/30)

2011 Response Rate: 59% (16/27)

### Sector Response Rate Breakdown

Multi-Utilities: 6/7

Electric Utilities: 12/20

Gas Utilities: 0/2

Independent Power Producers & Energy Traders: 1/1

## MANAGEMENT AND GOVERNANCE

	% of respondents
Water policy	82%
Board-level oversight	47%
Concrete targets or goals	35%
Able to report water withdrawals	100%
Able to report water recycling	76%
Able to identify water discharges	100%
Identifies links between water and carbon	82%
Requires suppliers to report on water	29%

## RISKS IN DIRECT OPERATIONS

Respondents exposed to risk		
	YES	NO ?
	71%	24% 6%
% of respondents		
Flooding	44%	
Regulatory uncertainty	44%	
Water stress or scarcity	33%	
Restricted operational water permits	33%	
Declining water quality	28%	
Rising discharge compliance costs	28%	
Tightening withdrawal limits	28%	
Higher water prices	22%	

## KEY FINDINGS

- More Utilities respondents report having experienced water-related impacts in the past five years in 2012 than in 2011, and a greater proportion report exposure to water-related risk in direct operations than the Global 500.
- While a small proportion of respondents report exposure to supply chain risk, almost half are unaware if their key inputs come from regions subject to water-related risk and only 29% require key suppliers to report their water use, risks and management.
- Respondents trail their Global 500 counterparts in setting water policies, strategies or plans, giving these board-level oversight and setting concrete targets or goals.

## LEADING PRACTICE

### PG&E

#### Management & performance

PG&E reports that it analyzed six of the more common water-saving technologies incentivized as part of its 2011 energy efficiency portfolio and found that they equated to approximately 850 million gallons of water savings per year. “We estimate that these technologies will also save customers nearly 1 million kWh and 2 million therms of energy in the first year after installation. 92% of these water savings resulted from programs for residential customers in 2011.”

### Dominion Resources

#### Engagement

According to Dominion, through an initiative with the Three Rivers Habitat Partnership, its employees “work closely with local communities, landowners, and state and federal agencies to improve fish habitat and water quality through a combination of voluntary measures, including on-the-ground restoration projects.”

## Risk exposure in Direct Operations

71% of respondents report experiencing water-related impacts in the past five years (compared to 53% in 2011) with financial impacts ranging from US\$50,000 to US\$200 million. Perhaps because of regulations associated with the sector’s withdrawals and discharges of large volumes of water, regulatory uncertainty (44%) is the most frequently reported risk to direct operations.

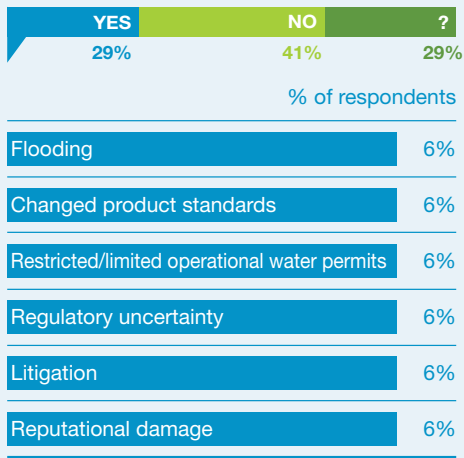
**Exelon**, for example, announced that it would retire the Oyster Creek, New Jersey nuclear plant ten years earlier than planned due to the potential cost of having to meet more stringent water permitting conditions. The total upgrade cost to the plant would have exceeded US\$800 million over the remaining life of the plant through 2029.

A higher proportion of respondents report exposure to water-related risks in direct operations than do Global 500 respondents, 58% of which have the potential to impact businesses now or within the next five years. However, the percentage of respondents with water policies, strategies or plans (82%), with board-level oversight of these policies (47%) and with concrete targets



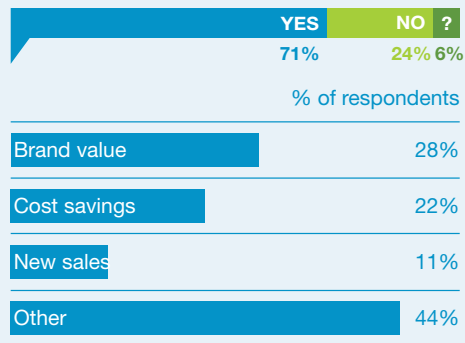
## RISKS IN SUPPLY CHAIN

Respondents exposed to risk



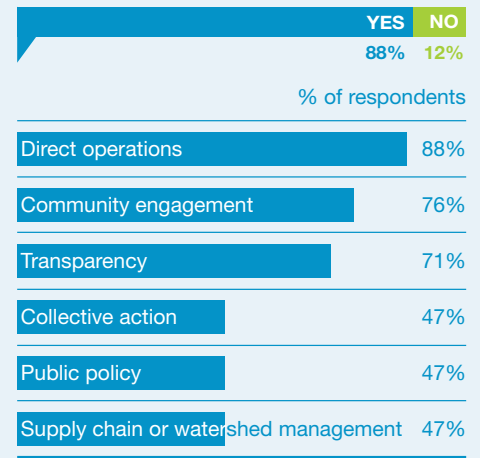
## OPPORTUNITIES

Respondents identifying opportunities



## ACTIONS

Respondents reporting actions



or goals (35%) trails the Global 500. Similar metrics were reported in 2011 showing that little progress has been made in the past year.

### Risk exposure in Supply Chain

The proportion of Utilities respondents able to identify whether or not they are exposed to supply chain risks has increased to 71% from 53% in 2011. Just 29% of respondents report exposure to supply chain risk (compared to 37% for the Global 500), largely reflecting the sector's position as an upstream supplier. There is little room for complacency however as 47% of respondents do not know if their key inputs come from regions subject to water-related risk and only 29% require key suppliers to report their water use, risks and management.

*"In 2012, EDF Group decided to introduce a specific clause requiring suppliers and subcontractors to provide products' origins in the purchase terms of agreement...the existence of supplier audits is likely to detect potential risks."*

**Électricité de France (EDF)**

### Seizing Opportunities

Encouragingly, 71% of respondents identify opportunities that have the potential to generate substantive change to their business, up from 60% in 2011. Increasing brand value and cost saving opportunities were most frequently reported. For example, **Energias de Portugal** reports that closed water refrigeration circuits with cooling towers, adopted in recently built power plants in Spain, are expected to reduce water use and operating costs.

There is a risk, however, that if companies view water-related issues solely through a cost saving lens then they will not likely account for the true value of water to their business and may miss opportunities beyond those that provide cost savings.

Respondents report a number of water and carbon linkages, including expansion of renewable energy generation, which uses less water than traditional energy sources.

### Case Study

#### The Southern Company

In collaboration with the Electric Power Research Institute (EPRI), Georgia Power (a subsidiary of The Southern Company) plans to host a Water Research Center (WRC) for testing technologies to improve water efficiency by addressing withdrawals and consumption and improving water quality used during the power generation process. The WRC will include seven research focus areas, the results of which will be shared with Georgia Power and other EPRI members so that appropriate technologies can be implemented by utilities worldwide to address water issues.

**"Direct, collaborative engagement with the communities in which we reside is the most successful strategy for identifying and managing water resources."  
Duke Energy**

# Appendix I

## Report Methodology

For the purposes of this report, respondents from the Global 500 are categorized into eight sectors based on the Global Industry Classification Standard (GICS): Consumer Discretionary, Consumer Staples, Energy, Health Care, Industrials, Information Technology, Materials and Utilities.<sup>22</sup>

Response rates are based on responses received from companies that were sent the CDP Water Disclosure 2012 information request. Other responding companies are excluded from these calculations,<sup>23</sup> but may be used in leading practice examples, quotations and case studies. In addition, analyses, findings and conclusions discussed in the report are based only on invited companies that responded; these insights cannot be attributed to either companies who were invited but did not respond; other non-invited companies for a particular geography, sector or other division; companies that responded as either a subsidiary or entities that merged during the reporting process whose responses reflect those of their parent companies; or two companies that submitted after August 6, 2012 (these companies are included, however, in response rates).

For the Global 500, analysis and discussion in the Consumer Discretionary, Energy, Health Care, Industrials, Information Technology, and Materials sectors reflect all responding companies (public and non-public). However, given the small number of non-public responses in the Consumer Staples and Utilities sectors, analyses, findings and conclusions in the sector snapshots reflect responses only from companies that elected to make their submissions public. Non-public responses are not included to protect the confidentiality of these companies' submissions.

For most metrics, the percentage of responses is based on the number of reporting companies for the relevant geography, sector or other division.<sup>24</sup> Blank responses to particular questions are tabulated as "No" or "Don't know" when calculating quantitative responses, based on the question which has been asked.<sup>25</sup>

The percentage of respondents indicating that they have board-level oversight of water-related policies, strategies or plans is based on question 1.1a, which requests information on the position of the person responsible for the company's policy, strategy or management plan. Board-level includes: board/executive board, individual board member, sub-set of the board and committee appointed by the board. The percentage is based on the highest position described for each company.

Question 1.1c, which requests information on direct operations, supply chain and watershed management, collective action, public policy, community engagement, and transparency targets or goals, was responded to by some companies with qualitative goals or goals without concrete targets. Wherever the number of respondents with concrete targets or goals is referenced in the report, the figure is based only on respondents that provided concrete, quantitative targets or goals as part of this question.

Questions 1.1c and 1.2 were re-worded in the CDP Water Disclosure 2012 information request.<sup>26</sup> As a result, analysis of questions 1.1c and 1.2 are combined to gain a full understanding of the actions (both within and outside water policies) companies are taking to address the six key areas defined by the CEO Water Mandate to develop a comprehensive approach to water management.

When discussing company efforts in regards to collective action, quantitative analysis includes the supply chain and watershed management, collective action, public policy, and community engagement components of questions 1.1c and 1.2.

Except where otherwise stated, all figures, tables, findings and conclusions in the report are based on the CDP Water Disclosure 2012 information request and do not reflect external research or analysis by CDP or Deloitte.

Additional notes describing the methodology are provided throughout the report.

22: Companies that are considered to be in either water-intensive sectors or those sensitive to water issues in their supply chain were invited to respond to the CDP Water Disclosure 2012 information request. These companies were selected from the largest publicly listed companies by market capitalization at the time of the analysis (Q4 2011). The Global 500 is based on the FTSE Global Equity Index Series.

23: Other responding companies include companies that were not invited as part of the Global 500, but chose to answer the CDP Water Disclosure 2012 information request.

24: Other metrics are also evaluated based on tabulated responses: questions 1.1c (number of targets or goals by category type); 1.2 (number of actions taken outside of the water policy by

category type); 2.1a (methods used to define water stress); 2.1b (water-stressed countries where companies have operations); 2.3 (percentage range of operations located in regions at risk); 2.5a (proportion of identified materials coming from regions subject to water-related risk); 3.1a (number of risks to direct operations identified by risk type); 3.4a (number of risks to the supply chain identified by risk type); and 5.1a (number of opportunities identified by type).

25: Blank responses tabulated as "No" include 1.1, 1.1b, 1.2, 2.2, 3.3, 6.1, 7.1, 7.1a, 7.2, 7.2a, 8.1, 8.2, 9.1, and 9.2; questions tabulated as "Don't know" include 2.1, 2.5, 3.1, 3.4, 4.1, 5.1, 7.4, and 8.3.

26: 2011 CDP Water Disclosure information request: question 1.1c – Please describe these water-related targets or goals (type of target/goal =

absolute reduction, efficiency, quality of discharges, other); question 1.2 – What specific actions has your company taken to manage water resources or engage stakeholders in water-related issues?; 2012 CDP Water Disclosure information request: question 1.1c – Please describe these water-related targets or goals and the progress your company has made against them (category of target or goal type = direct operations, supply chain and watershed management, collective action, public policy, community engagement, transparency); question 1.2 – Do you wish to report any actions outside your water policy, strategy or management plan that your company has taken to manage water resources or engage stakeholders in water-related issues?

# Appendix II

## Global 500 Companies by Country

Region	Country	Public Respondents	Private Respondents	Total G500 Respondents	Invited G500 Companies
<b>North America</b>					
	Canada	8	0	8	11
	USA	68	7	75	123
<b>Latin America</b>					
	Brazil	1	1	2	6
	Chile	0	0	0	2
	Colombia	0	1	1	1
	Mexico	1	1	2	4
	Peru	0	0	0	1
<b>Europe</b>					
	Belgium	1	0	1	1
	Czech Republic	0	0	0	1
	Denmark	0	0	0	1
	Finland	2	0	2	2
	France	9	4	13	16
	Germany	6	3	9	9
	Ireland	0	0	0	2
	Italy	1	0	1	3
	Luxembourg	1	0	1	2
	Netherlands	2	0	2	6
	Norway	1	0	1	2
	Spain	3	0	3	5
	Sweden	2	0	2	4
	Switzerland	5	2	7	11
	United Kingdom	15	2	17	22
<b>Africa</b>					
	South Africa	4	0	4	5
<b>Middle East</b>					
	Israel	0	0	0	1
<b>East Asia</b>					
	Greater China	3	1	4	16
	Japan	10	10	20	27
	Russia	2	0	2	7
	South Korea	1	2	3	7
<b>South Asia</b>					
	India	3	0	3	7
<b>Southeast Asia and Oceania</b>					
	Australia	5	0	5	6
	Indonesia	1	0	1	2
	Malaysia	0	0	0	2
	Singapore	0	0	0	1
	Thailand	1	1	2	2
<b>Total</b>		<b>152</b>	<b>35</b>	<b>191</b>	<b>318</b>

# Appendix III

## Summary of Key Indicators

### Key indicators

Total respondents

Public respondents

Non-public respondents

Non-respondents

Response rate

### Water Management & Governance

Respondents with a water policy, strategy or plan

Respondents with board-level oversight of their policy, strategy or plan

Respondents with concrete goals or targets

Respondents reporting actions, goals or targets to manage water resources

Respondents that require key suppliers to report water use, risks and management

### Risks & Opportunities

Respondents able to identify whether their operations are located in water stressed regions

Respondents with the majority of operations located in regions at risk

Respondents with key inputs or raw materials from regions subject to water-related risk

Respondents able to identify whether or not they are exposed to risk in direct operations

Respondents exposed to risks in direct operations

Respondents able to identify whether or not they are exposed to risk in supply chain

Respondents exposed to risks in supply chain

Respondents exposed to risks in either direct operations or supply chain

Respondents that have experienced water-related business impacts in past 5 years

Respondents that identify opportunity

Respondents able to identify linkages or trade-offs between water and carbon

### Water Accounting

Respondents that report water withdrawals

Respondents that verify the majority of water withdrawal data

Respondents that report water recycling/reuse

Respondents that report water sources significantly affected by their water withdrawals

Respondents able to identify discharges by destination, treatment type and quality

Respondents that paid penalties/fines for significant breaches of discharge regulations

Respondents that report water bodies/habitats significantly affected by their discharges or runoff

Consumer Discretionary	Consumer Staples	Energy	Health Care	Industrials	Information Technology	Materials	Utilities	Global 500 2012	Global 500 2011
23	32	25	24	18	19	31	19	191	190
12	30	22	24	13	12	25	18	156	156
11	2	3	0	5	7	6	1	35	34
22	13	32	7	20	11	11	11	127	125
51%	71%	44%	77%	47%	63%	74%	63%	60%	60%
91%	100%	96%	88%	94%	89%	97%	82%	92%	93%
61%	59%	39%	54%	56%	63%	77%	47%	58%	57%
70%	78%	30%	75%	50%	53%	42%	35%	55%	57%
100%	100%	96%	94%	84%	100%	100%	97%	97%	N/A
57%	48%	30%	25%	33%	53%	39%	29%	39%	26%
78%	100%	96%	100%	100%	95%	97%	100%	95%	89%
4%	7%	30%	13%	0%	5%	32%	18%	15%	11%
57%	74%	35%	42%	28%	21%	45%	24%	43%	31%
87%	100%	100%	96%	100%	89%	97%	94%	96%	93%
57%	74%	87%	58%	50%	32%	68%	71%	63%	55%
78%	96%	65%	67%	61%	58%	74%	71%	71%	62%
52%	74%	17%	33%	28%	21%	35%	29%	37%	27%
70%	78%	87%	63%	50%	37%	71%	76%	68%	59%
48%	81%	48%	25%	44%	26%	68%	71%	53%	38%
61%	81%	61%	67%	89%	47%	87%	71%	71%	63%
78%	96%	70%	75%	67%	74%	90%	82%	80%	72%
96%	100%	91%	100%	100%	89%	100%	100%	97%	95%
52%	63%	61%	58%	61%	47%	52%	41%	55%	56%
39%	33%	87%	67%	44%	79%	81%	76%	63%	58%
4%	7%	4%	8%	0%	0%	26%	18%	9%	8%
61%	89%	100%	83%	72%	79%	97%	100%	85%	81%
9%	30%	17%	17%	22%	0%	19%	24%	17%	15%
4%	4%	0%	13%	17%	0%	23%	24%	10%	7%

# Appendix IV

## Table of Response Status and Sector by Company

Consumer Discretionary		Consumer Staples	
Company	Response Status	Company	Response Status
Amazon.com	NR	Altria Group	AQ
Astra International	NR	Ambev - Cia de Bebidas das Américas	NR
BMW AG	AQ(NP)	Anheuser Busch InBev	AQ
Bridgestone	AQ(NP)	Archer Daniels Midland	NR
Carnival	AQ	BRF Brasil Foods	NR
Christian Dior	AQ(NP)	British American Tobacco	AQ
Coach	NR	Carrefour	NR
Compagnie Financière Richemont	DP	Colgate Palmolive	AQ
Compass	DP	Costco Wholesale	DP
Cummins India	NR	CVS Caremark	AQ
Daimler	AQ(NP)	Danone	AQ
Denso	AQ	Diageo	AQ
eBay	DP	General Mills	AQ
Fast Retailing	NR	H.J. Heinz	AQ
Ford Motor	AQ	Heineken	AQ
General Motors	AQ	Hindustan Unilever (see Unilever)	AQ(SA)
Grupo Elektra	NR	Imperial Tobacco Group	AQ
H&M Hennes & Mauritz	AQ	ITC	AQ
Hermes International	DP	Japan Tobacco	NR
Home Depot	DP	Kellogg Company	AQ
Honda Motor	NR	Kimberly-Clark	AQ
Hyundai Mobis	AQ(NP)	Kraft Foods	DP
Hyundai Motor	NR	L'Oreal	AQ
Inditex	AQ	Nestle	AQ
Johnson Controls	AQ	PepsiCo	AQ
Kia Motors	NR	Pernod Ricard	AQ
Lowe's Companies	NR	Philip Morris International	AQ
LVMH	AQ	Procter & Gamble	AQ
McDonald's	AQ(NP)	Reckitt Benckiser	AQ(NP)
Naspers	DP	Reynolds American	DP
NIKE	DP	SABMiller	AQ
Nissan Motor	DP	Seven & I Holdings	AQ
Panasonic	AQ(NP)	Souza Cruz (see British American Tobacco)	AQ(SA)
Pearson	AQ(NP)	Sysco	NR
Philips Electronics	AQ	Tesco	DP
PPR	AQ(NP)	The Coca-Cola Company	AQ
Priceline.Com	NR	Tingyi (Cayman Islands) Holdings	NR
S.A.C.I. Falabella	NR	Unilever Indonesia (see Unilever)	AQ(SA)
Starbucks	AQ	Unilever	AQ
Target	AQ	Wal Mart de Mexico	AQ
Thomson Reuters	NR	Walgreen Company	AQ(NP)
TJX Companies	DP	Wal-Mart Stores	IN
Toyota Motor	AQ(NP)	Wesfarmers	AQ
Volkswagen	AQ	Wilmar International Limited	DP
Yum! Brands	AQ(NP)	Woolworths Limited	AQ

### Global 500

#### Key to Response Status:

- AQ** Answered questionnaire
- AQ(L)** Answered questionnaire after submission deadline had passed
- AQ(NP)** Answered questionnaire but response not made publicly available

- AQ(SA)** Company is either a subsidiary or has merged during the reporting process. See Company in brackets for further information on company's status
- DP** Declined to participate
- IN** Provided information
- NR** No response

Energy	
Company	Response Status
Anadarko Petroleum	AQ
Apache Corporation	AQ
Baker Hughes	AQ
BG Group	AQ
BP	AQ
Canadian Natural Resources	AQ(L)
Cenovus Energy	AQ
Chesapeake Energy	DP
Chevron	DP
China Petroleum & Chemical	NR
CNOOC	NR
Coal India	NR
ConocoPhillips	IN
Devon Energy	AQ
Ecopetrol	AQ(NP)
El Paso	DP
Enbridge	DP
Eni	AQ
EOG Resources	DP
Exxon Mobil	DP
Formosa Petrochemical	NR
Gazprom	AQ
Halliburton	NR
Hess Corporation	AQ
Husky Energy	AQ(L)
Imperial Oil	DP
Inpex	AQ
Lukoil	NR
Marathon Oil	AQ
National Oilwell Varco	NR
Noble Energy	AQ
Novatek	AQ
Occidental Petroleum	AQ
OGX Petróleo e Gás Participações	NR
Oil & Natural Gas	AQ
PETROCHINA	NR
Petróleo Brasileira SA - Petrobras	DP
PTT	AQ(NP)
PTT Exploration & Production Public Company	AQ
Reliance Industries	NR
Repsol YPF	DP
Rosneft	NR
Royal Dutch Shell	DP
Saipem	DP
Sasol	AQ
Schlumberger	DP
Seadrill Management	DP
Spectra Energy	DP
Statoil ASA	AQ
Suncor Energy	AQ
Surgutneftegas	NR
Tenaris	NR
Total	AQ(NP)
TransCanada	DP
Tullow Oil	NR
Williams Companies	DP
Woodside Petroleum	DP

Health Care	
Company	Response Status
Abbott Laboratories	AQ
Allergan	AQ
Amgen	AQ
Astellas Pharma	AQ
AstraZeneca	AQ
Baxter International	AQ
Bayer	AQ
Becton, Dickinson and Co.	AQ
Biogen Idec	AQ
Bristol-Myers Squibb	AQ
Celgene	AQ
Covidien	DP
CSL	AQ
Eli Lilly	AQ
Gilead Sciences	AQ
GlaxoSmithKline	AQ
Intuitive Surgical	NR
Johnson & Johnson	AQ
Medtronic	AQ
Merck & Co.	AQ
Novartis	AQ
Novo Nordisk	DP
Pfizer	AQ
Roche Holding	AQ
SANOFI	AQ
Shire	DP
Stryker Corporation	DP
Synthes	NR
Takeda Pharmaceutical Company	AQ
Teva Pharmaceutical Industries	DP
Thermo Fisher Scientific	AQ

<b>Industrials</b>	
<b>Company</b>	<b>Response Status</b>
3M Company	AQ
ABB	AQ(NP)
Atlas Copco	AQ
Boeing Company	AQ
Caterpillar	DP
Danaher	DP
Deere	AQ
EADS	DP
Emerson Electric	DP
Empresas COPEC	NR
Fanuc	NR
General Dynamics	DP
General Electric	AQ
Goodrich	NR
Hitachi	AQ
Honeywell International	DP
Hutchison Whampoa	NR
Hyundai Heavy Industries	NR
Illinois Tool Works	AQ(NP)
Itochu	AQ(NP)
Jardine Matheson	NR
Jardine Strategic	NR
Komatsu	AQ
Lockheed Martin	AQ
Mitsubishi	AQ
Mitsui & Co.	AQ(NP)
Precision Castparts	NR
Raytheon Company	AQ
Rolls-Royce	DP
Saint-Gobain	AQ
Schneider Electric	NR
Siemens	AQ
Sime Darby	DP
Sumitomo Corporation	NR
Tyco International	NR
United Technologies Corporation	AQ(NP)
Vinci	AQ
Volvo	DP

<b>Information Technology</b>	
<b>Company</b>	<b>Response Status</b>
Apple	DP
ASML Holding	DP
Automatic Data Processing	AQ
Canon	AQ(NP)
Cisco Systems	AQ
Corning	DP
Dell	AQ
EMC	AQ
Ericsson	DP
Google	NR
Hewlett-Packard	AQ
Hon Hai Precision Industry	AQ(NP)
Intel	AQ
International Business Machines (IBM)	AQ
Kyocera	AQ(NP)
MasterCard	NR
Microsoft	AQ
Mitsubishi Electric	AQ(NP)
Nokia Group	AQ
Oracle	DP
QUALCOMM	DP
Samsung Electronics	AQ(NP)
Sony	AQ
Taiwan Semiconductor Manufacturing	AQ
Tencent Holdings	NR
Texas Instruments	AQ
Toshiba	AQ(NP)
Visa	NR
Yahoo Japan Corporation	AQ(NP)
Yahoo!	NR



**Materials**

Company	Response Status
Air Liquide	AQ
Air Products & Chemicals	AQ
Anglo American	AQ
Anglo American Platinum	AQ
AngloGold Ashanti	AQ
Antofagasta	AQ
Arcelor Mittal	AQ
Barrick Gold	AQ
BASF	AQ
BHP Billiton	AQ
Dow Chemical	AQ(NP)
E.I. du Pont de Nemours and Company	AQ
Ecolab	AQ
Formosa Plastics	NR
Freeport-McMoRan Copper & Gold	AQ
Fresnillo	AQ(NP)
Glencore International	NR
Goldcorp	AQ
Holcim	AQ
Industrias Peñoles	NR
Kumba Iron Ore	AQ
LG Chem	NR
Linde	AQ(NP)
LyondellBasell Industries	NR
MMC Norilsk Nicke	NR
Monsanto Company	AQ
Nan Ya Plastics	NR
Newcrest Mining	AQ
Newmont Mining	AQ
Nippon Steel	NR
Petronas Chemicals Group Berhad	NR
POSCO	AQ
Potash Corporation of Saskatchewan Inc.	AQ
Praxair	AQ(NP)
Rio Tinto	AQ
Shin-Etsu Chemical	AQ
Southern Copper Corporation	NR
Syngenta International	AQ
Teck Resources	AQ
Uralkali	DP
Vale	AQ(NP)
Xstrata	AQ(NP)

**Utilities**

Company	Response Status
American Electric Power	AQ
Centrica	AQ
CEZ	DP
CLP Holdings	AQ
Consolidated Edison	AQ
Dominion Resources	AQ
Duke Energy	AQ
E.ON	AQ
Electricite de France (EDF)	AQ
Endesa	AQ
ENEL	DP
Exelon	AQ
FirstEnergy	NR
Fortum	AQ
Gas Natural SDG	DP
GDF Suez	AQ(NP)
Hong Kong & China Gas	NR
Iberdrola	AQ
International Power (see GDF Suez)	AQ(SA)
National Grid	AQ
National Thermal Power	NR
NextEra Energy	DP
PG&E	AQ
Power Assets Holdings	AQ
PPL Corporation	DP
Progress Energy	NR
Public Service Enterprise Group	DP
RWE	AQ
SSE	NR
The Southern Company	AQ

# Other Responding Companies

Company	Sector	Response Status
ACCIONA	Industrials	AQ
Akzo Nobel	Materials	AQ
Asian Bamboo	Materials	AQ
AT&T	Telecommunication Services	AQ(NP)
AU Optronics	Information Technology	AQ(NP)
Banco Santander	Financials	AQ
Bunge	Consumer Staples	AQ
C&C Group	Consumer Staples	AQ(NP)
Cascades	Materials	AQ(NP)
Chunghwa Telecom	Telecommunication Services	AQ
Cia. Siderurgica Nacional - CSN	Materials	AQ
Coca-Cola Hellenic	Consumer Staples	AQ
Colbun	Utilities	AQ(NP)
EDP - Energias de Portugal	Utilities	AQ
Encana	Energy	AQ
Eskom	Utilities	AQ
Essilor International	Health Care	AQ(NP)
Grindrod	Industrials	AQ
Industrial Development	Financials	AQ(NP)
Israel Chemicals	Materials	AQ
KAO	Consumer Staples	AQ
Kemira	Materials	AQ
Kirin Holdings	Consumer Staples	AQ
Koninklijke	Materials	AQ
Land Securities	Financials	AQ
Layne Christensen	Industrials	AQ
LG Electronics	Consumer Discretionary	AQ(NP)
Lululemon Athletica	Consumer Discretionary	AQ(NP)
Marvell Technology Group	Information Technology	AQ
Metro AG	Consumer Discretionary	AQ
Nedbank	Financials	AQ(NP)
NH Hoteles	Consumer Discretionary	AQ
Norsk Hydro	Materials	AQ
NYSE Euronext	Financials	AQ
Owens Corning	Industrials	AQ
Parsons Brinckerhoff	Industrials	AQ
Penn West Exploration	Energy	AQ
Reed Elsevier Group	Consumer Discretionary	AQ
Rexam	Materials	AQ
Sandvik	Industrials	AQ
Sanlam	Financials	AQ
Sesa Goa	Materials	AQ
Snam S.P.A	Utilities	AQ
Staples	Consumer Discretionary	AQ
STMicroelectronics	Information Technology	AQ
Sun International	Consumer Discretionary	AQ(NP)
Taisei	Industrials	AQ
Talisman Energy	Energy	AQ
ThyssenKrupp	Industrials	AQ(NP)
Toto	Industrials	AQ
Unilever N.V (see Unilever)	Consumer Staples	AQ(SA)
UPM-Kymmene	Materials	AQ
UPS	Industrials	AQ

## Key to Response Status:

**AQ** Answered questionnaire

**AQ(NP)** Answered questionnaire but response not made publicly available

**AQ(SA)** Company is either a subsidiary or has merged during the reporting process. See Company in brackets for further information on company's status

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