CDP Climate Change Report 2017

Paving the road to mandatory environmental disclosure

Written on behalf of 803 investors with US$100 trillion in assets

October 2017

Report partner

CDP 2017 scoring partners

CDP works with a number of partners to deliver the scores for all our responding companies.
These partners are listed below along with the geographical regions in which they provide the scoring. All scoring partners complete training to ensure the methodology and guidance are applied correctly, and the scoring results go through a comprehensive quality assurance process before being published. In some regions there is more than one scoring partner and the responsibilities are shared between multiple partners.

In 2017, CDP worked with RepRisk, a business intelligence provider specializing in ESG risks (www.reprisk.com), who provided additional risk research and data into the proposed A-List companies to assess whether there were severe reputational issues that could put their leadership status into question.

ADEC INNOVATIONS ESG SOLUTIONS

Global climate change scoring partner

south pole group

Global water and forest scoring partner

Bright Innovation	Japan
DEKRA	France
Deloitte.	Japan, Latin America, Turkey
EY	Japan, Korea
gestão origami	Brazil
KoSIF Korea Sustainability Investing Forum	Korea
KPMG	Japan
Lloyd's Register	Japan
pwc	Iberia (Spain & Portugal)
Quick Our Knowledge, Your Value.	Japan
SGS	Japan
TEC	Japan
RepRisk Due diligence on ESG and business conduct	All regions

Contents

CEO Foreword

The transition to a low-carbon economy will create winners and losers within and across sectors. As new businesses and technologies emerge and scale up, billions of dollars of value are waiting to be unlocked, even as many more are at risk.

A changing climate is becoming more evident. This year has brought intense Atlantic hurricanes, severe wild fires in California, an exceptional monsoon across South Asia, a stifling heatwave across Europe, and record-low wintertime sea ice in the Arctic. These changes threaten ecosystems, communities and our economic well-being, with significant assets at risk from climate change.

This evidence is not going unnoticed. Public concern is growing; and policy makers and regulators are responding. The Chinese government, for example, is set to launch a national carbon emissions trading scheme by the end of this year. Companies around the world, from all sectors, have begun transitioning their business models away from a dependence on fossil fuels and towards the low-carbon economy of the future.

In this year's CDP analysis, which is based on the climate data disclosed to us by over 1,000 of the world's largest, highest-emitting companies, we reveal that a growing number are setting longer-term emissions reduction targets, planning for low-carbon into their business models out to 2030 and beyond. The number of companies in our sample that have committed to set emissions reduction targets in line with or well below a 2 degrees Celsius pathway, via the Science Based Targets initiative, has increased from 94 to 151 in the space of a year. Continuing this momentum, an additional 317 companies plan to commit to a science-based target within two years. EDP and Unilever are two of those companies sharing their story of how and why they decided to set a science-based target in our analysis. Aligned to these targets, the significant increase in companies from our sample that are setting targets to consume renewable energy including through the RE100 initiative, or produce their own, shows how companies are embracing the cheaper, more secure supply of clean energy to meet their low-carbon goals.

Regulators have begun to respond to the risks, notably with the Task Force on Climate-related Financial Disclosures. Established by the Financial Stability Board, the Task Force has moved the climate disclosure agenda forward by emphasizing the link between climate risk and financial stability. The Task Force has recommended that both companies and investors disclose climate change information, including conducting scenario analysis in line with a 2 degrees Celsius pathway and setting out the impacts on their strategy of those scenarios. This amplifies the longstanding call from CDP's investor signatories for companies to disclose comprehensive, comparable environmental data in their mainstream reports, driving climate risk management further into the boardroom.

This year, more than 6,300 companies, accounting for around 55% of the total value of global listed equity markets, have disclosed information on climate change, water and deforestation through our reporting platform. This request from CDP was made on behalf of more than 800 investors with assets of US$100 trillion.

To meet the growing needs of these investors, we are evolving our disclosure platform to introduce sector-based reporting and align our information request with the recommendations of the Task Force for 2018. This will help to further illuminate to company boards and their shareholders the risks and opportunities presented by the low-carbon transition, so they can act swiftly to shift their business models accordingly.

The environmental disclosures that leading companies are making through CDP are providing data across capital markets to inform better decisions and drive action. Companies are reporting how science-based carbon emission reduction targets can drive business and sustainability improvements. They are showing how renewable energy purchases are helping companies to cut emissions and how setting an internal carbon price can drive efficiency and shift investment decisions. They are revealing how their products and services directly enable third parties to avoid greenhouse gas emissions. They are collaborating with cities, states, regions and other companies to drive positive impact in their own operations and through value chains.

This report tracks the progress of corporate action on climate change. Last year, in the wake of the Paris Agreement, we established a baseline for corporate climate action. This year, we measure progress to date. As we show, there are some encouraging trends emerging, with more companies setting further reaching carbon emissions reduction targets, and greater accountability for climate change issues within the boardroom. But, there is no doubt that more companies need to act quickly and the pace of change needs to accelerate if we are to meet the goals of the Paris Agreement and ensure long term financial and climate stability.

Disclosure of quality data is crucial to support this progress. It leads to smarter decisions and informs companies and governments of the actions they need to take. It's encouraging to see more companies setting longer-term targets; data will be key to seeing how they are performing against these over time.

Make no mistake: we are at a tipping point in the low-carbon transition. There are enormous opportunities to be had for the companies that are positioning themselves at the leading edge of this tipping point; and enormous risks for those that haven't yet taken action.

Paul Simpson
CEO, CDP

Abstract

With the vigorous development of green finance, environmental disclosure is gaining more and more attention domestically and internationally.

Domestically, the China Securities Regulatory Commission (CSRC) formally published “Contents and Formats of Information Disclosure” requiring environmental information for listed companies. The environmental equity market launches gradually. Globally, the Task Force on Climate-related Financial Disclosure (TCFD) published their recommendation report. MSCI announced that beginning in June 2018, it will include China A shares in the MSCI Emerging Markets Index and the MSCI ACWI Index. Both the policy and the market environments are promoting the practice of environmental disclosure amongst Chinese companies.

In 2017, CDP selected companies according to their market value and environmental impact and requested these enterprises to provide environmental information through questionnaires on behalf of 803 institutional investors. This report analyzes 25 companies that responded to the CDP 2017 Climate Change Questionnaire before July 31 this year . The responding enterprises represent five listing locations, which are Shanghai, Shenzhen, Hong Kong, the U.S. and Taipei, and nine sectors identified by the Global Industry Classification Standards (GICS). Among the responding companies, 80% have integrated climate change into strategy, 76% have disclosed Scope 1 emissions and 88% have implemented emission reduction projects, which is encouraging.

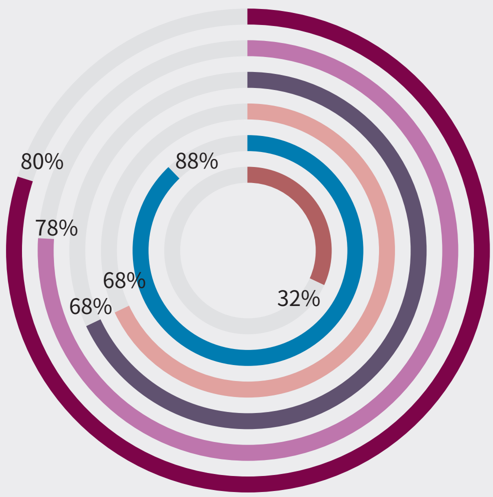
1. The CDP China sample is the top 100 Chinese companies by market cap, selected from the FTSE China 600 Index and the FTSE Global Asia Pacific Index on November 21, 2016, on the day of sample collection.

In 2017,

- More than 6300 companies worldwide disclose their climate change data to CDP.
- Crucially, a growing number are adopting science-based targets (SBTs).
- The first Chinese company, China Mobile, is included in the CDP Global Climate Change A list.
- There are companies who are not requested to disclose to CDP, but choose to do so proactively.

Disclosure rates for key data of responding companies

- Participated in Carbon trade
- Had Emission reduction initiatives
- Had Emission reduction targets
- Disclosed Scope 2 emission
- Disclosed Scope 1 emission
- Integrated climate change into strategy



The journey of environmental disclosure has begun for Chinese companies

Investors are increasingly concerned about the disclosure of environmental information and are gradually strengthening the requirements for quantitative data

It is widely recognized that the continuous emission of greenhouse gases will lead to further warming of the globe. If the globe gets 2℃ warmer than pre-industrial times, the outcome could be disastrous for the global economy and society . Due to the increasing awareness of the risks posed by climate change, in December 2015, nearly 200 governments signed the Paris Agreement at COP21, consolidating the response to the threat of climate change around the globe, "Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".

In November 2016, the 22nd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP22) concluded in Marrakech, and member countries issued the Marrakech Action Proclamation , claiming that we are about to enter "new era of implementation and action on climate and sustainable development."

And in November 2017, the 23rd conference of the parties to the United Nations Framework Convention on Climate Change (COP23) will be held in Bonn, which will further examine the implementation of the Paris Agreement. What makes the climate-change-related problem intractable and challenging is that it is large-scale and time-consuming, especially when it comes to economic decisions. However, the current understanding of the potential financial risks associated with climate change and environmental issues (risks faced by companies, investors and the entire financial system) is still at an early stage. In its Global Risk Report 2017, the World Economic Forum (WEF) identified "Failure of climate-change mitigation and adaptation" as an important global risk, which is "an uncertain event or state that if happens, it will cast significant negative impact on many countries and industries in the next decade". (WEF 2017: 61).[4]

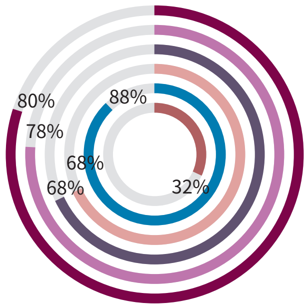
There is an increasing demand from various financial market participants for access to environment-related information that contributes to decision-making. There is also an increasing demand from creditors and investors for coherent, comparable, reliable and clear environmental risk information. EY's survey[5] shows that investors are concerned about non-financial data, including the environment and social responsibility. Thus, the development of relevant disclosure mechanisms will help investors to better understand the company's environmental management. Meanwhile, even as corporate information disclosure develops and is refined, investors are increasingly demanding with regards the quality of this disclosure.

Market-driven or voluntary disclosure requires the self-regulation of the market and allows organizations to decide how to report on climate change risks and opportunities. While voluntary disclosure of climate-change-related risks and opportunities is valuable and can encourage other companies to disclose, many believe that it is not sufficient to drive the behavior needed by the company to make changes and provide sufficient and effective information for market participants to make decisions. Therefore, starting with exploring voluntary corporate disclosure and developing standards combining best practice reflecting the value of voluntary disclosure lays a good foundation for mandatory disclosure.

CDP is a nonprofit organization that operates the global information disclosure system for investors, and purchasing organizations to understand how companies manage their environmental impacts. Over the past 16 years, CDP has created an environmental information indicator system that attracts active participation on a global scale.
In China, the development of CDP has encouraged the growth of corporate environmental information disclosure from 9 companies disclosing climate change information via the CDP questionnaire

2. Intergovernmental Panel on Climate Change. Fifth Assessment Report, http://www.ipcc.ch/report/ar5/.
3. United Nations Framework Convention on Climate Change, The Paris Agreement http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.
4. World Economic Forum. (2017). The Global Risks Report 2017, 12th Edition. http://www3.weforum.org/docs/GRR17_Report_web.pdf
5. Tomorrow's Investment Rules 2.0, 2015, EY(Investors Demand Climate Risk Disclosure), 彭博社，2013 年 2 月。www.bloomberg.com/news/2013-02-25/investors-demand-climate-risk-disclosure-in-2013-proxies.html.

Figure 1.1 Disclosure rates for key data of responding companies



- Participated in Carbon trade
- Had Emission reduction initiatives
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in 2010 to 25 disclosing companies in 2017. During this time, the quality of responses to the questionnaire has improved greatly alongside the growth in number of disclosing companies.

In the responses to the 2017 climate change questionnaire, it can be seen that companies are actively addressing climate change—80% of the responding companies have integrated climate change into their strategy; 68% of the enterprises have developed emission reduction targets; 88% of the enterprises have taken actions to achieve emission reduction; 76% of the enterprises have disclosed their Scope 1 emissions; 68% of the enterprises have disclosed their Scope 2 emissions; 32% of the enterprises have claimed participating in carbon trading and two have purchased carbon allowance from the carbon market.

As investors, business leaders and consumers pay more attention to sustainability, environmental disclosure enhances the likelihood of companies attracting investors. CDP has built the largest database of corporate environmental data. Investors all over the world use CDP data to make informed decisions. Likewise, policymakers also request more specific information and quantitative data to enable decision making. As in Figure 1.2, it illustrates how CDP data is used by investors and other decision makers.

In terms of mandatory disclosure, the growth of ESG has played a significant role in promoting corporate environmental information disclosure. ESG is the abbreviation of the words "Environment (E)", "Society (S)" and "Corporate Governance (G)". It is an investment philosophy that encourages full consideration of environmental, social and corporate governance factors in the investment decision-making process. Over the past decade, international capital markets have shown a growing interest in ESG investment philosophy, and more investors and asset management companies have introduced ESG into their framework of corporate research and investment decisions. Sustainable investment is a fast-growing factor in global investment. On a global scale, governments and exchanges in at least 45 countries request or encouraged companies to disclose their ESG information.

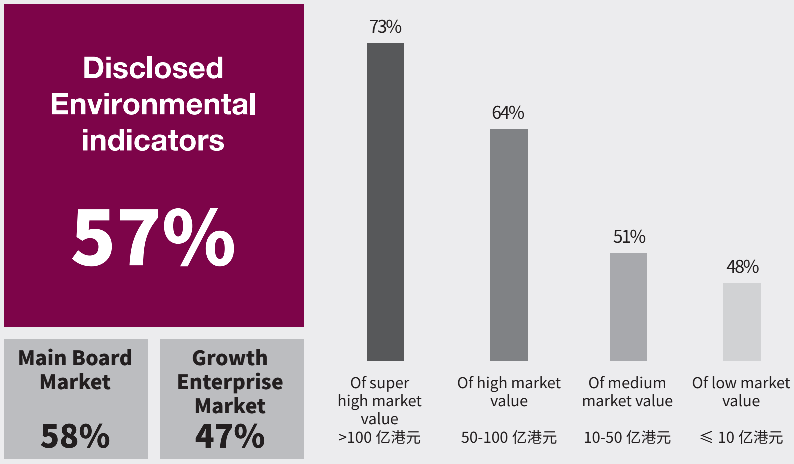
In China, the 2016 Hong Kong Stock Exchange (HKSE) increased ESG disclosure requirements for listed companies, leading HKSE-listed companies to publish their first ESG reports. In addition to ESG reports, there has been an unprecedented increase in concern from the entire capital market with regards to corporate non-financial information. With the HKSE introducing a "comply or explain" requirement for environmental disclosure, the substantive impact of ESG information on Chinese capital market will undoubtedly increase.

According to EY's analysis on the 2016 ESG Reports of HKSE-listed companies, companies are increasingly aware of the importance of the disclosure of environmental information. Among the HKSE-listed companies that disclosed ESG information, 33% of the companies have begun to release independent reports. 57 percent of companies have disclosed environmental indicators (Figure 1.3), of which those with higher environmental risk disclose more comprehensively on environmental indicators. Although the overall disclosure level of environmental

Figure 1.2 Demand for CDP data

Pension funds • engagement • shareholder resolutions e.g.:CalSTRS,CPPIB	**Passive equity managers** • proxy voting • meetings with company management e.g.:BlackRock, State Street	**Broker dealers** • buy/sell recommendations • sector analysis e.g.: GS Sustain
Active equity managers • stock selection • proxy voting and company meetings e.g.: Legg Mason, Neuberger Berman	CDP DISCLOSURE INSIGHT ACTION	**Data providers** • ESG data within financial databases e.g.: Bloomberg
SRI funds • screening equity universes • carbon sensitivity of portfolios e.g.: Calvert,Domini,Rockefeller		**Third party research** • research and ESG ratings • environmental risk analysis e.g.: MSCI, Trucost
Investment advisors • risk models • country/sector/company analysis e.g.:First Affirmative	**Index providers** • carbon efficient equity indices • carbon efficient bond indices e.g.: Markit, Nedbank (South Africa)	**Academia** • studies on "non-financial" reporting • correlation analysis e.g.:Harvard Business School

Figure 1.3 the Environmental Indicator Disclosure of Companies Listed in HKSE (EY, 2017)



indicators still has room for improvement and the quality of the data disclosed is uneven, with further understanding and attention on ESG-related work, and under the prerequisite that companies establishing appropriate systems, better disclosure will be a development trend.

At the same time, according to the recent report by the Task force for Climate related Financial Disclosure (TCFD), the TCFD working group has reviewed all the existing climate reporting frameworks, both voluntary and mandatory, and provided in the appendix the information about aligning existing frameworks, including those drawn up by CDP, the Climate Disclosure Standard Board (CDSB), the Global Reporting Initiative (GRI), the International Integrated Reporting Committee and the Sustainable Accounting Standard Board (SASB), as well as the information disclosure recommended by the working group. The working group is currently developing a common set of principles to help existing disclosure systems become more consistent with time. Information developers and users, as well as other stakeholders, share the same goal in promoting such coordination as this will ease the burden on reporting entities, reduce overly decentralized information disclosure and provide greater comparability to data users. The working group also encourages standard-setting institutions to support the adoption of the recommendations and the integration of recommended information disclosure. The CDP questionnaires is an important source of climate reporting framework, and CDP play an active part in TCFD's investigation and promotion work.

The Task Force's Report clarifies reporting requirements for companies at financial risk from climate change effects for the benefit of lenders, insurers, investors and other stakeholders. In particular, CDP welcomes the Task Force's recommendations to:

- Integrate climate-related information in their mainstream financial reports. This will bring climate change further into the boardroom as every board must consider and sign off on their mainstream filings. It will also allow investors to access the information they need in a consistent and comparable way, and will prove to all stakeholders that companies doing so are disclosing climate risk information with the same rigor as financial information;

- Encourage both financial and non-financial organizations to adopt the recommendations, thereby closing the loop on climate risk in capital markets. We recognize the crucial role they will play in ensuring the transition to a low-carbon economy, as their leadership will drive the development of more sustainable economic systems;

- Recommend all companies to describe the potential impact of different scenarios, including a 2°C or lower scenario, and disclose the resilience of the organization's strategy, bringing the 'future' of climate risk into the present. At the recent Exxon AGM, we saw investors voting to prioritize climate disclosure and demonstrating portfolio resilience through a 2°C scenario. This represents a new reality for Exxon's management and demonstrates another shift to generate the environment for change and innovation.

CDP has publicly committed to adopt and implement Task Force recommendations across all sectors. We will continue to ask relevant climate questions on a global platform and analyze the responses across sectors to provide enhanced insights to both companies and investors to enable better planning for the transition to a low-carbon economy.

6. RESULTS OF MSCI 2017 MARKET CLASSIFICATION REVIEW, June 20, 2017. https://app2.msci.com/webapp/index_ann/DocGet?pub_key=qmTkbZqRZxA%3D&lang=en&format=html

The requirement of disclosure from the international community will influence Chinese listed companies through index providers. MSCI has announced that in June 2018, A-shares will be formally incorporated into the MSCI Emerging Market Index and the MSCI Global Index . This means that for the 222 A-share companies that will be included in the MSCI Index, they will encounter more concerns, questions and communications in the field of ESG, as more investors may need ESG data to support their investment decisions. In addition, based on the MSCI Global Index, MSCI will carry out a screening process so that companies with better ESG performance will be included into the ESG Indexes. As more A-share companies are included in the MSCI Index and enter the awareness of international investors, they at the same time enter an environment that allows comparison and competition with other listed companies globally, which will also promote the awareness of ESG among these companies.

We are delighted to see that support from regulators and policy makers are increasing in China. In August 2016, The Central Leading Group for Deepening Overall Reform approved the “Accelerating the construction of green financial system guidance”, clearly called for further promotion of listed companies environmental information disclosure. In December 2016, the China Securities Regulatory Commission (short as CSRC) formally published the following two documents, “Contents and Formats of Information Disclosure of Corporate Information Disclosure No. 2 - Contents and Format of Annual Report” (revised in 2016), and Corporate Information Disclosure of Publicly Issued Securities Content and Format Guidelines No. 2 - Contents and Formats of Semi-annual Report “(Revised in 2016) .

In order to implement the “Accelerating the construction of green financial system guidance“, the Ministry of Environmental Protection (MEP) together with the CSRC have made some progress so far in requiring listed companies as well as their subsidiaries to disclose managerial information in annual reports. For example, among the 3,000+ companies listed on the Shanghai & Shenzhen Stock Exchange, more than 160 of them have been determined by the MEP as the state key monitoring companies, and nearly 90% have disclosed environmental information and the overall situation is improving. Additionally, on June 12 2017, the MEP and the CSRC signed “the Cooperation Agreement on Jointly Implement the Environmental Information Disclosure of Listed Companies” in Beijing. The two organizations will continue to further deepen cooperation, comprehensively adhere to supervision strictly and in accordance to law, practice green development concepts, constantly complete the environmental information disclosure policy of listed companies, urge listed companies to effectively fulfill the obligation of information disclosure, and encourage listed companies to play a leading role in the implementation of environmental protection responsibility. The positive actions of all parties also aim to provide better information and channels for corporate disclosures.

"Contents and Formats of Information Disclosure of Corporate Information Disclosure No. 2 - Contents and Format of Annual Report" (revised in 2016), and "Corporate Information Disclosure of Publicly Issued Securities Content and Format Guidelines No. 2 - Contents and Formats of Semi-annual Report "(Revised in 2016) require:

The Company and its subsidiaries, which are the key polluters issued by the environmental protection department, should follow the laws, regulations and departmental rules to disclose:

- The names and emissions of major pollutants and characteristic pollutants
- The method of discharge
- The number and distribution of discharge ports
- Emission intensity and total amount
- Excessive discharge
- Implementation of pollutant discharge standards
- Approved total emissions
- And construction and operation of pollution prevention and control facilities and other environmental information

Companies other than key polluters may disclose their environmental information with reference to the above requirements. Voluntary disclosure is encouraged such as disclosure of relevant information that is conducive to the protection of ecology, pollution prevention and environmental responsibility.

The vigorous development of green finance has revitalized green projects, thus giving companies the impetus to disclose environmental information

At the G20 meeting held in 2016 China first introduced green finance issues to the agenda and created a green finance study group. The summit adopted the G20 green finance synthesis report, which clearly outlined the definition, purpose and scope of green finance, challenges, and offered advice and suggestions for the development of green finance. This not only reflects China's commitment to the transformation of the economy towards green and low-carbon sustainable development, but also conforms to the call of the world to implement the objectives of the Paris Agreement and promotes global cooperation in climate and the environment and the green transformation of the world economy.

On September 5 2017, the Green Finance International Symposium, jointly organized by the Finance Committee of the China Society of Finance and the United Nations Environment Program (UNEP), was held in Beijing. Yin Yong, deputy president of the People's Bank of China, spoke at the meeting and pointed out that China will continue to vigorously promote international cooperation in the field of green finance, to promote "green all the way" investment. At the meeting, the "China Foreign Investment Environment Risk Management Initiative" was launched for voluntary adoption by Chinese financial institutions and enterprises involved in foreign investment. This initiative is organized by the China Society of Finance Green Finance Committee, China Investment Association, China Banking Association, Asset Management Association of China, Insurance Asset Management Association of China, China Trust Industry Association, Environmental Cooperation Center of Ministry of Environmental Protection for China's financial institutions and non-financial enterprises participating in foreign investment. The initiative encourages enterprises to fully understand, prevent and manage the environmental and social risks involved in foreign investment projects, strengthen their environmental information disclosure, make positive use of green financing tools and environmental liability insurance, promote trade finance and supply chain financing green, and enhance more capacity building on environmental risks management. It is proposed that financial institutions involved in foreign investment should make full use of the resources of the organization's headquarters, the support from international capital market and third-party institutions to improve the internal processes and capacity building for environmental risk management of overseas branches.

As a kind of green finance practice, China officially launched the green bond market in 2016 which has developed rapidly. Compared with ordinary bond issuers, green bond issuers need to bear more information disclosure responsibilities. In 2016, 83 green bonds were issued domestically, with the total amount of 209.52 billion yuan. Among them, 77 are labelled green bonds, with the total amount of 205.23 billion yuan, accounting for up to 97.95% in the total scale. Among the labelled green bonds, 86.79% got green certification. Close to 80% of the bonds meet both the Chinese and international green bond definitions. When selecting green bonds, investors will analyze the quality of information disclosure, including issues like whether the time span covers the full duration of the bond, the sufficiency and timeliness. The higher the quality of information disclosure is, the more able investors are to understand the accurate status of investment projects, such as whether the project will achieve the expected environmental benefits, or for those that fail to achieve these expectations, the gap between the reality and the expectation and the reasons for failing. This will help investors to make better decisions. Besides green corporate bonds under the supervision of the National Development and Reform Commission (NDRC), when corporate issuing other green corporate bonds or medium-term notes, they will usually release documents like green assessment certification reports authorized by third parties and special reports on the use of funds raised. And they will also continuously update the listed reports at a certain frequency (quarterly/semiannually/annually) according to the agreements of documents issued or relevant regulatory requirements.

In 2017, the CSRC and the National Association of Financial Market Institutional Investors (NAFMII) issued instructions and guidelines on green bonds in succession, which further completes the policy regulation system of the domestic green bond market. The implement of the green finance standardization project planning, the official start of the pilot work of the green finance reform innovation pilot area, and the further development and completion of green financial products including green bonds, will better serve the development of green projects.

With the full introduction of the domestic carbon market and green electricity certificate market, a better foundation has been established for the disclosure of environmental information

After three years of the running of the carbon trade in seven pilot provinces and cities, the national carbon market will officially start in 2017. For the start of the national carbon market, many kinds of carbon trade exploration are delivered in pilot carbon markets in Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin. The National Development and Reform Commission published an emission-control enterprises list according to sector and energy consumption. And the emission-control enterprises had been asked to examine carbon inventory from the pilots to the nationa scale. The data collection is mainly for laying the foundation for the development of the national carbon market and quota mechanism, but the examination simultaneously helps enterprises to draw a clear picture of their energy structures. During the examination, in addition to relevant training, on-site data inspection by external agencies also provided great opportunities for companies to comprehend their own environmental information and energy use situation.

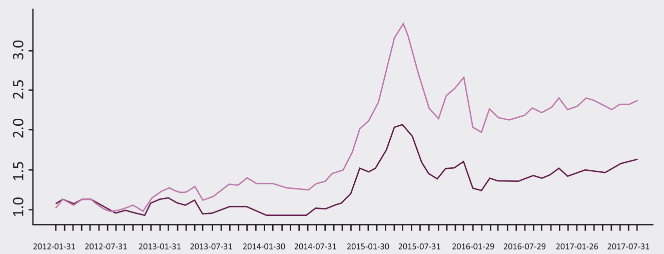
At present, some corporates have actively participated in the Chinese carbon market. They have gradually established a sound database and timely process of management, reporting and certification regarding environmental data. At the same time, China's certified emission reductions (CCER) as a supplement to the allowance mechanism, provides the enterprise with an incentive to promote energy conservation and emissions reduction. For example, corporates can develop emission reduction projects as well as a CCER project and incorporate it into their own carbon assets. According to China's voluntary emission reduction information platform data, by March 13 2017, 2032 renewable energy projects through the audit, accounting for 71% of all through the audit project.

At the launching ceremony, more than 20 enterprises and organizations committed to buy 20,000 green electricity certificates, equivalent to 20,000 megawatt hours of renewable energy power.
The green electricity market made it possible for corporates to use renewable energy by purchasing green electricity certificate. As of September 30 2017, there were 1549 purchasers, who purchased 21,092 green electricity certificates. According to the information disclosed in the subscription platform, the average price of wind power ranged from 137.2 yuan per piece to 271.2 yuan per piece. PV volume is less, with the average daily price ranging from 627.1 yuan to 750.0 yuan per piece. Companies with forward-looking strategies are benefiting from turning to 100% renewable energy, including cost reduction, innovation and reputation. By turning to renewable energy, companies are also driving the ever-expanding global renewable energy market, which will be an important part of greenhouse gas emissions. The company's commitment to 100% use of renewable energy will be invited to join RE100, a global initiative jointly run by The Climate Group in partnership with CDP. RE100 is also one of the We Mean Business coalition's initiatives, and the coalition is a global alliance, encouraging the world's most influential businesses to take action to mitigate climate change, working with business leaders to drive policy and accelerate the transition to a low-carbon economy.

In the future, the further development of the carbon market and the green certificate market will offer bigger platform for companies that are actively involved and well prepared, and will force those with relatively outdated concepts to carry out necessary plans and disclosure, so that a healthy and sustainable environmental rights market can be built. By disclosing to CDP, corporates can start their environmental management journey earlier and get ready for future mandatory environmental disclosure.

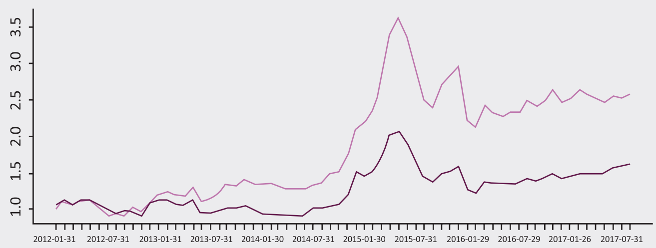
CSI 300 Green Leading Stock Index: With its high liquidity, transparency and back test results that outperform the CSI 300 Index, the index is expected to become a benchmark for green stocks in China.

Equally-Weighted **(Monthly data)**



Invested 1 yuan on 31/01/2012, the CSI 300 Green Leading Stock Index values approximately 2.36 yuan and the CSI 300 index values approximately 1.629 yuan on 31/08/2017

Score-Weighted **(Monthly data)**



Invested 1 yuan on 31/01/2012, the CSI 300 Green Leading Stock Index values approximately 2.189 yuan and the CSI 300 index values approximately 1.629 yuan on 31/08/2017

CSI 300 Index
CSI 300 Green Leading Stock Index

Characteristics of CSI 300 Green Leading Stock Index

(1). The index system incorporates both qualitative and quantitative indicators.

(2). The index system emphasizes the negative behaviors of enterprises.

(3). The Index system excludes High-Pollution, High-Energy-Consume industries in China.

Introduction

We develop an innovative and comprehensive methodology to measure the green level of listed companies and it includes the three parts of qualitative indicators, quantitative indicators and the negative behaviors of listed companies. The first part is qualitative indicators such as these international ESG index and we develop more and deeper indicators in "environmental dimension" to measure the green level of operation process such as green supply chain and pollution treatment etc. The second part is quantitative indicators to measure pollution emissions, energy consumption, resources consumption and green revenues. The third part is the negative behaviors of listed companies including negative corporate environmental news and penalties. Therefore, our new methodology can measure all listed companies and provide the ranking of their green levels and expand the focus beyond just green or environmental industries. If we only take into account green industries, the the Green Leading Stock Index is limited, and even sectors that are considered green such as the solar energy industry can have high polluting production processes.
The International Institute of Green Finance at the Central University of Finance and Economics, China Securities Index Co Ltd, and the Luxembourg Stock Exchange jointly launch the" CSI 300 Green Leading Stock Index" in Beijing, September 26 2017.

Back Tset Results of CSI 300 Green Leading Stock Index
Table1: Contrast of shanghai and shenzhen 300 green leading stock index and CSI 300

Statistic (%)	CSI300 Green(Value-Weighted)	CSI300 green(1/2 value 1/2 score weighted)	CSI300
Arithmetic mean	1.015816	1.017427	1.009958
Geometric mean	1.012766	1.01404	1.007205
standard deviation	0.078505	0.082755	0.075087

Sample

The Shanghai-Shenzhen 300 listed firms (CSI 300) as sample. We use our methodology to select the top 100 green scores in the sample to form "Shanghai-Shenzhen300 Green Leading Stock Index (CSI 300 Green Leading Stock Index)". Next, we aim to align with Shanghai exchange to develop "Exchange Traded Fund" (ETF) of CSI 300 Green Leading Stock Index.

There are four reasons we respectively choose CSI 300 listed firms as the samples.

1. Channels of Foreign Investors: Foreign investors can invest these stocks of the CSI 300 listed firms through "the Shanghai -Hong Kong Stock Connect" and "the Shenzhen-Hong Kong Stock Connect".
2. High Liquidity: Academic evidence found that ETF has clustering phenomenon. Because ETF is listed on the stock exchange, the most important factor of ETF is the liquidity. Stocks of "the CSI 300 listed companies" have large trading amounts. Thus the CSI 300 Green Leading Stock Index will have high liquidity.
3. High information transparency: The CSI 300 listed companies have high visibility and high information transparency, which can expand the influence of the CSI 300 Green Leading Stock Index.
4. Diversity of ETF Products : Because CSI 300 Index has futures products in the future exchange, we can develop the leveraged ETF and the reverse ETF of the CSI 300 Green Leading Stock Index to satisfy different types of investors.

Climetrics launched: CDP's award-winning new finance tool now available to all fund investors

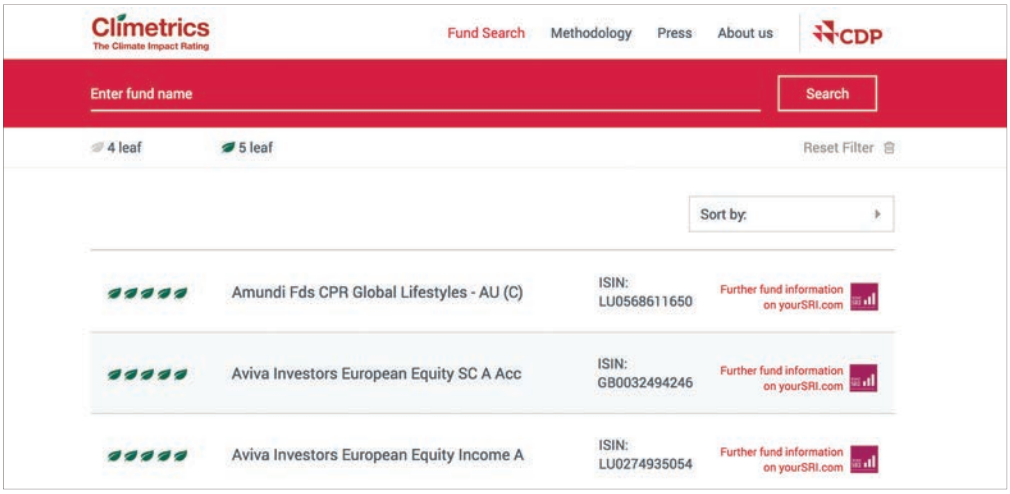
More than

2,800

equity funds covered, representing about €2 trillion in fund investments.

> **Climetrics is a missing link between individual investment choices and the global problem of climate change, and will move the needle in incentivising both investors and companies to contribute to the low-carbon transition.**
>
> **Paul Dickinson,**
> CDP

Climetrics is an independent fund rating which enables investors to integrate climate impact into their investment decisions.



www.climetrics-rating.org

Adding a new level of transparency to the fund industry, Climetrics aims to turn the equity fund market – worth more than €3 trillion in Europe – into a significant lever for mitigating climate change and transitioning to a low carbon economy.
Climetrics is the world's first independent and publicly available tool that rates equity funds for their climate impact.

Symbolized by green leaves issued on a scale of 1 to 5, the rating enables investors to easily assess and compare the climate impact of their fund investments, encouraging the growth in climate-responsible fund products.

While Climetrics has a unique and exclusive focus on the climate impact of funds, the rating goes far beyond a standard carbon footprint, also scoring funds on forward-looking indicators. The combination of these indicators into a robust and transparent methodology (3 layers of analysis: asset manager, fund and holdings) is unique in the market.

Top-rated funds can be found for free on **www.climetrics-rating.org**, with a detailed breakdown of a fund's rating available on a paid factsheet. Commercial use of the rating by funds is licensed, allowing asset managers and banks to promote the sale of funds which outrank peers on climate-related impact.

Banks and financial advisors can use the rating to advise climate conscious clients. Climetrics data also allows asset managers the development of new financial products with a low climate impact.

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Climetric
The Climate Impact Rating

SUSTAINABLE INVESTMENT FORUM
Financing Innovation for Climate Action
WINNER
Innovative Climate Finance Tool Competition

Analysis of responses to the CDP 2017 climate change questionnaire by Chinese companies

In 2017, CDP selected companies according to their market value and environmental impact and requested these enterprises to provide environmental information through questionnaires on behalf of 803 institutional investors. This report analyzes 25 companies that responded to CDP 2017 Climate Change Questionnaire before July 31 this year. The responding enterprises cover five listing locations, which are Shanghai, Shenzhen, Hong Kong, the U.S. and Taipei, and nine sectors identified by the Global Industry Classification Standards (GICS).

Enterprise Classification

As showed in Figure 2.1, companies in the finance and information technology (IT) sectors represent the largest proportion of responding companies, followed by those in the industrials sector (See Figure 2.1) In the report, the proportion of responding companies listed in Hong Kong (including dual listed enterprises) is 72%, which far exceeds the proportion of enterprises listed in other places, which indicates that the regulatory measures imposed by the HKSE to comply or explain with environmental disclosure has been successful in improving the availability of environmental data, as well as the level of environmental management undertaken by listed companies.

Management and Strategies

The Responsibility of Teams and Individuals

As showed in Figure 2.2, among people who directly manage climate change in the responding enterprises, 72% are assigned by the board, followed by senior managers and other managers, and only two enterprises do not appoint anyone in particular to take charge of related matters. It can be seen that most enterprises pay considerable attention to climate-change-related issues. 76 percent of the enterprises have set up bonus mechanisms relating to performance and achievements, and mainly use emissions reduction and energy efficiency data as assessment indicato

Strategies

80 percent of the responding enterprises have integrated climate change into their business strategies, and for the remaining 20% who have not yet done so, the main reason is that the enterprises think that there is no clear regulation yet. However, the companies still show positive attitudes towards climate change affairs, and plan to integrate climate change into their strategy in the future.

Only three enterprises indicated that they currently use an internal price on carbon. These three enterprises are included in the list of emission-control enterprises, as part of the seven pilot province and cities of the China carbon market, and the prices they use are mainly the guide prices of their corresponding pilot provinces and cities. Compared with companies that have not considered the carbon price, the three enterprises have assessments and plans towards their carbon assets. But in to price carbon properly, companies need to take elements like various financial products related to carbon assets and carbon trades into account, which will provides more references for the comprehensive consideration of the companies' carbon assets.

7. The CDP China sample is the top 100 Chinese companies by market cap, selected from the FTSE China 600 Index and the FTSE Global Asia Pacific Index on November 21, 2016, on the day of sample collection.

Figure 2.1 Classification of responding Enterprises by Sector

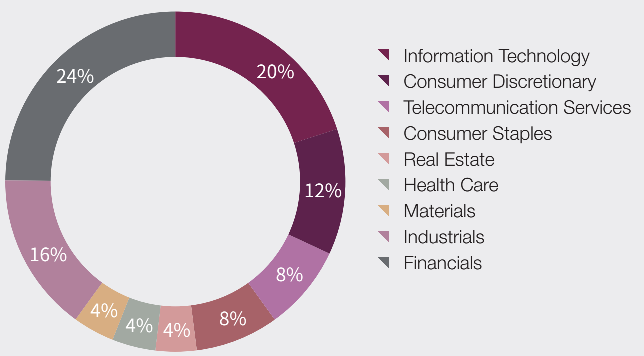


Figure 2.2 Highest level of direct responsibility for climate change

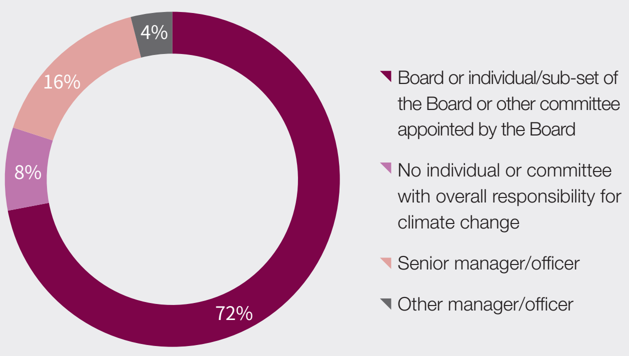


Figure 2.3 Targets and Actions

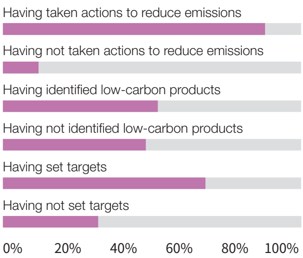
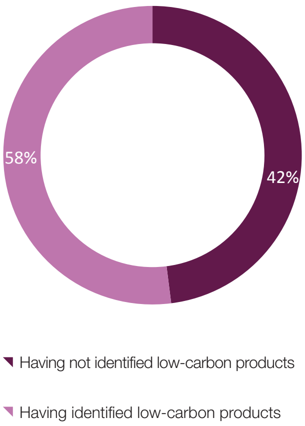


Figure 2.4 Emission Reduction: the Identification of Low-carbon Products



76 percent of the enterprises indicated that they had participated in activities that could either directly or indirectly influence public policy on climate change, among which 63% are involved directly. The activities that enterprises participated in aligns with the business expertise of the enterprises; for example, financial companies are mainly involved in activities around green finance policy, and IT companies mainly participate in activities concerning policies relating to information optimization. This provides good references for the policy makers, and also positive impact on companies' intension of participating in carbon market.

Targets and Actions

Emission Reduction Targets

As showed in Figure 2.3, 68% of the responding enterprises have already set up emission reduction targets. Among the remaining eight enterprises, seven have provided explanations regarding not setting goals; only one has neither set up targets nor provided a reason for this. The main reason for not setting targets is that the company's basic data is not complete, which is in line with the current status of Chinese companies in general. However, with the further strengthening and refinement of all kinds of relevant policies, the data accumulation of the enterprises will be better, and thus enables the observation of trends and setting goals.

Emissions Reductions

Emissions reductions can be divided into two aspects; which are the identification of low-carbon products and the implementation of emissions reduction initiatives. 52 percent of the responding enterprises have identified low-carbon products (see Figure 2.4), and 42%that did not do so out of the lack of awareness of the identification of low-carbon products.

88 percent of the responding enterprises said that they have already launched substantive emissions reduction activities. One of the three companies that has not implemented actions has provided an explanation, which is that there is currently no law or regulation related to climate change and the cost of emission reduction is relatively high at the moment. 19 of the 22 companies that claimed to take actions have disclosed detailed reduction measures (see Figure 2.5). Among the measures, the most commonly used is improving efficiency in processes, which appears as the control of equipments in production or service processes so as to achieve better energy saving and emission reduction effect, followed by the improvement of energy efficiency in building services, which mainly includes the replacement of LED lights and the appropriate testing as well as using of the air conditioning. Behavioral change and waste recycling were the third most common type of emission reduction measure, the change of behavior mainly relating to activities of a "green office" while the recycling of waste mainly for the recycling of waste batteries and the waste metal in wires. Although a less frequently used measure by the responding companies, the purchase of low-carbon energy is worth mentioning. Lenovo has already offset their fossil-fuel-generated electricity consumption using the power generated by renewable resources through the purchase of I-REC and Guarantee of origins.

Figure 2.5 Types of Emission Reduction Actions

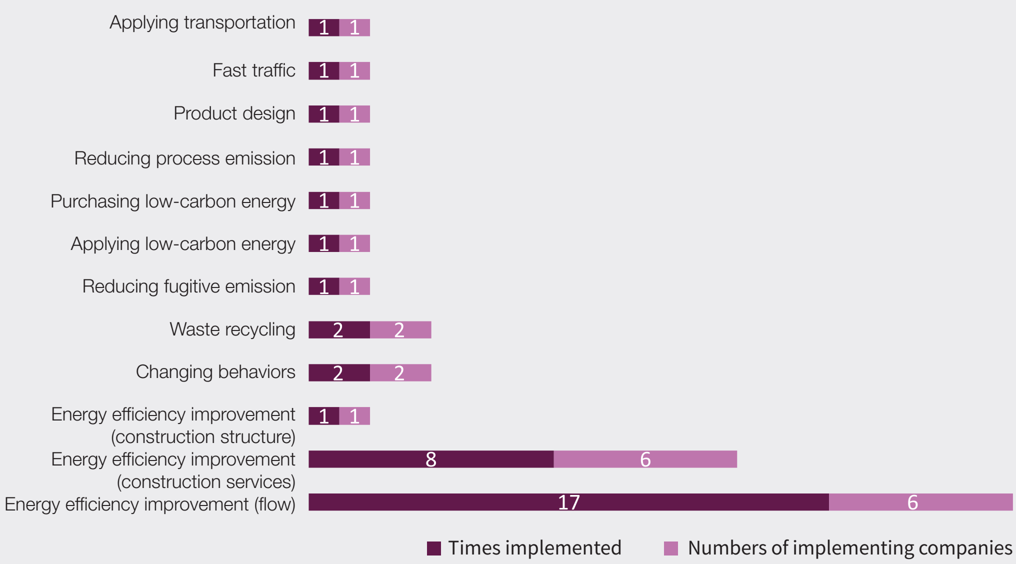


Figure 2.6 Risks Related to Climate Change

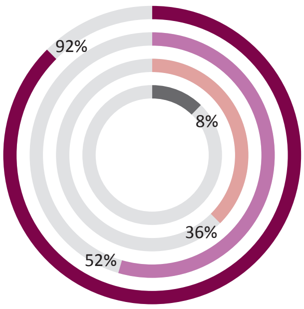
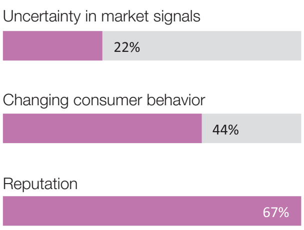


Figure 2.9 Other climate related development driven risks



In general, while only one of the 25 companies has reported neither target setting nor practical actions, the companies have reported something in either of these two aspects. The enthusiasm of the enterprises is especially high in terms of implementing reduction initiatives; however, in terms of setting emissions reduction goals, more companies have set goals than not. As for the identification of low-carbon products, although more than half of the enterprises have already made initial attempts. But there is no significant trend for that, indicating that enterprises lack sufficient knowledge about the identification of low-carbon products.

Risks and Opportunities

Risks Related to Climate Change

The risks related to climate change can be divided into three types according to different driving forces: risks driven by changes in policies; risks driven by changes in physical parameters; and risks driven by other development related to climate. 92 percent of the enterprises identify risks posed by changes in policies (see Figure 2.6), which is the most commonly reported type of risk, and they are mainly reflected in five areas including ESG requirements, product labeling regulations and standards, requirements from customers, carbon taxes, and the possibility of being included into emission-control enterprises (see Figure 2.7). With the further opening up and deepening of the carbon market, being included into emission-control enterprises is what the responding enterprises consider the most possible policy risk, but at the same time an important reason for the majority of responding enterprises to undergo carbon emission planning. For the suppliers, requirements from customers, carbon labeling and the introduction of a carbon tax are also considered to be important risks. Meanwhile, there are also companies suggesting the ESG requirements posed by the HKSE are a risk on the policy side since it will increase their operational cost.

In terms of risks related to physical changes, 13 companies have reported nine different kinds of risks. The four most identified physical risks are tropical cyclones, changes in temperature extremes, Change in precipitation extremes and droughts, and sea-level rise (see Figure 2.8). It can be seen that direct, catastrophic climate changes are considered important physical risks by the companies.

In terms of other climate-related risks (see Figure 2.9), the reputation of the company is a relatively big element of consideration, followed by changes in the demand of customers. Some companies indicate that when customers are buying products, the positioning of the products and the impact of climate change influence their purchases, thus indicating corporate actions to combat climate change are relevant to the attractiveness of the products. The second element is the uncertainty of the market demand. Companies believe that both the trend of environmental protection policies and the changes of customers' sense will lead to uncertainty, so being prepared in responding to climate change as soon as possible will effectively help companies to avoid risk in market fluctuations .

Opportunities Related to Climate Change

The opportunities related to climate change can also be divided into three types according to different driving forces: opportunities driven by changes in policies; opportunities driven by changes in physical parameters; and opportunities driven by other development related to climate. 88% of the enterprises identify opportunities posed by changes in policies, which is the most common type of reported opportunity. Since the responding companies are usually more forward-looking in terms

Figure 2.7 Regulation driven risks

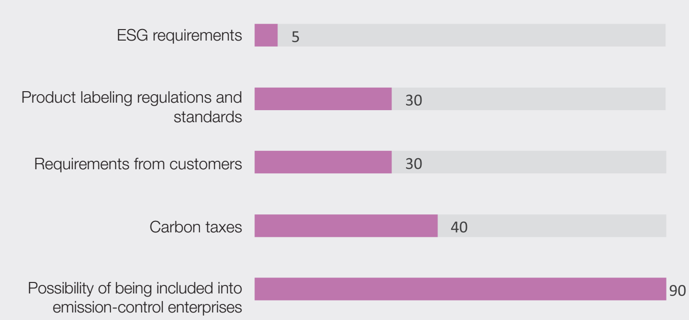


Figure 2.8 Physical parameters change driven riskst

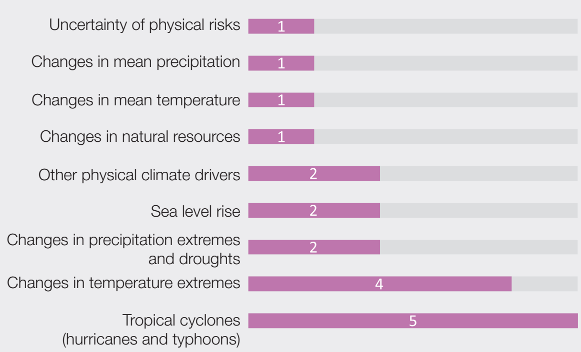


Figure 2.10 Disclosure of Emission Data

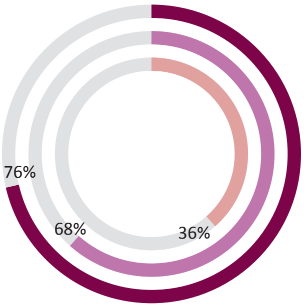
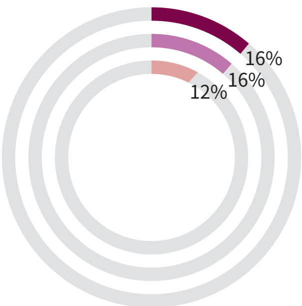


Figure 2.11 Verification or Assurance



of climate change or have already been included in emission-control enterprises, or are requested by the HKSE, most of them respond to climate change with a positive attitude, and are actively looking for development that will benefit their business.

In terms of opportunities related to physical changes, six companies have identified three opportunities, which are opportunities related to changes in other physical climates, changes in the precipitation limit and drought, and changes in the temperature limit. Opportunities related to changes in other physical climates mainly lie in the fact that companies will be able to provide their customers with corresponding measures and programs in response to these physical changes, and the other two corporates regard their production methods more resilient/ capable of dealing with changes than those of their competitors. Another example is that a company considers itself located in an area with low drought risk which can be a comparative advantage against its peers whose factory is located in high drought risk areas.

In terms of opportunities driven by other climate-related progress, most companies believe that opportunities come from external demands for sustainable products, including those from customers and stakeholders, followed by their own needs, such as improving the energy efficiency of their products and establishing positive corporate images.

Emissions Data

Emissions Data and Accuracy

In terms of the disclosure of emissions data, the disclosure of Scope 1, Scope 2 and Scope 3 emissions demonstrate a decline trend. Scope 3 emissions are significantly less disclosed partly due to the difficulty in collecting Scope 3 data, and partly due to the fact that current country requirements for the data of emission-control enterprises are limited to Scope 1 and Scope 2, which gives companies less incentives to disclose Scope 3 data. However, there are still 36% enterprises who have disclosed Scope 3 data, indicating that some enterprises have already possess a relatively complete statistical basis for data.

Third-party certification is an important means of ensuring the accuracy of the enterprises' emission data, and is also a focus of investors and other users of the data. 16% of the responding enterprises certified their Scope 1 emissions data, including three using third-party certification and one using limited certification. There are also 16% of the enterprises having certified their Scope 2 emission data with three using third-party certification and one using limited certification. Much fewer companies certified their Scope 3 data, one using third-party certification and one using limited certification, together accounting for 12% of the responding companies. In general, only China Mobile and Lenovo from the 25 responding companies certified their Scope 1, Scope 2 and Scope 3 data, and the disclosure of these two companies is also relatively detailed in other aspects.

Emissions Performance

Scope 1 and Scope 2 Emissions

In general, reduction in total quantity of emissions and emissions intensity is the major trend. 'Others' are those enterprises with no data available or not able to compare as first time to measure. There are more enterprises disclosing the change of absolute emissions than those disclosing the change of emissions intensity. Because some companies disclosed absolute emission while

Figure 2.12 The amount of companies who have disclosed emission performance

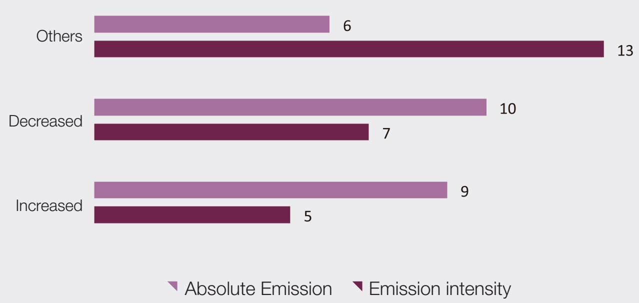
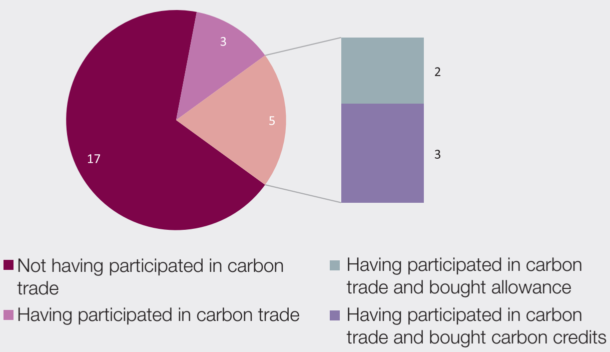


Figure 2.13 Emission Trading Participation



did not disclose the emission intensity. On the other hand, some companies' business scale has descended compared with last year, which resulted in a decrease in total emissions, but an increase in emission intensity.

Scope 3 Emissions

Four enterprises have disclosed emissions in Scope 3, two of which had more emissions in all subdivided categories than the previous year, attributed to an increase in personnel or expansion of the business. The results of the other two are mixed. Increase is mainly caused by the enlargement of business volume or the development of new business, as well as the methodology or parameter changes in calculation. Meanwhile, the reasons for decrease includes measures to reduce emissions such as increasing the number of conference calls, requiring suppliers to reduce emissions and increasing waste recovery. It can also be attributed to the actual operating conditions of the enterprise including changes in product structure and staff.

Communication with Suppliers

Seven companies have begun to take action, among which four require suppliers to participate in strategies and regulations in response to climate change, while the other three encourage suppliers to actively participate. Mandatory requirements are featured with a series of stringent requirements and assessment toward suppliers. The data disclosed by those responding companies with such stipulations is comprehensive and detailed. In contrast, those without enforceable requirements meet the bottleneck that suppliers are reluctant to provide relevant data. Therefore, it is crucial that companies develop their own requirements and standards.

Emission Trading

Eight of the 25 responding companies are reported to have participated in China's carbon emissions trading scheme to varying degrees, among which two have bought certain amount of quotas while three have bought carbon credits based on projects. The carbon quota bought by the 2 enterprises is hydropower from VCS and CDM, all for self-imposed emissions reduction. All eight enterprises participating in carbon trading are mandatory emission-controlled enterprises from the seven pilot provinces or cities. From the type of carbon credits purchased, companies have not been genuinely involved into the Chinese carbon emissions trading market.

The environmental compliance analysis is based on the Institute of Public & Environmental Affairs environmental regulatory database.

In consideration of the accuracy of business information, 305 listed companies from Shanghai Stock Exchange, Shenzhen Stock Exchange and Hong Kong Stock Exchange in China have been selected among CDP China All sample. Their environmental regulatory records until December 31 2016, together with their subsidiaries', have been summed up based on the Institute of Public & Environmental Affairs environmental regulatory database.

The distribution of environmental regulatory records of listed companies in the scope of subject China All is shown below.

Figure 2.14 The amount of environmental regulatory records in each industry in 2016[8]

(Note: Records with heavy penalty include general fine, continuous punishment on a daily basis, supervision of rectification with deadline, administrative detention and shutting down for remediation. Things are the same for below.)

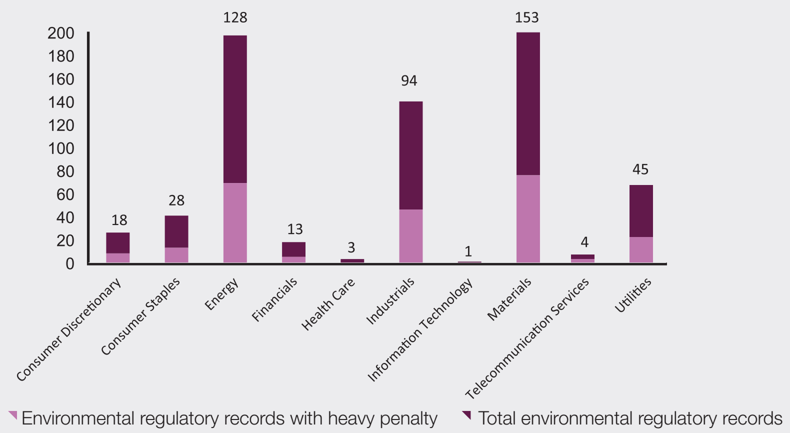
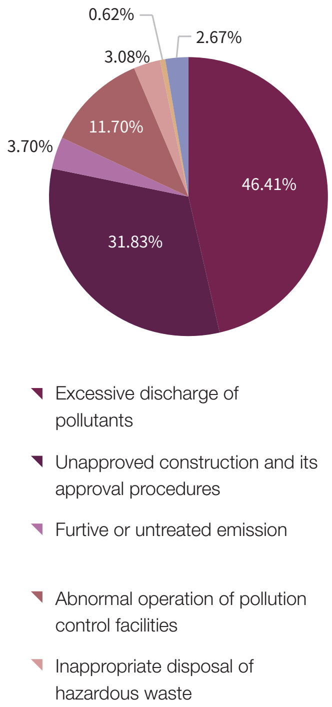


Figure 2.15 Types of environmental violations in 2016



Environmental violation is serious in materials and energy industries. The frequency of pollutants' exceeding the standard in materials industry is high, especially in steel and construction materials such as cement industries. Meanwhile a subsidiary of an energy enterprise has been continuously fined on a daily basis, whose maximum amount of fines is beyond 5 million CNY. The situation is not satisfactory in industrials, where excessive pollutants are not rare. Some companies have been fined for over 1 million yuan for emitting waste waters into the sea without sewage treatment, the person in charge subject to administrative detention.

Since the updated Environmental Protection Law was issued on January 1st 2015, the intensity of environmental law enforcement has significantly increased. According to Ministry of Environmental Protection, both the number of cases investigated and the amount of the fine of 2016 are the largest compared to history. In the year of 2016, 137.8 thousand cases of environmental violation have been investigated, which produces 124.7 thousand of penalty decisions and 6.633 billion of fines, showing a respective ballooning of 34%, 28% and 56%. The environmental protection departments will be increasingly strict so that the cost of violation for enterprises is aggrandized.

The distribution of each sort of environmental violations in the scope of subject China All is shown on the left.

In recent years, Chinese government has paid more attention to environmental regulation, in either frequency or intensity. The introduction of a series of standards for waste water and waste gas indicates that reasonable pollution discharge is not only the focus of regulatory inspection but also the main challenge facing enterprises. As is shown, excessive discharge is a major violation, which takes up 46% of the whole. 32 percent of the violations are the problem of unapproved construction and the approval procedures. Moreover, the relatively high proportion of abnormal operation of pollution control facillites, which reach 12%, reflects challenges in the operation and management of environmental facilities.

8. Based on the database of IPE.
9. Based on the database of IPE.

Picking up the pace: Tracking corporate action on climate change

CDP's second stock-take of the corporate response to the Paris Agreement finds companies increasingly taking the steps needed to prepare for the low-carbon transition.

The Paris Agreement has provided an unmistakable signal that the transition to a low-carbon global economy is firmly underway. It has given impetus to those companies that had already begun addressing their climate impacts, and has led many others to begin planning in earnest.

In this, CDP's second assessment of the corporate response to Paris, we find growing action by companies to decarbonize their businesses.

More leading companies are embedding low-carbon goals in their long-term business plans and are setting targets aligned with climate science. These targets are driven from the very top of organizations, as climate change becomes a mainstream boardroom topic, while the low-carbon transition is driving innovation and encouraging companies to develop new tools to deliver change.

Current targets take sample companies 31% of the way to being consistent with keeping global warming below 2 degrees, up from 25% in 2016. Positive momentum, however, many companies are yet to publicly respond at all to the threat posed by climate change.

Tracking progress on corporate climate action

CDP provides the essential first step for the business response to environmental challenges. It operates the leading global platform to measure environmental disclosure, insight and action, based on corporate information requested on behalf of more than 800 investors, responsible for assets of over US$100 trillion. In total, more than 6,300 companies disclose environmental data through CDP.

Last year, CDP selected a global sample of 1,839 companies to track the corporate response to the Paris Agreement. This sample is representative of the global economy, although it is weighted towards higher emitters and bigger companies. Each year to 2020, we will analyze the disclosures from this 'High impact' sample, to assess the progress they are making towards the low-carbon transition.

This year, 1,073 companies from the sample responded to the request for climate disclosure from CDP, representing 12% of total global greenhouse gas emissions (GHGs), and 47% of global market capitalization.

Figure 3.1 2017 High impact sample disclosure rate

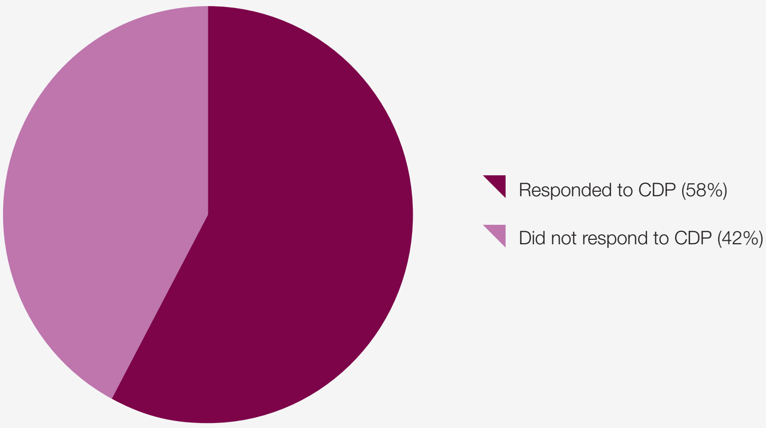
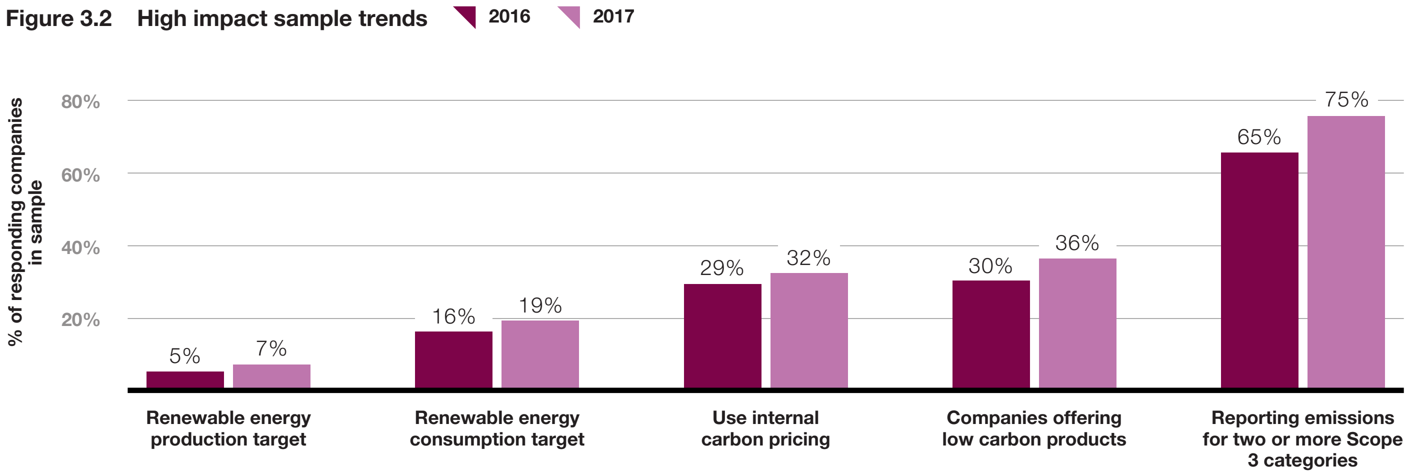


Figure 3.2 High impact sample trends



More ambitious targets

Spurred by the Paris Agreement, more companies are setting emissions reduction targets, and these targets are increasingly long-term. Within the High impactample, 89% of responding companies reported emissions reduction targets in 2017, up from 85% last year. More than two-thirds of those are setting targets to at least 2020 and a fifth are mapping out sustainability actions to 2030 and beyond, up from 55% and 14%, respectively, last year.

The number of companies in the sample that have committed to the **Science Based Targets** initiative (meaning their target is, or will be, in line with the level of decarbonisation required to keep global temperature increase below 2 degrees Celsius) has increased by 61% since 2016, from 94 to **151** companies (making up **14%** of the overall sample, compared to 9% last year). An additional 30% – 317 companies – plan to commit to an SBT within two years. These targets provide frameworks within which companies can plan for the reductions needed to meet the goals of the Paris Agreement.

Adopting such a target, as Anglo-Dutch consumer goods giant **Unilever Plc** did in 2016, has helped provide the context within which its longer-term targets are set, stating that "having a Science Based Target gives us all a common framework to work towards emissions reductions in line with the 2-degree scenario."

To deliver against their targets, companies are increasingly turning to clean energy, cutting emissions while simultaneously increasing their energy security and reducing their exposure to fluctuating energy prices. Almost a fifth (19%) of respondents have set a **renewable energy consumption target**, while 7% have set a **renewable energy production target**.

Akzo Nobel N.V. has committed to source 100% of its energy from renewables by 2050, a pledge that not only will help the company deliver its emissions reduction targets, but also create new low-carbon business lines. "People are starting to think about new business models that are possible when we have access to large volumes of renewable energy," says André Veneman, the Dutch chemicals giant's head of sustainability.

Climate change in the boardroom and beyond

Without doubt, climate change is now an issue at the very top of corporate decision-making: 97% of responding companies within our sample report that **climate change is integrated into their business strategy**. Almost all respondents (98%) report that responsibility for climate change rests with the board, a board-level individual, or a committee appointed by the board.

Crucially, companies are engaging with key stakeholders: policymakers, suppliers and customers. Almost all (96%) respondents **engage with policymakers** on climate issues to encourage mitigation or adaptation (a 10% increase from 2016). Three quarters report emissions data from two or more categories of scope 3 emissions, that is, emissions produced by suppliers or customers.

For example, **BT Plc.** has set a target for reducing emissions in its supply chain to 29% below 2016/17 levels by 2030. Not all suppliers consider climate change a priority, but those that engage with BT on the issue are likely to win more business from the UK telecoms firm, as well as put themselves in a strong position to respond to similar requests from other customers, says BT's head of sustainable business policy Gabrielle Ginér.

Embracing the tools for change

The High impact stock-take shows that the transition to a low-carbon economy is driving innovation as companies develop and embrace new tools for change.

97% of companies report active **emissions reduction initiatives** in the reporting year, up from 92% in 2016. Three-quarters of companies now report that their **products and services** directly enable third parties to avoid GHG emissions, up from 64% in 2016.

For example, Swedish construction group **Skanska AB** is developing and constructing buildings and infrastructure that enable their users to reduce and avoid GHG emissions, in both construction and operation. It built Solallén, Sweden's first zero-energy neighbourhood, which generates more energy than it uses, saving both carbon and energy costs.

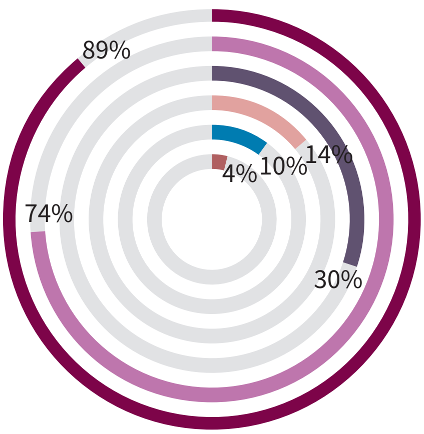
As documented in a recent CDP report, **internal carbon pricing** has emerged as an important mechanism to help companies manage risks and capitalize on emerging opportunities; in the last year, the number of companies using internal carbon pricing has increased from 29% to 32% of the sample. A further 18% plan to implement a **price of carbon** in the next two years.

Akzo Nobel has set two carbon prices, a higher one to inform its environmental profit and loss calculation, and another set at the level needed to drive the global transition to zero-net emissions. That latter €50/tonne price is used to assess the company's investment decisions – and has forced its planners back to rethink proposed carbon-intensive investments.

To be effective, internal carbon pricing should operate along four dimensions:

- Width, encompassing as wide emissions coverage as possible;
- Height, providing a sufficiently high carbon price to drive the necessary action;
- Depth, relating to the influence carbon pricing has on the business decisions of the company and its value chain; and
- Time, ensuring that the carbon pricing approach evolves over time.

Figure 3.3 High impact sample - target setting



- Has an emissions reduction target (89%)
- Target is relevant*(74%)
- Ambition to set Science Based Target within two years (30%)
- Self-proclaimed that target is 'science-based' (14%)
- Publicly committed to setting a science based target (10%)
- Target approved by Science Based Target Initiative (4%)

* target covers at least 80% of company emissions

Leveraging collaboration

Companies are increasingly collaborating with each other, and with various levels of government, to develop new climate-focused business models.

Nissan Motor Company Ltd., for example, is working with competitors to develop fast electric charging infrastructure, and with municipalities to conduct wide-scale trials of electric vehicles. "The auto industry must go beyond producing and selling zero-emission vehicles to help put the necessary infrastructure in place to ensure that the vehicles are economical to use. No company can achieve this on its own," says its chief sustainability officer Hitoshi Kawaguchi.

Municipalities, too, are pioneering ambitious collaboration projects to tap technology that can help reduce emissions. **San Diego's Smart City** project is bringing together technology and telecoms giants, academic researchers, and its local cleantech sector. "When you're creating a market as complex as smart cities, you have to accept that no-one can do this on their own; you have to form an ecosystem and alliances," says Austin Ashe, general manager of the intelligent cities unit of **GE** subsidiary **Current**, which is a project partner.

The importance of corporate disclosure

Disclosure of environmental risks and impacts is a critical first step for insight and action on climate change. There has been a steady increase in the **completeness** of submissions from disclosing companies. Nine out of ten (89%) of submissions were in the most 'complete' quartile this year, compared with 31% in 2010, suggesting that companies are increasingly recognizing the value of comprehensive disclosure through CDP.

A growing number of companies also recognize the importance of **verifying the accuracy of their disclosures**. Last year, less than half (49%) of responding companies in the sample reported that at least 70% of their direct **Scope 1** emissions data was independently verified; this figure jumped to more than two thirds of companies (68%) in 2017. Respondents reporting that at least 70% of their data relating to **Scope 2** emissions (associated with electricity generated from third-parties) was independently verified also rose, to 64% from 46%.

More to be done

This progress notwithstanding, a large number of companies still ignore the request from their investors for financially material climate data. Just over 40% of companies in our High impact sample failed to disclose.

Similarly, while the number of companies with science based targets is growing, the majority of responding companies have yet to commit to emissions reduction goals that are equal to the climate threat we face. Setting long-term targets can help ensure that corporate strategy is aligned with decarbonization, and can drive the innovation needed to transform the global economy away from fossil fuels.

Keeping score

In addition to this year's analysis of the High Impact sample, CDP continues to assess and score the companies that disclose through our platform. The scores show increase corporate transparency around climate, water and forests, with a third more companies reporting now than in 2013.

The CDP A List 2017 recognizes those businesses that are leading in terms of environmental performance, with over 150 companies acknowledged as pioneers. Of these, 54 have signed up to the Science Based Targets initiative, and two – **L'Oreal** and **Unilever** – have achieved A's across all three areas of environmental disclosure.

To view the full 2017 analysis: Picking up the pace: Tracking corporate action on climate change, please visit **www.cdp.net**

The value of forests:
unlocking opportunities by stopping deforestation

Mitigating deforestation makes business sense, and is vital for the transition to a low-carbon economy. China imports 60% of global soy trade, 14.9% of timber, 12% of palm oil, and 10% of beef, and can play a significant role in halting deforestation and mitigating dangerous climate change. Primarily driven by the Paris Agreement, political momentum is on the rise globally, to both protect natural capital and to stop commodity-driven deforestation and forest degradation. Halting tropical deforestation can provide a staggering 30% of the required mitigation of greenhouse gas emissions, to keep global average temperature well below 2˚C above pre-industrial levels. More than 60 governments have signed the New York Declaration on Forests, committing to support the private sector in removing deforestation from their supply chains by 2020. There is an increasing emphasis on company alignment with the SDGs, and for companies handling forest-risk commodities.

Companies have found that by implementing these five steps and removing deforestation from their supply chains, they can capitalise on a multitude of business opportunities, including increased brand value and cost savings.

Supplier disclosure provides the building blocks for organisations to manage and reduce their exposure to deforestation risk at scale. Now, for the first time, CDP is offering companies the opportunity to gather supplier information in a standardised and comparable format on the risks of producing or sourcing timber production, palm oil, soy and cattle products. If you are interested in learning more, visit: https://www.cdp.net/en/supply-chain.

CDP, building on its critical climate change work, recently launched its forests program in China. In 2017, 41 companies, whose business activities are dependent on forests risk commodities were asked to report on their efforts to better assess, measure and mitigate risks and capitalise on opportunities. Only three responded. We look forward to continuing to build our forests program and to drive meaningful action to stop deforestation and its impacts in China.

10. http://www.worldatlas.com/articles/world-leaders-in-soya-soybean-production-by-country.html
11. http://www.worldsrichestcountries.com/ top-imported-timber-countries.html
12. http://atlas.media.mit.edu/en/profile/hs92/1511/
13. http://beef2live.com/story-world-beef-imports-ranking-countries-0-106900
14. https://www.eu ractiv.com/section/climate-environment/news/figueres-calls-for-eu-action-plan-on-imported-deforestation/

CDP recommends five actionable steps for companies looking to stop deforestation:

- Identify your exposure to deforestation risk through a robust risk assessment.
- Make a public commitment to remove commodity driven deforestation from global supply chains.
- Effectively implement your commitment through a series of specific, interim targets.
- Continue this implementation through certification, traceability and supply chain engagement.
- Strive for leadership and unlock the multitude of opportunities which accompanies removing commodity-driven deforestation.

The value of water:
linking business success and environmental impact

Water security underpins the success of businesses, economies, and climate change mitigation. As a changing climate continues to impact growth plans and bottom lines, the case for ambitious corporate action has never been clearer.

Pressure on water resources continues to build as China develops: the country is home to 20% of the global population, yet only has 7% of the global fresh water supply[15]. Up to 90% of China's electricity is reliant on water-intensive hydroelectric and thermoelectric power plants Business as usual could mean water supply falling short of demand in just 13 years[16]. Regulation is changing and companies must keep pace: the latest Five Year Plan targets a 23% reduction in water consumption per unit of GDP[17] and over RMB4 trillion (USD$610 billion) has been set aside for water infrastructure between 2011-2030[18].

To effectively manage these water risks and opportunities, companies and investors need measurement and transparency. CDP's water questionnaire provides a framework for companies to identify and manage water risk, capitalize on opportunities, and implement appropriate governance.

In 2016, two thirds of companies (66%) reporting to CDP on water identified opportunities for their business. For example, through the establishment of water-related sustainability goals, a Chinese company reduced its fresh water use, increased water recycling and reduced waste water discharge. It also enabled the implementation of a water risk management strategy throughout its supply chain and improved the effectiveness of communication to its external stakeholders.

Sustainable management of water resources is also vital for the transition to a low carbon economy. Many of the technologies that will help to drastically reduce emissions depend on a stable water supply, and conversely better water management can help reduce energy use and its associated emissions. In 2016, 53% of responding companies realized greenhouse gas emissions reductions as a direct result of improving their water management, including Founder PCB, a Chinese IT company who incorporated carbon emission reductions through better water management into their KPIs.

15. UN WATER Water and Energy Sustainability Available from: http://www.un.org/waterforlifedecade/pdf/01_2014_sustainability_eng.pdf
16. WRI WATER-ENERGY NEXUS: BUSINESS RISKS AND REWARDS Available from: http://www.wri.org/sites/default/files/Water-Energy_Nexus_Business_Risks_and_Rewards.pdf
17. REUTERS (2016) China vows to cap water consumption, crack down on polluters Available from: https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/000/613/original/china-water-report-2016-english.pdf?1470219862
17. REUTERS (2013) After China's multibillion dollar clean-up, water still unfit to drink Available from: http://www.reuters.com/ article/2013/02/20/us-china-pollution-water-idUSBRE91J19N20130220

There has never been a better time for companies to start the journey towards improved water management. Below are 5 steps a company can take to mitigate potential water risk, build resilience and become a better water steward:

- Disclose water-related information via CDP's annual questionnaire;
- Measure and monitor water withdrawals, discharge and consumption;
- Conduct a robust, company-wide water risk assessment covering direct operations and the supply chain;
- Set ambitious targets and goals that account for the local water context;
- Secure board-level engagement on water issues.

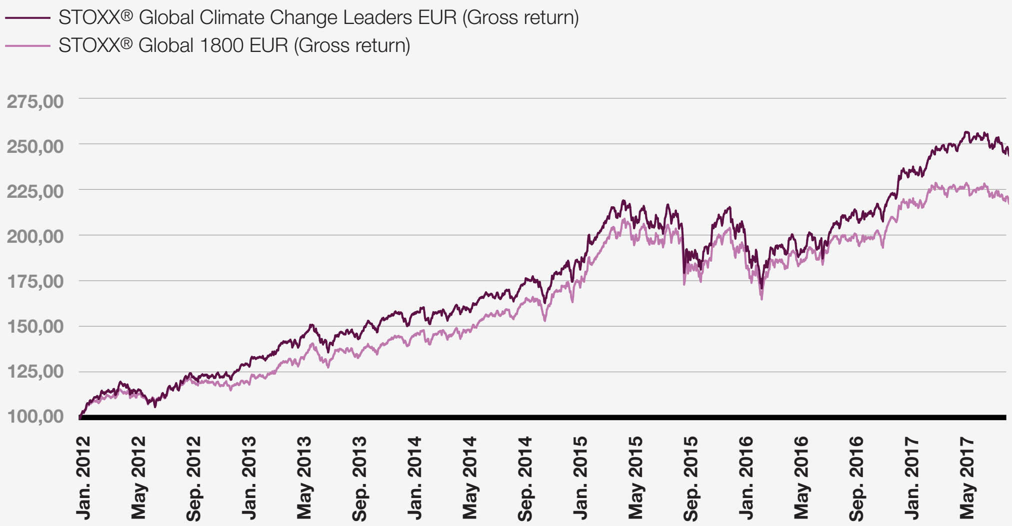
Investing in CDP's Climate Change Leaders made easy: CDP and STOXX® continue collaboration on Low Carbon Index Family

26%

outperformance
over past five years*

STOXX® Low Carbon Index family now expanded based on CDP's forward-looking scoring methodology.

From 19/12/2011 to 11/8/2017, The STOXX® Global Climate Change Leaders index outperforms the STOXX® Global 1800 index by 26%



Data from Dec. 19, 2011 to Aug. 11, 2017

The Climate A List comprises a strong set of companies who lead on climate change mitigation today and in the future. It is exciting to see the rising investor interest in the STOXX® Global Climate Change Leaders Index.

Willem John Keogh,
Senior Product Development Manager, Director, STOXX® Ltd.

Building on last year's successful collaboration with STOXX® and South Pole Group (now ISS Ethix Climate Solutions), this year CDP has again provided data and expertise for the continuation and expansion of the STOXX® Low Carbon index family.

As the first index to track CDP's Climate A List available to all market participants, the STOXX® Global Climate Change Leaders Index has made investing in CDP's Climate A List easier than ever before.

Being based on the CDP A List, this unique index includes carbon leaders who are publicly committed to reducing their carbon footprint[1], offering investors a fully transparent and tailored solution to address long-term climate risks, while participating in the sustainable growth of a low-carbon economy.

The index has outperformed a global benchmark by 26% over 5 years.

New generation of low carbon indices based on CDP data

This year, STOXX® has expanded its Low Carbon Index family by introducing the STOXX® Climate Impact and STOXX® Climate Awareness Indices. The new indices now include the first three levels of the CDP climate change scoring methodology: Leadership, Management and Awareness.

Investors are showing great interest: STOXX® has recently licensed one of its Global Climate Impact indices to the Varma Mutual Pension Insurance Company, the largest private investor in Finland.

CDP is looking forward to contributing to innovative solutions that can add real value for investors in the future.

For more information please contact:
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T +33 658 66 60 13

STOXX

1 The index is price weighted with a weight factor based on the free-float market cap multiplied by the corresponding Z-score carbon intensity factor of each constituent. Components with lower carbon intensities are overweighted, while those with higher carbon emission are underweighted.

* Compared to the STOXX Global 1800 Index in the period from 11/12/2011 to 11/08/2017.

Comparison analysis and lessons learned

The environmental disclosure practice of Chinese companies still needs to be improved. Based on the CDP database, we conducted a comparison analysis of company data reported through the 2017 CDP climate change questionnaire of companies in Mainland China, Japan, the UK and the USA.

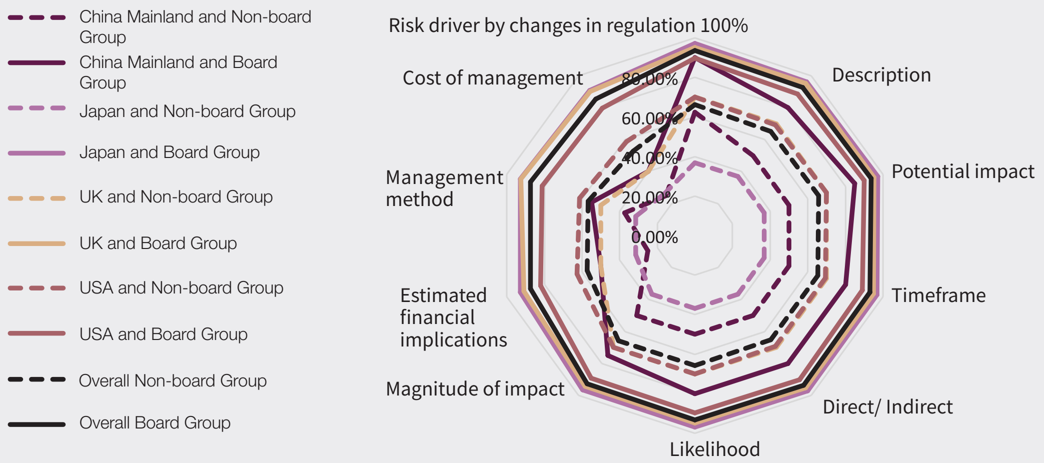
The key findings below can be used as a reference by Chinese companies looking to improve their environmental data disclosure:

- Having a senior executive directly responsible for climate change issues will remarkably improve the quality of environmental disclosure. Direct responsibility at the board level, is relevant to the better performance of the enterprise in terms of the depth and breadth of risk analysis and the overall disclosure of emissions data.

- Regarding disclosure of climate risk analysis, which greatly concerns investors, the disclosure rates of Japan, the United Kingdom, the United States are significantly higher than Chinese companies'. However, the disclosure rate of the quantitative 'Estimated financial implications' and 'Cost of management', the 'Management methods' requiring company specific information, was lower than other qualitative factors among the four regions.

- In the case of quantitative data disclosed by companies in Japan, the United Kingdom and the United States, more than 95% companies disclosed Scope 1 emissions, more than 50% had third party verification, and more than 85% disclosed their fuel consumption and electricity consumption. For Scope 3 emissions data, CDP encourages companies to either calculate this or explain when it is not relevant. Amongst the different categories of Scope 3, it can be seen that there was a higher disclosure rate in the categories with a more mature calculation methodology, and those categories where relevance is more easily established. Therefore, comprehensive calculation methodologies and guidelines are critical to improving the amount and quality of corporate disclosure of Scope 3 emissions.

Figure 4.1 Disclosure of risk elements at different levels of direct responsibility for each region



As shown in Figure 4.1, the dotted line represents the disclosure rate of risk factors of the companies without direct responsibility at the board level (hereinafter referred to as non-board group). The solid line represents the disclosure rate of risk factors of the companies with direct responsibility at the board level (hereinafter referred to as board group). It can be seen that the disclosure rate of the board group is obviously higher than that of the non-board group in all risk elements. Therefore, we believe that to encourage or require the board level of companies to take direct responsibility for environmental or climate-related issues will effectively improving the companies' environmental disclosure.

Reimagining Disclosure

Tony Rooke, Director of Technical Reporting

Our 2017-2020 Tipping Point strategy[1] is to build on the momentum of the Paris Agreement and fulfil our mission to mainstream environmental stewardship and action into the economic system. We have been the catalyst for global disclosure over the past 15 years. We want to continue to drive the future of meaningful disclosure to help companies and investors better understand environmental risk and opportunities. This will accelerate the transition to a more sustainable economy and future.

We set up our Reimagining Disclosure initiative to work in consultation with you and our other key stakeholders to evolve our corporate questionnaires. Our goals of this initiative are to:

- Provide investors and stakeholders with increased relevant information now and into the future; and
- Optimise the reporting burden for companies.

To deliver this, we have focussed development of our questionnaires on the high impact areas through the following three pillars.

1. **Introduction of sector-specific questionnaires.** We have listened to the feedback from both companies and investors that we need to focus on sector-specific disclosures.
2. **Integration of the recommendations of the Task-Force on Climate-Related Financial Disclosures (TCFD).** These recommendations align closely with existing CDP disclosures and will be incorporated principally into our climate change questionnaire, with water- and forest-specific TCFD recommendations also included in these respective questionnaires.
3. **Continued evolution into more forward-looking metrics and reporting harmonisation.** We are building upon forward-looking metrics in carbon pricing and science based targets to include reporting on scenario analyses, carbon price corridors, and transition pathway planning as key indicators of where companies are and the progress they are making.

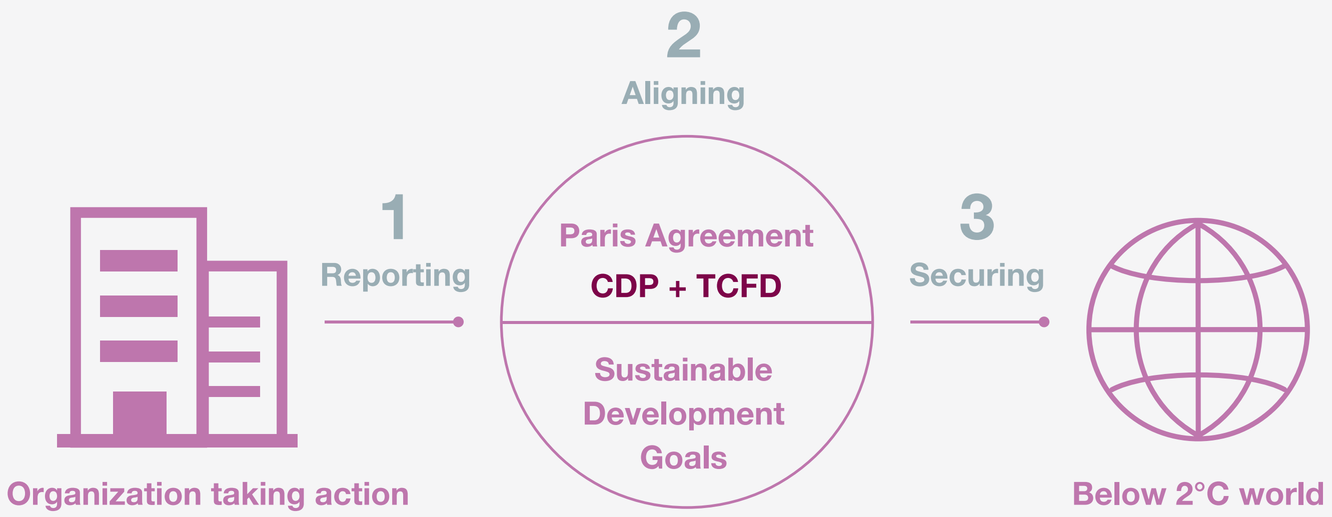
What's new for 2018?

We are launching 18 new sector-specific questionnaires across our three themes in 2018, with all other sectors answering the "general" questionnaire for the relevant theme(s):

Cluster	Climate change	Forests	Water
General	All other companies without sector specific questionnaires	All other companies without sector specific questionnaires	All other companies without sector specific questionnaires
Energy	Oil & gas Coal Electric utilities		Oil & gas Electric utilities
Transport	Vehicle manufacturers Service providers		
Materials	Cement Steel Metals & mining Chemicals		Metals & mining Chemicals
Agriculture	Food, beverage & tobacco Agricultural commodities Paper & forestry	Paper & forestry	Food, beverage & tobacco

1. https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/002/292/original/CDP-Strategic-Plan.pdf?1501603727

How it all fits together:



For climate change, in addition to the inclusion of sector-specific metrics, the majority of changes introduced align both structure and flow with the recommendations of the TCFD. This means an increased focus on financial impacts, and the inclusion of scenario analysis and transition planning. This is designed to help companies in preparing to include TCFD recommended disclosures in their mainstream reporting and accounts, and to provide a place for companies to reference from their reports in providing more detail.

For water, the structure and flow has been retained to maintain alignment with the CEO water mandate.

Some questions have had wording and options changed following consultation (e.g. move from supply chain to value chain), and to align with TCFD recommendations.

For forests, the main changes have been to include disclosures from our 2016-17 supply chain pilot, consolidation of questions, and better alignment with climate change and water questionnaires. We have also introduced differentiation between sustainable forestry management for paper & forestry companies, land use change, and differentiation between afforestation, reforestation and restoration projects.

Outreach this year

We have reached over 2000 companies and other stakeholders on our reimagining plans this year through webinars, conferences, meetings, industry groups, and two consultations this year:

1. Over 170 organisations responded to our first consultation on sector-specific disclosures and evolution;

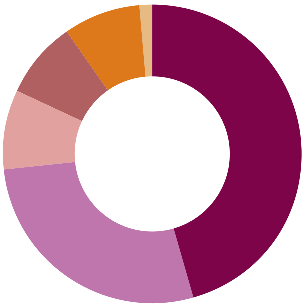
2. We published 6 months earlier than usual our draft sector-specific questionnaires for feedback from organisations in our second consultation.

The feedback was processed to look for common responses, agreement/disagreement between stakeholders, and then assessed to see if the feedback would help add to achieving our goals for reimagining disclosure. The final questionnaires will be published in December as a result of this feedback and our own development work.

The consultation is now closed but the results, supporting documents and draft sector-specific questionnaires can still be viewed at **https://www.cdp.net/en/companies/consultation**

Appendix I
Investor signatories and members

1. Investor signatories by location



Europe
- 366 = 46%

North America
- 224 = 28%

Latin America & Caribbean
- 70 = 9%

Asia
- 67 = 8%

Australia and NZ
- 65 = 8%

Africa
- 11 = 1%

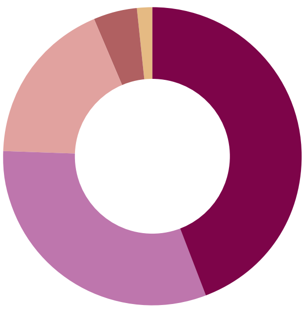
CDP's investor program - backed in 2017 by 803 institutional investor signatories representing in excess of US$100 trillion in assets - works with investors to understand their data and analysis requirements and offers tools and solutions to help them.

Our global data from companies and cities in response to climate change, water insecurity and deforestation and our award-winning investor research series is driving investor decision-making. Our analysis helps investors understand the risks they run in their portfolios. Our insights shape engagement and add value not only in financial returns but by building a more sustainable future.

For more information about the CDP investor program, including the benefits of becoming a signatory or member please visit: http://bit.ly/2vvsrhp

To view the full list of investor signatories please visit: http://bit.ly/2uW3336

2. Investor signatories by type



Asset Managers
- 355 = 44%

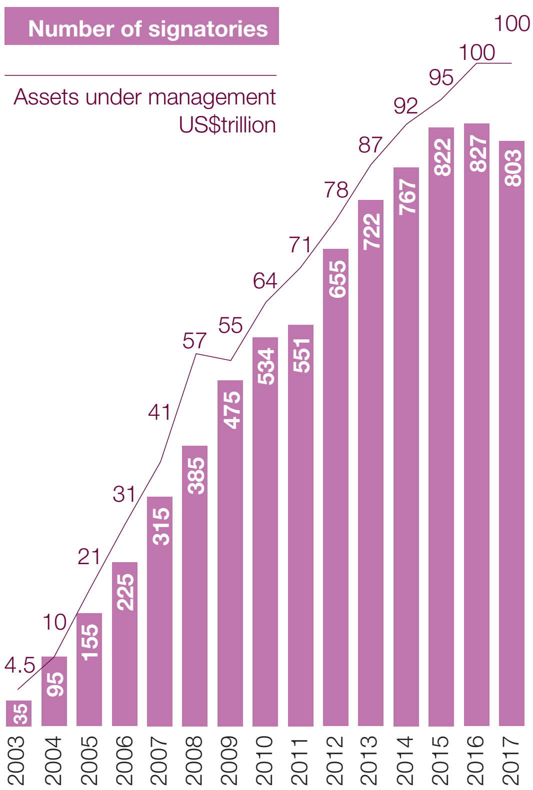
Asset Owners
- 253 = 32%

Banks
- 144 = 18%

Insurance
- 38 = 5%

Others
- 13 = 2%

3. Investor signatories over time



Investor members
ACTIAM
Aegon
Allianz Global Investors
ATP Group
Aviva Investors
Aviva plc
AXA Group
Bank of America
Bendigo and Adelaide Bank
BlackRock
Boston Common Asset Management LLC
BP Investment Management Limited
British Columbia Investment Management Corporation
California Public Employees' Retirement System
California State Teachers' Retirement System
Calvert Investment Management, Inc
Capricorn Investment Group
Catholic Super
CCLA Investment Management Ltd
ClearBridge Investments
Environment Agency Pension fund
Ethos Foundation
Etica SGR
Eurizon Capital SGR S.p.A.
Fundação Chesf de Assistência e Seguridade Social
Fundação de Assistência e Previdência Social do BNDES
FUNDAÇÃO ITAUBANCO
Generation Investment Management
Goldman Sachs Asset Management
Henderson Global Investors
Hermes Fund Managers
HSBC Global Asset Management
Instituto Infraero de Seguridade Social
KLP
Legal and General Investment Management
Legg Mason, Inc.
London Pensions Fund Authority
Morgan Stanley
National Australia Bank
Neuberger Berman
New York State Common Retirement Fund
Nordea Investment Management
Norges Bank Investment Management
ÖKOWORLD LUX S.A.
Overlook Investments Limited
PFA Pension
PREVI Caixa de Previdência dos Funcionários do Banco do Brasil
Rathbone Greenbank Investments
RBC Global Asset Management
Real Grandeza Fundação de Previdência e Assistência Social
Robeco
RobecoSAM AG
Rockefeller Asset Management
Sampension KP Livsforsikring A/S
Schroders
Skandinaviska Enskilda Banken AB
Sompo Holdings, Inc
Sustainable Insight Capital Management
TIAA
Terra Alpha Investments LLC
The Sustainability Group
The Wellcome Trust
UBS
University of California
University of Toronto Asset Management Corporation (UTAM)
Whitley Asset Management

A List
2017

Appendix II The CDP A List 2017

The Climate A List was established in 2011 and introduced for water and forests in 2015 and 2016 respectively. Due to the more established nature of CDP's climate program it has proportionately more responding companies and therefore more companies achieve an A score in climate. A significantly smaller pool of organizations are asked to respond on forests and water. Where relevant, we encourage companies to disclose to all programs to achieve double or triple A status.

Company	Country	Climate	Water	Forests			
				Cattle Products	Palm Oil	Soy	Timber
Consumer Discretionary							
ARÇELİK A.Ş.	Turkey	A	A				
BMW	Germany	A	A				
Brembo SpA	Italy	A					
Bridgestone Corporation	Japan		A				
Burberry Group	United Kingdom		A				
Caesars Entertainment	USA		A				
Electrolux	Sweden	A					
Fiat Chrysler Automobiles NV	Italy		A				
Ford Motor Company	USA		A				
General Motors Company	USA		A				
Kering	France	A					
Las Vegas Sands Corporation	USA	A					
LG Electronics	South Korea	A					
Nissan Motor Co., Ltd.	Japan		A				
Sky plc	United Kingdom	A					
Sony Corporation	Japan	A	A				
Sumitomo Forestry Co., Ltd.	Japan	A					
Toyota Motor Corporation	Japan	A	A				
Volkswagen AG	Germany		A				
Woolworths Holdings Ltd	South Africa		A				
Consumer Staples							
Altria Group, Inc.	USA		A				
Anheuser Busch InBev	Belgium		A				
Associated British Foods	United Kingdom		A				
Coca-Cola European Partners	United Kingdom	A	A				
Coca-Cola HBC AG	Switzerland	A	A				
Colgate Palmolive Company	USA	A	A				
Conagra Brands Inc	USA		A				
Danone	France		A				
Diageo Plc	United Kingdom	A	A				
Farmer Brothers	USA	A					

Key:

The company was not requested to respond to this program as their business activities are not deemed material for that theme or the company did not meet the sample setting criteria.

Company	Country	Climate	Water	Forests			
				Cattle Products	Palm Oil	Soy	Timber
J Sainsbury Plc	United Kingdom	A					
Kellogg Company	USA		A				
Kirin Holdings Co Ltd	Japan	A	A				
L'Oréal	France	A	A		A	A	
Nestlé	Switzerland	A					
Philip Morris International	USA	A	A				
SCA	Sweden		A				A
Suntory Beverage & Food	Japan		A				
Tongaat Hulett Ltd	South Africa		A				
Unilever plc	United Kingdom	A	A	A	A	A	A
Energy							
Galp Energia SA	Portugal	A	A				
PTT Exploration & Production Public Company Limited	Thailand		A				
Financials							
Allied Irish Banks plc	Ireland	A					
Bank of America	USA	A					
Bankia	Spain	A					
Basler Kantonalbank	Switzerland	A					
Berner Kantonalbank AG BEKB	Switzerland	A					
BNY Mellon	USA	A					
CaixaBank	Spain	A					
DNB ASA	Norway	A					
Goldman Sachs Group Inc.	USA	A					
ING Group	Netherlands	A					
Intesa Sanpaolo S.p.A	Italy	A					
Lloyds Banking Group	United Kingdom	A					
MAPFRE	Spain	A					
MS&AD Insurance Group Holdings, Inc.	Japan	A					
Nedbank Limited	South Africa	A					
Shinhan Financial Group	South Korea	A					

Company	Country	Climate	Water	Forests: Cattle Products	Forests: Palm Oil	Forests: Soy	Forests: Timber
Sompo Holdings, Inc	Japan	A					
T.GARANTİ BANKASI A.Ş.	Turkey		A				
UBS	Switzerland	A					
Van Lanschot NV	Netherlands	A					
Health Care							
AstraZeneca	United Kingdom	A	A				
Bayer AG	Germany		A				
Biogen Inc.	USA	A	A				
Essilor International	France		A				
GlaxoSmithKline	United Kingdom		A				
Lundbeck A/S	Denmark	A					
Mediclinic International	South Africa		A				
Novartis	Switzerland		A				
Novo Nordisk A/S	Denmark	A					
Roche Holding AG	Switzerland		A				
SANOFI	France		A				
Industrials							
Brambles	Australia						A
Canadian National Railway Company	Canada	A					
CNH Industrial NV	United Kingdom		A				
CTT - Correios de Portugal SA	Portugal	A					
Deutsche Bahn AG	Germany	A					
FERROVIAL	Spain	A					
Grupo Logista	Spain	A					
Hyundai E&C	South Korea	A					
Hyundai Glovis Co Ltd	South Korea	A					
INDUS Holding AG	Germany	A					
International Consolidated Airlines Group	United Kingdom	A					
Kawasaki Kisen Kaisha, Ltd.	Japan	A					
Kingspan Group PLC	Ireland	A					
Komatsu Ltd.	Japan	A	A				
Kubota Corporation	Japan		A				

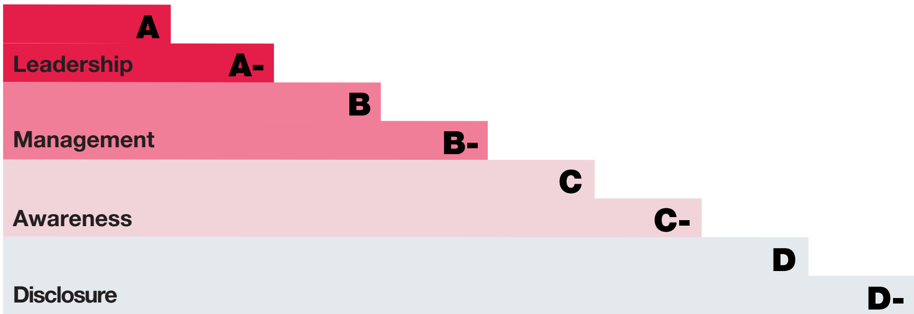
Company	Country	Climate	Water	Forests			
				Cattle Products	Palm Oil	Soy	Timber
Lockheed Martin Corporation	USA	A					
Mitsubishi Electric Corporation	Japan	A	A				
Nabtesco Corporation	Japan	A					
Obrascon Huarte Lain (OHL)	Spain	A	A				
Österreichische Post AG	Austria	A					
Owens Corning	USA	A	A				
Philips Lighting	Netherlands	A					
Royal Philips	Netherlands	A					
Samsung C&T	South Korea	A					
Samsung Engineering	South Korea	A					
Schneider Electric	France	A					
Waste Management, Inc.	USA	A					
Information Technology							
Adobe Systems, Inc.	USA	A					
Alphabet	USA	A					
Apple Inc.	USA	A					
Atos SE	France	A					
Cisco Systems, Inc.	USA	A					
FUJIFILM Holdings	Japan		A				
Fujitsu Ltd.	Japan	A	A				
Hewlett Packard Enterprise Company	USA	A					
HP Inc	USA	A	A				
Infosys Limited	India	A					
Intel Corporation	USA		A				
Konica Minolta, Inc.	Japan	A					
LG Display	South Korea	A					
LG Innotek	South Korea		A				
Microsoft Corporation	USA	A					
Oracle Corporation	USA	A					
Ricoh Co., Ltd.	Japan	A					
Samsung Electro-Mechanics Co., Ltd.	South Korea	A					
Samsung Electronics	South Korea	A	A				
Sopra Steria Group	France	A					
STMicroelectronics International NV	Switzerland		A				

Company	Country	Climate	Water	Forests			
				Cattle Products	Palm Oil	Soy	Timber
Materials							
African Rainbow Minerals	South Africa		A				
BASF SE	Germany		A				
Braskem S/A	Brazil	A	A				
Ecolab Inc.	USA		A				
FIRMENICH SA	Switzerland		A				
Givaudan SA	Switzerland	A					
Harmony Gold Mining Co Ltd	South Africa	A	A				
Koninklijke DSM	Netherlands	A	A				
Kumba Iron Ore	South Africa		A				
LANXESS AG	Germany	A					
Metsä Board	Finland	A	A				
Mitsubishi Chemical Holdings Corporation	Japan		A				
Mondi PLC	United Kingdom		A				
OMNIA HOLDINGS LTD	South Africa		A				
Royal Bafokeng Platinum Ltd	South Africa		A				
Symrise AG	Germany	A	A				
TETRA PAK	Sweden						A
The Mosaic Company	USA	A					
thyssenkrupp AG	Germany	A					
UPM-Kymmene Corporation	Finland		A				A
Real Estate							
Capital & Counties Properties	United Kingdom	A					
Entra Asa	Norway	A					
Klepierre	France	A					
Landsec	United Kingdom	A					
Stockland	Australia	A					

Company	Country	Climate	Water	Forests: Cattle Products	Forests: Palm Oil	Forests: Soy	Forests: Timber
Telecommunication Services							
BT Group	United Kingdom	A					
China Mobile	China	A					
Deutsche Telekom AG	Germany	A					
Elisa Oyj	Finland	A					
Koninklijke KPN NV (Royal KPN)	Netherlands	A					
KT Corporation	South Korea	A					
Proximus	Belgium	A					
Swisscom	Switzerland	A					
Telefonica	Spain	A					
Utilities							
ACCIONA S.A.	Spain	A	A				
Centrica	United Kingdom		A				
Endesa	Spain		A				
ENEL SpA	Italy	A					
Iren SpA	Italy	A					
National Grid PLC	United Kingdom	A					
NRG Energy Inc	USA		A				
Red Eléctrica S.A.U	Spain	A					
Snam S.P.A	Italy	A					
Suez	France	A					

Appendix III
Scoring: a measure of a company's environmental performance

Scoring at CDP is mission-driven, focusing on CDP's principles and values for a sustainable economy and as such scores are a tool to communicate the progress companies have made in addressing environmental issues, and highlighting where risks may be unmanaged. CDP has developed an intuitive approach to presenting scores that highlight a company's progress towards leadership using a 4 step approach: **Disclosure** which measures the completeness of the company's response; **Awareness** which intends to measure the extent to which the company has assessed environmental issues, risks and impacts in relation to its business; **Management** which is a measure of the extent to which the company has implemented actions, policies and strategies to address environmental issues; and **Leadership** which looks for particular steps a company has taken which represent best practice in the field of environmental management.



Leadership	80-100%	A
	0-79%	A-
Management	45-79%	B
	0-44%	B-
Awareness	45-79%	C
	0-44%	C-
Disclosure	45-79%	D
	0-44%	D-

F = Failure to provide sufficient information to CDP to be evaluated for this purpose[1]

The scoring methodology clearly outlines how many points are allocated for each question and at the end of scoring, the number of points a company has been awarded per level is divided by the maximum number that could have been awarded. The fraction is then converted to a percentage by multiplying by 100. A minimum score of 80%[2], and/or the presence of a minimum number of indicators on one level will be required in order to be assessed on the next level. If the minimum score threshold is not achieved, the company will not be scored on the next level.

The final letter grade is awarded based on the score obtained in the highest achieved level. For example, Company XYZ achieved 88% in Disclosure level, 82% in Awareness and 65% in Management will receive a B. If a company obtains less than 44% in its highest achieved level (with the exception of Leadership), its letter score will have a minus. For example, Company 123 achieved 81% in Disclosure level and 42% in Awareness level resulting in a C-. However, a company must achieve over 80% in Leadership to be eligible for an A and thus be part of the A List. Furthermore, in order for a company to be eligible for inclusion in the A List it must not have reported any significant exclusions in emissions and have at least 70% of its scope 1 and scope 2 emissions verified by a third party verifier using one of the accepted verification standards as outlined in the scoring methodology.

Public scores are available in CDP reports, through Bloomberg terminals, Google Finance and Deutsche Boerse's website. CDP operates a strict conflict of interest policy with regards to scoring and this can be viewed at https://www.cdp.net/scoring-confict-of-interest

Future of Scoring

As part of its 'Reimagining Disclosure' initiative, CDP developed a series of sector-specific questionnaires integrating the recommendations by the Financial Stability Board's Task Force on Climate-related Financial Disclosure (TCFD) and stakeholder feedback collected via two rounds of consultations. Each sector questionnaire will have a corresponding sector-specific scoring methodology which will be released in the first quarter of 2018.

1 Not all companies requested to respond to CDP do so. Companies who are requested to disclose their data and fail to do so, or fail to provide sufficient information to CDP to be evaluated will receive an F. An F does not indicate a failure in environmental stewardship.

2 CDP's methodology aims to incentivize continuous improvements as reflected by the state of the market and the improvement of scientific knowledge around the environmental issues it evaluates. The methodology thus evolves over time and the weight of some questions might change or some previously unscored questions might start being scored. As part of these improvements for 2017 scoring, CDP has modified the thresholds from last year.

Appendix IV
List of Responding companies in China

Company	Sector
Bank of Communications	Financials
BOE Technology Group Co.,Ltd.	Information Technology
BYD	Consumer Discretionary
CHANGSHU LEAGUE CHEMICAL CO., LTD	Materials
China Agri-Industries Holdings Ltd	Consumer Staples
China Citic Bank	Financials
China Construction Bank	Financials
China Mobile	Telecommunication Services
China Petroleum & Chemical Corporation	Energy
China State Construction International Holdings Ltd	Industrials
China Telecom	Telecommunication Services
China Vanke	Real Estate
Huatai Securities	Financials
Industrial And Commercial Bank Of China Limited	Financials
Jiangxi Black Cat Carbon Black Co., Ltd.	Materials
Lenovo Group	Information Technology
Mindray Medical Intl Ltd-Adr	Health Care
Ming Fai International Holdings Limited	Materials
Oplink Communications, LLC	Information Technology
Shanghai Electric Group (H)	Industrials
SINOTRANS Limited	Industrials
Suzhou RAKEN Technology LTD.	Information Technology
TCL Corporation	Consumer Discretionary
Universal Global Technology(Shenzhen)Co.,Ltd.	Industrials
ZTE	Information Technology

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