

Carbon Disclosure Project Report 2008 India 200

On behalf of 385 investors with assets of \$57 trillion



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Foreword

Climate Change has emerged as an important issue on the business agenda with increasing responsibility being placed on companies to contribute to finding solutions to this urgent problem. An increasing number of companies are investing in environmental initiatives because it makes good business sense. There is also mounting pressure from customers for businesses to communicate their response towards managing climate risks.

As India's economy grows it also needs to pursue a low-carbon development path and business and industry in India will have to play a significant role in achieving this. Businesses will have to consider how extreme climatic events impact their return-on-investment and build in risk mitigation. Companies will not only have to find solutions to reduce their emissions, but will also have to adapt in one way or another. Businesses relying on agriculture will have to consider impacts on agricultural production and prices of primary products. It is indeed interesting to note that a large number of Indian industries have started to operate in a greener way and are reducing emissions as well as adapting to the direct impacts of climate change.

It gives me satisfaction that WWF – India, CII-ITC Centre of Excellence for Sustainable Development (CII- ITC CESD) and Carbon Disclosure Project (CDP) have come together for the Second Indian Report of the Carbon Disclosure Project, continuing from the lessons from the first report and gradually improving information on voluntary disclosure of carbon emissions and strategies for adapting climate risks. This report reflects the initiatives of WWF, CII- ITC CESD and CDP in alerting Indian business and industry to the issues that are on the table and more importantly brings forth both the challenges and opportunities likely to emerge in the coming years as the world comes to terms with this new and existential threat to its very survival.

Tarun Das

Trustee, WWF India

Chief Mentor, Confederation of Indian Industry

Carbon Disclosure Project 2008

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CDP Signatories 2008

385 investors with assets of over \$57 trillion were signatories to the CDP6 information request dated 1st February 2008 including:

Abax Global Capital United Kingdom	BlackRock U.S.	ClearBridge Advisors, Socially Aware Investment U.S.
Aberdeen Asset Managers United Kingdom	BMO Financial Group Canada	Close Brothers Group plc United Kingdom
ABRAPP - Associação Brasileira das Entidades Fechadas de Previdência Complementar Brazil	BNP Paribas Investment Partners France	Colonial First State Global Asset Management Australia
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Aegon N.V. Netherlands	BP Investment Management Limited United Kingdom	Comite syndical national de retraite Bâtirente Canada
Aeneas Capital Advisors U.S.	Brasilprev Seguros e Previdência S/A. Brazil	Commerzbank AG Germany
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AIG Investments U.S.	British Columbia Investment Management Corporation (bcIMC) Canada	Connecticut Retirement Plans and Trust Funds U.S.
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Allianz Group Germany	CAAT Pension Plan Canada	Credit Suisse Switzerland
Altshuler Shacham LTD Israel	Caisse de dépôt et placement du Québec Canada	Daegu Bank South Korea
AMP Capital Investors Australia	Caisse des Dépôts France	Daiwa Securities Group Inc. Japan
ANBID - National Association of Brazilian Investment Banks Brazil	Caixa Beneficente dos Empregados da Companhia Siderurgica Nacional - CBS Brazil	Deutsche Bank Germany
APG Investments Netherlands	Caixa de Previdência dos Funcionários do Banco do Nordeste do Brasil (CAPEF) Brazil	Development Bank of Japan Japan
ASB Community Trust New Zealand	Caixa Econômica Federal Brazil	Development Bank of the Philippines (DBP) Philippines
ASN Bank Netherlands	Caixa Geral de Depósitos Portugal	Dexia Asset Management France
ATP Group Denmark	California Public Employees' Retirement System U.S.	DnB NOR Asset Management Norway
Australia and New Zealand Banking Group Limited Australia	California State Teachers Retirement System U.S.	Domini Social Investments LLC U.S.
Australian Ethical Investment Limited Australia	California State Treasurer U.S.	Economus Instituto de Seguridade Social Brazil
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Aviva plc United Kingdom	Canada Pension Plan Investment Board Canada	Environment Agency Active Pension fund United Kingdom
AXA Group France	Canadian Friends Service Committee Canada	Epworth Investment Management United Kingdom
Baillie Gifford & Co. United Kingdom	CARE Super Pty Ltd Australia	Erste Bank der oesterreichischen Sparkassen AG Austria
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Banesprev - Fundo Banespa de Seguridade Social Brazil	CERES-Fundação de Seguridade Social Brazil	FAPES - Fundação de Assistência e Previdencia Social do BNDES Brazil
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Bank Vontobel Switzerland	China Investment Corporation China	First Affirmative Financial Network U.S.
BankInvest Denmark	Christian Super Australia	First Swedish National Pension Fund (AP1) Sweden
Barclays Group United Kingdom	CI Mutual Funds' Signature Advisors Canada	FirstRand Ltd. South Africa
BBC Pension Trust Ltd United Kingdom	CIBC Canada	Fishman & Co. Israel
Beutel Goodman and Co. Ltd Canada	Citizens Advisers, Inc. U.S.	Five Oceans Asset Management Pty Limited Australia
	Clean Yield Group, Inc. U.S.	

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Folksam Sweden	HESTA Super Australia	Maple-Brown Abbott Limited Australia
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Fourth Swedish National Pension Fund, AP4 Sweden	IDEAM -Integral Développement Asset Management France	Meritas Mutual Funds Canada
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Goldman Sachs & Co. U.S.	LBBW - Landesbank Baden-Württemberg Germany	Natixis France
Governance for Owners United Kingdom	Legal & General Group plc United Kingdom	Nedbank Group South Africa
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Guardian Ethical Management Inc Canada	Libra Fund U.S.	Nest Sammelstiftung Switzerland
Guardians of New Zealand Superannuation New Zealand	Light Green Advisors, LLC U.S.	Neuberger Berman U.S.
Hang Seng Bank Hong Kong	Living Planet Fund Management Company S.A. Switzerland	New Alternatives Fund Inc. U.S.
Harrington Investments U.S.	Local Authority Pension Fund Forum United Kingdom	New Jersey Division of Investment U.S.
Harvard Management Company U.S.	Local Government Superannuation Scheme Australia	New Jersey State Investment Council U.S.
Hazel Capital LLP United Kingdom	Lombard Odier Darier Hentsch & Cie Switzerland	New Mexico State Treasurer U.S.
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Henderson Global Investors United Kingdom	Macif Gestion France	New York City Teachers Retirement System U.S.
	Macquarie Group Limited Australia	New York State Common Retirement Fund (NYSCRF) U.S.
	Maine State Treasurer U.S.	Newton Investment Management Limited United Kingdom
		NFU Mutual Insurance Society United Kingdom

NH-CA Asset Management South Korea	Sanlam Investment Management South Africa	The Dreyfus Corporation U.S.
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Ontario Municipal Employees Retirement System (OMERS) Canada	Seventh Swedish National Pension Fund (AP7) Sweden	Third Swedish National Pension Fund (AP3) Sweden
Ontario Teachers Pension Plan Canada	SH Asset Management Inc. South Korea	Threadneedle Asset Management United Kingdom
Opplysningsvesenets fond (The Norwegian Church Endowment) Norway	Shinhan Bank South Korea	Tokio Marine & Nichido Fire Insurance Co., Ltd. Japan
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Orion Energy Systems, Inc. U.S.	Shinsei Bank Japan	Triodos Bank Netherlands
Pax World Funds U.S.	Signet Capital Management Ltd Switzerland	Tri-State Coalition for Responsible Investing U.S.
Pension Fund for Danish Lawyers and Economists Denmark	Skandia Nordic Division Sweden	TrygVesta Denmark
Pension Plan of the Evangelical Lutheran Church in Canada Canada	SNS Asset Management Netherlands	UBS AG Switzerland
PETROS - The Fundação Petrobras de Seguridade Social Brazil	Société Générale France	Unibanco Asset Management Brazil
PGGM Netherlands	Sompo Japan Insurance Inc. Japan	UniCredit Group Italy
Phillips, Hager & North Investment Management Ltd. Canada	SPF Beheer bv Netherlands	Unitarian Universalist Association U.S.
PhiTrust Active Investors France	Standard Chartered PLC United Kingdom	United Methodist Church General Board of Pension and Health Benefits U.S.
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Portfolio Partners Australia	Storebrand ASA Norway	Vårdal Foundation Sweden
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Robeco Netherlands	TfL Pension Fund United Kingdom	Zurich Cantonal Bank Switzerland
Rock Crest Capital LLC U.S.	The Bullitt Foundation U.S.	
Royal Bank of Canada Canada	The Central Church Fund of Finland Finland	
SAM Group Switzerland	The Collins Foundation U.S.	
	The Co-operators Group Ltd Canada	
	The Daly Foundation Canada	

Executive Summary

It is often said that a business can only manage what it measures. Undertaken on behalf of 385 institutional investors, representing over \$57 trillion of assets under management, the second Carbon Disclosure Project (CDP) Report in India provides global and domestic investors with an analysis of how India's 200 largest companies are responding to climate change. This report summarises the response from Indian companies to the CDP6 information request.

Carbon Disclosure Project (CDP) - now in its second year in India - provides a platform to a range of companies from divergent sectors to voluntarily report on their carbon emissions. The disclosure brings out the challenges companies are facing and on how they have integrated the long-term value and cost of climate change impacts into their assessment of financial health and the future prospects of their business.

In its first phase in 2007, CDP targeted 110 of India's largest companies, which included 51 companies from energy intensive sectors. In 2008, the scope of the project was broadened to cover the top 200 companies of the country, including 95 from energy intensive sectors.

Remarkably, the CDP-India response has gone up from 39 companies in CDP5 (2007) to 61 companies in CDP6 (2008) (see fig: 1). 61 companies from as many as 17 sectors, including 28 from 9 high impact sectors, responded to the CDP request for information. This clearly indicates a positive and proactive attitude among the Indian companies towards addressing the challenges of climate change. It further shows that businesses are willing to share information voluntarily with their stakeholders.

Encouragingly, there has been a marked improvement in the quality of disclosure by the Indian companies in 2008. Companies have not only been forthcoming in sharing information on their initiatives, but the responses were also very focused on risks and opportunities, greenhouse gases (GHG) emissions, implications of climate change on financial performance and business performance, performance targets, governance and reporting.

Sector Response Rate

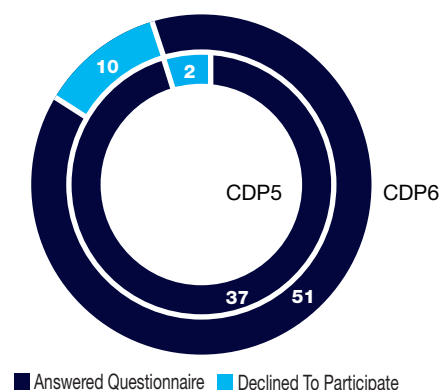
Overall, the response rate of all sectors has improved from CDP5 to CDP6. The sectors with the highest response rates for the CDP6 India 200 sample included Household & Personal Products (43% of the companies contacted in the sector responded), Materials (41%), Banks and Diversified Financials (39%), followed by the Food, Beverages and Tobacco and the Retailing sector, each achieving a response rate of 33% (see table 1).

Even though CDP6 India has an overall response rate of 30.5%, it is important to note that four of the most energy intensive sectors provided an above-average disclosure – both in terms of metrics and quality of information including – Energy; Utilities; Materials; and Food, Beverages and Tobacco. Automobile companies did well regarding GHG accounting, with each respondent measuring their emissions and outlining plans and activities for curtailing the carbon footprint of their manufacturing processes and final products. Companies from this

sector have demonstrated considerable leadership in the areas of energy- and carbon-efficiency, investigating hybrid cars, engine efficiency improvements and fuel technologies. Other high impact sectors such as Transportation and Energy sectors reported below average GHG emissions. This raises concern, particularly as the energy sector single-handedly contributes 61% of India's carbon emissions.

On a positive note, the majority of low intensity sector companies do not underestimate their role in the mitigation of global warming, with the Household & Personal Products sector leading CDP6 India in terms of response rate. Banks and Diversified Financials have also demonstrated a remarkable performance this year and have the second highest CDP response rate (39%). There is a clear reflection of a growing awareness within the Financial sector regarding its indelible impact on the mitigation of carbon emissions through conscious investments in cleaner technologies, carbon offset mechanisms and renewable energies.

Fig. 1: Response Rate CDP5 vs CDP6 - India



61 companies from as many as 17 sectors, including 28 from 9 high impact sectors, responded to the CDP request for information

Table 1: Disclosures for Energy Intensive and Non - Energy Intensive Companies by Sector

Sector	Response Rate (% of companies that responded)	GHG Accounting response (% of respondents disclosing GHG emissions)
Energy Intensive Sector		
Automobiles & Components	22%	25%
Capital Goods	17%	11 %
Consumer Durables and Apparels	0%	0 %
Energy	31%	12 %
Food, Beverages and Tobacco	33%	33 %
Materials	41%	24 %
Real Estate	18%	0 %
Transportation	20%	20 %
Utilities	29%	12 %
Non Energy Intensive Sector		
Banks and Diversified Financials	39%	3 %
Commercial Services and Supplies	19%	18 %
Household and Personal Products	43%	28 %
Media	20%	20 %
Pharmaceuticals, Biotechnology and Life Sciences	18%	11 %
Retailing	33%	0 %
Technology Hardware and Equipment	17%	16 %
Telecommunication Services	0%	0 %

4 of the most energy intensive sectors provided an above-average disclosure

63%
companies do not consider existing regulatory mechanism as a risk

78%
companies identified physical risk arising due to climate change

80%
of the respondents consider current or anticipated regulatory requirements as an opportunity for triggering long term investment in energy efficient technologies

1. Risks and Opportunities vis-a-vis Climate Change – India 200

a. Risks

The majority of the respondents (63% or 32 companies) do not consider existing regulatory mechanism as a risk. This is largely due to the fact that India is a Non - Annex I country under the Kyoto Protocol, and the government is not currently planning any national carbon caps. However, the same companies acknowledge that in future, carbon-related regulations may affect their businesses. The remaining 37% companies think regulations arising locally or globally with regard to climate change are already a risk to their business.

78% of the respondents (40 companies) acknowledge physical risks such as damage, disruption and displacement caused by climate change. Responding companies acknowledge that such challenges could affect them directly or indirectly and result in physical and financial losses.

68% of the respondents (35 companies) recognise general risks arising due to climate change. The identified general risks include commercial and competitive risks due to the loss and delay in production and sale, scarcity of resources, change in consumption patterns and disruption in supply chain operations, all of which could increase production costs.

Three in four of the responding companies (74%) have either taken up or plan to engage in the management and mitigation of risks associated with climate change. Related activities include the formulation of relevant policies, changes in operations, product design and consumption patterns, as well as enforced management of their supply chain, and the usage of cleaner fuels.

50% of the respondents (26 companies) indicated to have assessed financial risks and business implications arising out of climate change. The major implications

which have been identified by the responding companies include changes in energy use and available fuel types, higher insurance premiums, policy exclusions, and increased costs linked to emissions reductions. Further identified implications include retrofitting of existing equipments, carbon financing, participating in carbon markets and purchasing of carbon credits, and a potential competitive disadvantage from lack of experience in carbon trading.

b. Opportunities

Though most companies acknowledge that there are several risks – physical, regulatory and financial – due to climate change, they also accept that climate change presents them with opportunities.

80% (41) of the responding companies consider the current or anticipated regulatory requirements as an opportunity for triggering long term investment in energy efficient technologies. Such investment would not only prepare companies towards compliance with future regulations, but would also give them financial benefits such as energy savings or additional fund flow through Clean Development Mechanism (CDM) projects. Companies that are already reaping the benefits of CDM market consider India being a Non-Annex I country to be a regulatory opportunity.

52% (27 companies) of the respondents recognise that current or anticipated physical changes resulting from climate change present opportunities for them. The identified opportunities include new product solutions and demand, improved market reputation, innovations in operations, better resource management, strengthened disaster management capacities, and improved supply chain and distribution networks.

76% (39) of the responding companies have already made investments or have planned investments to maximise opportunities arising from climate change. These include a wide range of issue areas, including investments in energy

efficient products, clean technologies, alternate fuel, offsetting carbon emissions, sustainable forestry, carbon financing and carbon trading.

2. Greenhouse Gas Accounting

There is no common method adopted by the Indian companies for assessing GHG emissions.

37.3% (19) of the responding companies have used the methodology described under the GHG protocol. Others accounted their GHG emissions using methodologies developed by other organisations such as the International Iron & Steel Institute (IISI), the Central Electricity Authority in India, the International Standards Organisation (ISO), and others. There are also some companies (39% of the respondents) that failed to provide any information on the GHG methodology adopted.

Direct and Indirect Emissions – Scope 1 and 2 of the GHG protocol

50% (26) of the responding companies provided some information on their GHG emissions, disclosing direct Scope 1 and/or indirect, electricity-related Scope 2 emissions as defined by the GHG Protocol (see fig. 2).

33% (17) companies provided information only on direct GHG emissions. Together, these 17 companies emitted a total of 34.16 million tonnes of CO₂-e.

15 responding companies (29%) disclosed information on their indirect GHG emissions (Scope 2). Together these 15 companies were responsible for 1.7 million tonnes of electricity-related CO₂-e.

In comparison, the disclosure for other GHG emissions is poor. Only 25% of the respondents have provided information on other GHG emissions. This is poor in comparison to disclosures on direct and indirect emissions. GHG emission from other sources is significantly lower and stands at 0.40 million tonnes of CO₂-e. Together

other GHG emissions account for only 1% of total GHG emissions of CO₂-e emitted by all the companies which have responded (see Fig. 3). The major chunk of GHG emissions is coming from direct emissions.

Only 7 companies provided with the breakdown details of the other GHG emissions from Indian operations i.e. employee business travel, external distribution and logistics, use and disposal of companies' products and services and their supply chain. Majority of the companies reporting on their GHG emissions were also transparent and have made this information publicly available.

39% (20) companies have a system in place to assess the accuracy of methods used to calculate GHG emissions, data processes and other systems related to GHG measurement. Some of the companies have reported changes, positive as well as negative, in the overall GHG emissions in comparison to the previous years.

Energy Cost & Consumption

29% (15) of the respondents have provided information on the quantity of power purchased by them. These 15 companies together consumed as much as 1.5 million MWh of power annually. Around half of these companies i.e. 46% of the respondent companies have disclosed information on the total costs of their energy consumption which includes fossil fuels and purchased power. In total, these 23 Indian companies excluding multi-national companies (MNCs) spend as much as US \$ 2301.5 million per annum to meet their energy demand. This translates to, on average, 21.27% of the total operating costs. However certain sectors; Energy, Materials and Transportation which are the high energy intensive sectors have their energy cost ranging from 35% to almost 71% of their total operating cost. The disclosure percentage of energy purchased or generated from renewable sources is significantly low or almost negligible (3.4%). The performance of the Indian companies in use of renewable energy is quite poor when compared to their MNC counterparts.

Fig. 2: Proportion of disclosed Scope 1, Scope 2 & Scope 3 emissions (%)

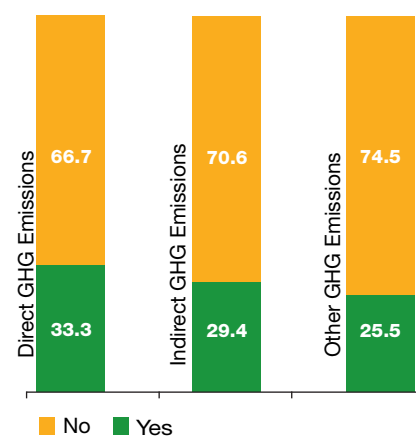
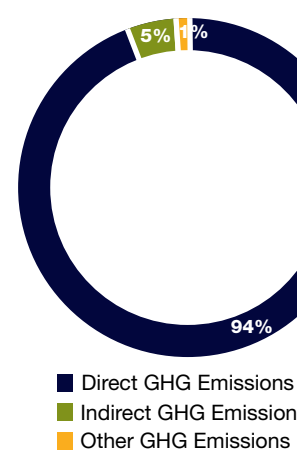


Fig. 3: Proportion of disclosed GHG emissions



33% respondents provided information on direct GHG emissions

29%
of the respondents
provided information on
the quantity of power
purchased

Emission Trading

Though many companies acknowledged climate change as a business opportunity, very few have initiated programmes for emission trading.

35% (18) of the responding companies have strategies in place for carbon trading or participating in regional and/or international trading schemes and Kyoto mechanisms such as CDM and Joint Implementation (JI) projects. Only 4 companies (9%), all of them MNCs, are participating in the European Union Emission Trading Scheme (EU ETS) while 13 local companies (27%) are trading in or planning CDM projects.

Performance

60% (31) of the companies responding to the challenge of climate change have some form of GHG emissions reduction plan in place. Some of these companies have equipped themselves with clear quantitative targets and plans, however most of the responding companies have provided targets that are subjective or activity-specific in nature. For example, reduction plans which might directly or otherwise affect the GHG emissions include operational and process optimisation, energy efficiency targets, investment in renewable sources of energy, energy efficient technologies, a shift towards clean fuels or alternate fuels, consumption patterns, travel, energy audits, and CO₂ sequestration through farm & social forestry initiatives.

Planning for Future Energy Use and Emissions

The majority of the responding companies do not forecast or estimate their future emissions and therefore have no strategy or plan for their future energy use and emissions. Only fourteen companies, i.e. 28 % of the respondents, have estimated their future emissions. Only 5 out of 14 companies which estimate their future emissions factor in the cost of future emissions in their capital expenditure planning.

Governance

62% (32) of the responding companies recognise the importance of climate change and have appointed an executive board or committee to oversee and deal with the problem of climate change. In most cases, the executive board comprises of the top management. Also the board or executive body assesses the performance of the company on climate change through various modes including presentations, quarterly reporting and annual environmental reports.

27% (14) of the responding companies have an incentive system for managers, which relates to climate change or the attainment of GHG emissions reduction. Some companies have implemented innovative ideas to promote better practices.

Communications

46% (23) of the responding companies communicate the risks and opportunities presented by climate change, details of GHG emissions, and their plans to reduce GHG emissions through various disclosures. Equally encouraging is the indicated disclosure of companies through voluntary communication methods. 44% companies have adopted voluntary communication methods such as publishing corporate sustainability reports.

Public Policy

The practice of lobbying in India is still in its infancy and is mostly done through associations and representations of companies. 40% of respondent companies engage with policymakers on possible responses to climate change, including taxation, regulation and carbon trading.

Summary

The results from the second CDP India report 2008 continue the success of the positive start from 2007, which shows that Indian corporations are measuring,

reporting and managing their GHG emissions. As we scaled up the scope of CDP6 to include the top 200 Indian companies, it also resulted in an increase in the number of companies that responded to the information request. However, the extension of the sample also resulted in a reduction in terms of the percentage of companies that participated in the survey from 35% in 2007 (CDP5) to 30.05 % in 2008 (CDP6). It is, however, encouraging, that there has been a clear improvement in the quality and depth of the information disclosed by the participating companies. This shows the preparedness of companies to deal with risks and opportunities associated with climate change.

Equally encouraging was this year's participation by some of the companies that did not respond in 2007. This second CDP report has raised two concerns – firstly, 69% (139 companies) did not respond to the CDP6 questionnaire in 2008, including some leading companies which had responded in 2007; and secondly, there was an increase in the number of companies – especially among energy-intensive companies – that declined to participate. Both of these concerns clearly demonstrate that there is still an enormous amount of work to be undertaken to raise the awareness and capacities of Indian companies in connection with climate change.

A significant percentage of companies that responded to the CDP6 information request acknowledge climate change and GHG emissions as a major challenge. The Indian companies – like their MNC counterparts – realise that climate change is a serious issue that is likely to impact their business and financial performance, market and customers – if not today then in the future. Some proactive companies have already started incorporating policies and decisions which will lower their carbon emissions. While other companies are putting plans in place towards this end, there are also some companies which have not done much, in spite of recognizing its importance.

Companies also widely agree that GHG emissions present business opportunities, e.g. related to clean energy, energy efficient products, and emissions trading; and companies have made investments or are planning investments to tap this potential. However, when it comes to the actual accounting of their GHG emissions, only few companies are actively engaged, and this remains a cause of concern. The number of companies accounting for other GHG emissions is far lesser. Less than 20 companies are engaged in emissions trading, many of which are MNCs.

Although the majority of the responding companies have emissions reduction plans and targets in place, in most cases, the targets are subjective instead of being quantitative and without a timeline. Companies are not yet prepared for predicting their future emissions and they also do not incorporate the costs of future emissions into capital investment decisions. These reporting trends demonstrate that it will be important to further raise awareness for these issues among Indian companies, and to integrate and consider these issues accordingly in next year's CDP information request.

The current global and national economic situation and role that Indian businesses and industries are playing, provide an optimism that the responding companies are geared towards mitigating and adapting to the risks of climate change. This is demonstrated by the management structure and set-up of these companies as well as by their disclosure on emissions reductions through sustainability reporting. Encouragingly, there is evidence from the CDP survey of how Indian companies view the climate change challenge and that companies are engaging with the policy makers on issue of climate policy.

72%
respondents do not
forecast or estimate their
future emissions

Summary of Sectoral Responses

		Risk Regulatory Physical General	Risk Management	Financial and Business Implications	Opportunity Regulatory Physical General	Maximizing Opportunity	GHG Emissions Accounting Direct Indirect Other	Electricity Consumption	Emission Trading	Performance Targets	Governance	Reporting
Automobiles & Components	Mahindra & Mahindra	■ ■	■	■	● ●	●	■ ■	■		●	●	
	Tata Motors	■ ■ ■	■	■	● ●	●				●	●	●
Banks & Diversified Financials	Canara Bank	■ ■ ■	■		●	●				●		
	HDFC / Centurion Bank of Punjab	■ ■ ■	■		● ●	●				●		
	Infrastructure Development Finance Company	■ ■	■		●	●						
	Reliance Capital	■	■		● ●							
	State Bank of India	■ ■	■		● ● ●	●					●	
	Yes Bank	■ ■	■	■	● ● ●	●	■ ■		■	●	●	●
Capital Goods	ABB				● ● ●		■ ■	■		●	●	●
	Areva T&D	■ ■ ■	■	■	● ● ●	●			■	●	●	●
	Cummins		■		● ● ●	●	■ ■	■		●	●	●
	HMT	■ ■	■	■	● ● ●	●						
Commercial Services & Supplies	Infosys Technologies		■	■	● ● ●		■ ■	■		●	●	●
	Tata Consultancy Services	■	■	■	● ● ●	●				●	●	●
	Wipro	■ ■ ■	■	■	● ●	●	■ ■ ■	■		●	●	●
Energy	Bharat Petroleum Corporation	■ ■	■	■	● ●	●				●	●	●
	Cairn India	■ ■ ■	■	■	● ●	●	■ ■	■			●	●
	GAIL	■ ■			● ● ●			■			●	
	Hindustan Petroleum Corporation	■ ■	■	■	● ● ●	●				●	●	
	ONGC	■	■		● ●	●				●	●	
Food, Beverages & Tobacco	ITC	■	■		● ●	●	■ ■ ■	■		●	●	●
	Nestle	■ ■ ■	■	■	● ● ●	●	■ ■ ■	■	■	●	●	●
Household & Personal Products	Colgate Palmolive India			■	● ● ●	●		■		●	●	●
	Hindustan Unilever	■ ■ ■	■	■	● ● ●	●	■ ■ ■	■	■	●	●	●
Materials	Ambuja Cements	■ ■	■	■	● ● ●		■ ■			●	●	●
	Asian Paints	■ ■			● ● ●	●	■ ■	■		●		●
	Hindustan Zinc	■	■	■	● ● ●	●				●	●	
	JSW Steel	■	■	■	● ● ●	●	■ ■ ■	■		●		●
	Sesa Goa	■	■		● ●	●				●	●	●
	Sterlite Industries	■ ■	■	■	●	●	■ ■	■		●	●	●
	Tata Steel	■	■	■		●	■ ■	■		●	●	●
Media	Zee Entertainment Enterprises						■ ■	■				
Pharmaceuticals, Biotech & Life Sciences	GlaxoSmithKline	■ ■ ■	■	■	● ● ●	●	■ ■ ■	■	■	●	●	●
Real Estate	Sobha Developers	■	■							●		
Technology Hardware & Equipment	Moser Baer	■ ■	■	■	● ●	●	■			●	●	●
Utilities	CESC Ltd	■ ■			● ●	●				●		

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1

Introduction: The Carbon Disclosure Project

CDP's mission is to facilitate a dialogue between investors and corporations, supported by high quality information from which a rational response to climate change will emerge.

Overview

The Carbon Disclosure Project is the largest investor coalition in the world: more than 385 signatory investors, with a combined asset base of \$57 trillion, signed CDP's sixth annual request for information in 2008 (CDP6) which was sent to over 3000 companies worldwide.

The CDP annual information request is sent to the Chair of the Board of the world's largest companies by market capitalization. It covers four principal areas:

- 1) Management's views on the risks and opportunities that climate change presents to the business;
- 2) Greenhouse gas emissions accounting;
- 3) Management's strategy to reduce emissions / minimize risk and capitalize on opportunity; and
- 4) Corporate governance with regard to climate change.

The CDP6 information request can be viewed in Appendix 3.

The responses from companies to CDP's annual requests for corporate data provide investors with vital information regarding the current and prospective impact of climate change on their portfolios, and represent an important resource in relation to investment decisions. The fact that CDP's requests are made on behalf of investors serves to raise the awareness of senior management that climate change is a business issue that requires serious strategic focus.

After eight years of consecutive growth, CDP currently runs projects in more than 20 countries, with new projects launched in China, Korea, Latin America, the Netherlands and Spain in 2008. CDP has also entered into key strategic relationships with Merrill Lynch and PricewaterhouseCoopers, associations which will support growth over the next three years.

We are pleased to report that CDP received a record number of company responses to its 2008 annual request – more than 1550 in total. This demonstrates an increasing understanding by the

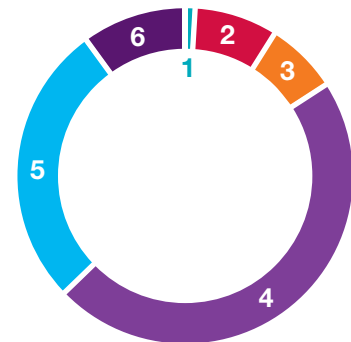
world's largest corporations of the importance of climate change and its relation to business strategy and shareholder value. Analysis of this year's responses shows an advance in greenhouse gas emissions accounting with scope 3, or indirect emissions reporting, registering an increase since 2007.

CDP is currently conducting further research into how investors use CDP data in order to improve our understanding of the investment community's requirements. The results to date show signatory investors using company responses to CDP in:

- Company engagement;
- Qualitative checking;
- Sell-side research;
- The filing of shareholder resolutions; and
- The creation of new products and indices.

This year more than 2,000 additional companies were brought into CDP's system through the new CDP Supply Chain Project. More than 30 companies, including Tesco, HP, Kellogg and Vodafone now use the

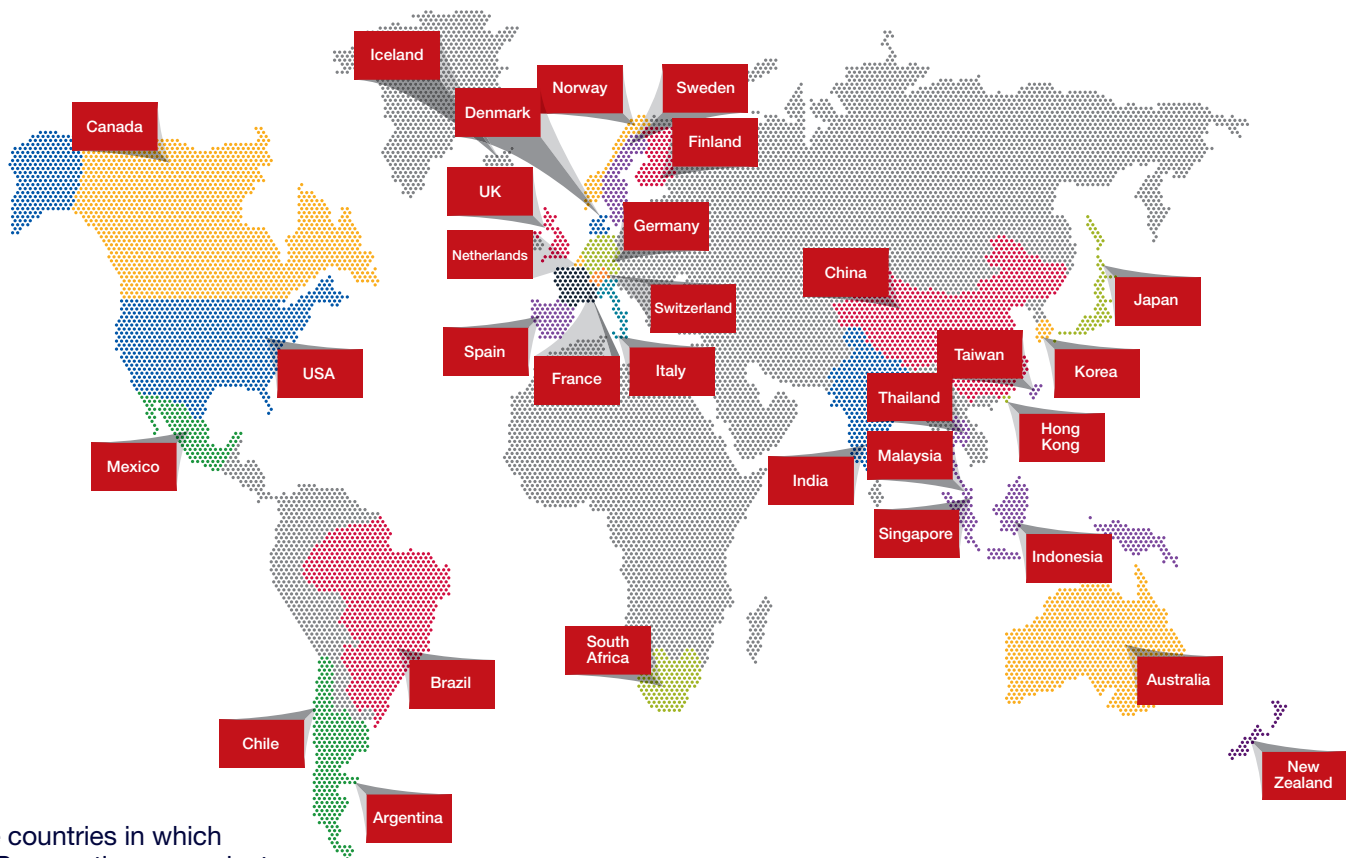
CDP6 Signatory Location by Region



1.	Africa (1%)
2.	Asia (8%)
3.	Australasia (7%)
4.	Europe (47%)
5.	North America (27%)
6.	South America (10%)

“The Carbon Disclosure Project is vital, and we’ve got to get everybody to participate in it.”

**Bill Clinton
former U.S. President**



“Before CDP we had no comprehensive data on corporate greenhouse gases. But with CDP policy makers, investors and companies themselves can take better informed decisions.”

Fredrik Reinfeldt
Swedish Prime Minister

“The Carbon Disclosure Project is independent and impartial, it is a clear and transparent mechanism for anyone to see our carbon footprint and to judge our performance at reducing it.”

Sir Terry Leahy
Chief Executive,
Tesco plc

“The CDP supports AIG Investments’ efforts to assess and analyze trends in risks and opportunities associated with climate change and its mitigation. Climate change continues to be a major financial and investment concern for us and our clients.”

Win J Neuger
Chief Executive,
AIG Investments

CDP system to collect climate change relevant data from their suppliers. This represents a significant achievement by the corporate community, demonstrating how collaboration is key to better understand climate change and its impacts on procurement.

Carbon disclosure has assumed heightened importance on the political agenda and the CDP process has received support from political leaders globally.

Government and public sector organizations also understand the importance of measuring their own carbon risks and emissions. More than 30 cities in the U.S. are currently working together to report through the CDP system, a development that will yield a much better understanding as to how cities are preparing for the low carbon economy. CDP is also working with central and local government departments in the UK including the Foreign and Commonwealth Office and the Office of Government Commerce in HM Treasury to understand supply chain emissions, risks and opportunities.

CDP also acts as secretariat for the Climate Disclosure Standards Board (CDSB), which aims to promote and advance climate change related disclosure in mainstream reports through the development of a global framework for corporate reporting on climate change. This framework will elicit comprehensive, consistent and comparable information for investors, as well as offering greater certainty on disclosure requirements for corporations, and thereby provide an influential model for use by national regulators. By working with information users, their advisors, regulators and public interest groups, as well as the four leading accountancy majors and the associated accountancy bodies CDSB aims to support, harmonize and strengthen existing climate change related reporting initiatives and standards. Rather than creating a new standard, the aim is to by bring together and enhance current best practice in the form of a single consistent framework that can be used for disclosure in mainstream reports.

CDP in the Future:

- CDP is continuously working to improve the quality and quantity of reporting on climate change. CDP is also improving its online reporting system and providing extensive guidance on what should be measured and reported.
- CDP will refine its offering to investors through the provision of more bespoke data to service the requirements of individual investment institutions. CDP is also working to expand the availability of its information through professional data distribution channels.
- CDP plans to continue its expansion around the globe and aims to launch projects in Russia and other locations in 2009.
- CDP has recently launched a new project, 'CDP Finance', working with banks to better understand the opportunities, risks and liabilities with relation to climate change across their client base, including the lending and private equity portfolios.
- CDP is also developing strategic relationships with a range of organizations to further expand CDP's work and reach in the future.
- CDP is working towards a unified global business response to climate change and through its associations with investors, corporations, governments and the other key stakeholders, will continue to help catalyze a sustainable, low carbon economy.

Improved Access to CDP Data via CORE

In September 2008 CDP launched the CORE 2.0 database. CORE stands for COrporate REsponses and it is the enhanced access function for presentation and analysis of the CDP data, allowing all the CDP responses to be searched and sorted by index, geography, sector or CDP question. The results are displayed on screen via a web interface and can be downloaded to Excel.

CORE 2.0 is designed to enable the user to efficiently manipulate the CDP data to their requirements. The CORE 2.0 system has been built utilizing feedback from our signatory members in 2007.

For more information about CORE 2.0 please see www.cdproject.net or contact Daniel Turner at the CDP London office: daniel.turner@cdproject.net

“CDP is one of the most valuable tools we have to help us evaluate climate risk across our whole portfolio.”

Brian Rice
Investment Officer,
CalSTRS

“The Carbon Disclosure Project is an excellent tool for increasing the exchange of climate information between companies and their institutional investors.”

Bendt Bendtsen
Danish Minister
for Economic and
Business Affairs

“The specialist focus of the Carbon Disclosure Project provides a suitably rigorous structure for an overview of a company's response to climate change, and the survey template is a very helpful management tool for us to assess climate-related risks and opportunities in our own business. It also allows us to benchmark our practices against peers.”

Sir Tom McKillop
Chairman,
Royal Bank of
Scotland Group,

2

Securing a Green Future: Why India should push itself and others to achieve this?

Business and Industry are shaping India's growth and development, and can play a catalytic role in addressing the challenges posed by climate change. The National Action Plan on Climate Change provides a directional shift to India's climate policy and sets a framework for national action. This section discusses the role business and industry can play for its implementation.

Climate change is now one of the most urgent and critical global challenges with strong local implications. It, therefore, demands local action within an evolving global framework. Indeed, there is a wider agreement that the framework for action in a country should be based on the objectives for sustainable and climate-friendly development that offer economic and social opportunities for its citizens.

This demands a global revolution in the ways the economies operate. With a sense of desperation and urgency, various stakeholder voices have been calling for radical changes in the way the world drives its vehicles, its factories and indeed, the global economy. The urgency is to immediately contain and eventually stop fossil-fuel-based conflagration in the world.

The financial crisis and economic slowdown has caused backsliding among some political and business leaders. However, there are others, saying that now is precisely the time to seize the initiative and launch the global revolution. They believe that doing so can provide the impetus to pull the global economy of its current slump and put it on a more solid foundation for low carbon development. Countries and businesses leading this global revolution would secure a prosperous future for themselves.

India - business and government should be a part of the leaders' pack if it is to secure a green future for itself. India should also leverage its assumed leadership position to push others to follow the green path. Climate change, like demographic shifts, terrorism, endemics and industrialisation, is likely to be another powerful force that inexorably shapes the socio-economic environment.

There are various factors that lead to the impact of climate change on businesses, particularly in India. India's National Action Plan on Climate Change (NAPCC) released in mid-2008 is expected to serve as a nodal framework for a sustainable development strategy, which brings together India's efforts in mitigation and adaptation. India's adaptation measures amounted to 2.6% of GDP in 2006 - 07. Further, the 8 missions (Box 1) of the plan are likely to throw up significant commercial opportunities for businesses in the area of clean technologies, products and services.

Business: Challenges & Opportunities

The NAPCC is likely to fundamentally impact the functioning of businesses through policy changes such as subsidy restructuring and charges on energy inefficiencies, and through new business opportunities in clean technologies, renewable energy and green buildings.

Box 1: Eight Missions of India's National Action Plan on Climate Change

1. *Solar energy*
2. *Energy efficiency*
3. *Sustainable habitat*
4. *Water*
5. *Sustaining the Himalayan ecosystem*
6. *Green India*
7. *Sustainable agriculture*
8. *Strategic knowledge for climate change*

Energy Efficiency

The energy efficiency policy mandates creation of energy benchmarks for each industry sector and allows for trade in energy efficiency certificates. The aim is to facilitate the least-cost method of achieving the overall target of sector-wide efficiency. 9 energy intensive sectors thermal power plants,

fertilisers, cement, iron and steel, chlor alkali, aluminum, railways, paper and pulp and textiles - have been identified. While only industries above a certain size and energy consumption levels are covered by this mandate, the government has conveyed its seriousness and future policy changes for all businesses.

The estimated market potential in energy efficiency, energy conservation and management in India is over \$2 billion a year. Barely a fifth of this potential is currently exploited.

Carbon Charge

Overall, about 61% of India's GHG emissions come from energy generation, and this amount is expected to grow along with future demand. To reduce these emissions, the Energy Coordination Committee constituted by the Prime Minister, has proposed to add carbon charge on polluting power stations based on the efficiency targets developed under the energy benchmarks set for the power industry. While the additional costs of burden would be shared by consumers and producers in the indemnity period, power companies will have become more efficient by transiting to cleaner production methods. Additionally, it will also pump more investments in renewable sources of power.

For long-term success and sustainability of clean or green industries, the government might be compelled to restructure current subsidy portfolios. The solution to emissions reductions in the power sector must come from a planned transition to a low-carbon economy through an emphasis on renewable power generation. For instance, the significant impetus provided by the national action plan to the solar mission is a strong case in point regarding the level of support provided by the government.

Renewable Energy

The NAPCC provides significant business opportunities in renewable energy and many affiliated industries through an expanded market.

“The National Action Plan on Climate Change incorporates India's vision of sustainable development and the steps we must take to implement it and implement it effectively”

**Dr. Manmohan Singh
Prime Minister, India**
on release of National Action Plan on Climate Change

The energy efficiency mission mandates creation of energy benchmarks for each industry in energy-intensive sectors and allows for trade in energy efficiency certificates

Barely one-fifth of estimated market potential in energy efficiency and energy conservation in India is currently exploited

Government plans to provide accelerated depreciation of up to 80 per cent for promoting deployment of clean technologies among consumers

Renewable energy comprises nine percent of India's 145 GW present capacity (large hydro accounts for a further 25%). Of the 80 GW of capacity proposed to be added during the 11th five year plan (2007-12), 17.5% to 25% is envisaged to come from renewable sources. This translates into an investment potential of Rs 610,000 crores (US\$ 135 billion), in addition to the current annual turnover of 8 to 10,000 crore rupees in the renewable energy sector.

India is in a position to play a major role in large-scale commercialisation of renewable energy technologies, and can offer technology transfer to other developing countries and support them in building capacity. The country has already achieved installation of over 10,000 MW of renewable-based capacity, and stands at fourth position worldwide in terms of wind power installed capacity. It is notable that more than 95% of the total investments in renewable energy in India have come from the private sector.

Clean Technologies

The government has created favourable conditions for the spawning and expansion of clean technologies across various sectors and industries. To promote the development of clean technologies, the government envisages using differential taxation on appliances that have been certified as energy efficient through the energy labelling programme of the Bureau of Energy Efficiency (BEE). Concurrently, to promote the deployment of clean technologies amongst consumers, the government plans to provide allowance for accelerated depreciation of up to 80% in the first year on energy-efficient equipment as well as reduced VAT on these products.

The areas of renewable energy and clean technology in India are set for unprecedented growth, with the impetus coming from a variety of sources. This is likely to create new and/or expand existing markets for clean technologies and their

ancillaries, in what represents a significant 'window of opportunity' for many Indian businesses.

Green Buildings

The energy demands of a society's buildings constitute a significant percentage of its total energy use. Energy-efficient buildings can play an important role in moving from a business-as-usual scenario to one in which overshoot begins to be meaningfully addressed.

An office building has a projected life span of 50 to 100 years. The cost and amount of energy required to build an energy-efficient office building is comparable to building a traditionally designed structure, but there is a significant difference in operating costs. According to the US Green Building Council, an average 2% increase in the construction cost of an energy-efficient building typically yields operating savings of over 10 times the initial investment. The overall cost savings result from an average 30% decrease in energy use as well as decreases in other waste, emissions and worker health-related costs.

Of the 22 LEED-rated buildings in India, 5 are platinum rated. Over 218 LEED green building projects in the country are underway, amounting to more than 130 million square feet of space and representing construction that is significantly less resource-intensive than traditional construction. The Indian Green Building Council has set the goal of achieving 1 billion square feet of green building space by 2012.

Other Challenges

Consumer pressure for Indian companies to go greener is expected to increase in the future, thereby compelling delivery by firms across all industries on a triple bottom line of economic, social and environmental performance.

Additionally, international developments may have a deep impact on Indian businesses. The US and the UK are separately considering trade based measures to protect the competitiveness of their

domestic industries from similar industries in countries like India and China that do not have commensurate environmental regulation. This may take the form of a carbon tax on imports from India and/or requiring Indian companies to buy permits to operate in those countries, both of which are expected to fundamentally affect export-oriented Indian firms.

A particular area of interest in the context of international negotiations is the access to technology and financial support from developed countries. Whilst the CDM mechanism is envisaged to be one such vehicle of transfer, the future access of Indian industry to the technology and capital required to reduce emissions whilst maintaining economic growth is a critical factor in transition to a low-carbon economy.

Thus, businesses are presented with vastly expanded potential markets through the various initiatives of the 8 missions in the NAPCC. Their foray in these markets is facilitated through favourable conditions created by the government.

Responding to the Changing Rules

It is clear that businesses are affected both by climate change itself and by policies to address it. The exposure to changing regulation, redefined competition, environmental reputation and litigation for inaction is increasing. These forces are complex, rapidly evolving and have the potential to fundamentally affect the very functioning of many companies.

Sectors such as utilities, oil and gas, mining and metals, automotive, water, building and construction, and real estate, will be most affected. Within each sector, few firms will lead the way by turning change to their advantage, others will follow to adapt, and the rest will fail in the market.

The firms that will prosper in a low-carbon world will be those that: recognise its importance and its inexorability; anticipate some of the implications for their industry; and

act appropriately in advance. This is likely to involve a structural approach and radical transformation to develop new products and solutions as against low-hanging efficiency projects. Companies will be required to prepare time-bound action plans for ambitiously reducing their current and future carbon footprint, and pump huge investments in research and development along with other industry players.

The pace of a firm's adaptation to climate change and related policy is thus likely to prove to be another of the forces that will influence whether, over the next several years, any given firm survives and prospers; or withers and, quite possibly, dies. The phrase 'business as usual' has started to read like the end of the world.

Given the rapid increase in the rate at which the world is approaching the estimated safe limits of GHG concentrations in the air and the inadequacy of action till date, the pressure on businesses to act is expected to increase even further in the future. In order to be able to effectively mitigate the risks posed by climate change and to take advantage of the opportunities likely to be presented; Indian businesses need to take structured, concerted action now.

Renewable energy industry in India has potential to meet growing domestic energy demand and export low carbon solutions to the world

Global actions of cooperation through technology transfer and financing is critical to expedite the transition to a low carbon economy

3

CDP6 India 200: Response Overview

This section summarises the responses of the top 200 Indian companies exploring risks and opportunities, measurement and reporting of GHG, strategies and plans for emission reduction and governance systems for managing climate change impacts.

Introduction

In 2007, CDP India was expanded and information request was sent to the top 200 Indian companies. The targeted top 200 Indian companies included 95 companies from energy intensive sectors apart from other non-energy intensive sectors. In the CDP 2008 information request was sent to the top 200 Indian companies to solicit information on:

- The opportunities and risks perceived from climate change and the strategies being contemplated to manage these opportunities and risks
- Direct and Indirect GHG emissions with Emission Intensity, Energy Consumption and cost thereof
- Emission Reduction Strategy and Emission Trading
- Performance Monitoring and Forecasting Plan
- Corporate-level Climate Change Management and Governance

Disclosure Performance – Overall

In 2008, of the top 200 Indian companies that were approached for CDP6, 61 companies responded an encouraging number in comparison to last year’s response of only 39. 61 companies from as many as 17 sectors, including 28 from 9 high impact sectors responded to the information request. In the second year of CDP in India, improvements were observed both in terms of number of companies responding and quality of the responses disclosed by the companies. Out of these 61 companies, 10 companies declined to participate (see fig. 4).

An interesting feature of CDP India report 2008 is that this year the process managed to convert several of the non-responding companies from 2007 into responding companies. These companies included Ambuja Cements, Asian Paints, Cummins India, GAIL, Hindustan Copper, Hindustan Petroleum, Hindustan Zinc, IDFC, Indian Hotels, Mahindra & Mahindra,

Nicholas Piramal India, State Bank of India, Sterlite Industries, Tata Motors, Tata Power and Zee Entertainment etc. At the same time, there are 10 companies from the India 2007 report which did not respond in the second year. These include some leading companies such as Bharti Airtel, Bharat Heavy Electricals, DLF, Essar Oil, Hero Honda Motors, Hindalco Industries, Housing Development Finance Corporation, Kotak Mahindra Bank, Maruti Suzuki India and NTPC.

Disclosure Performance by Sectors

The sectors with the highest response rates for the CDP6 included Household & Personal Products (43% of companies contacted in the sector responded), Materials (41% of companies contacted in the sector responded), Banks and Diversified Financials (39% of companies contacted in the sector responded) followed by Food, Beverages and Tobacco and Retailing sector wherein 33% of companies contacted responded (see fig. 5). The response trend from

Fig. 4: CDP6 India 200 Response Rate

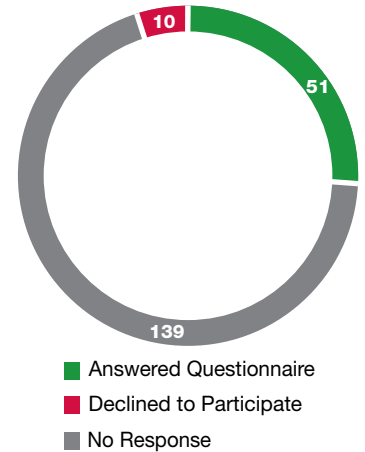
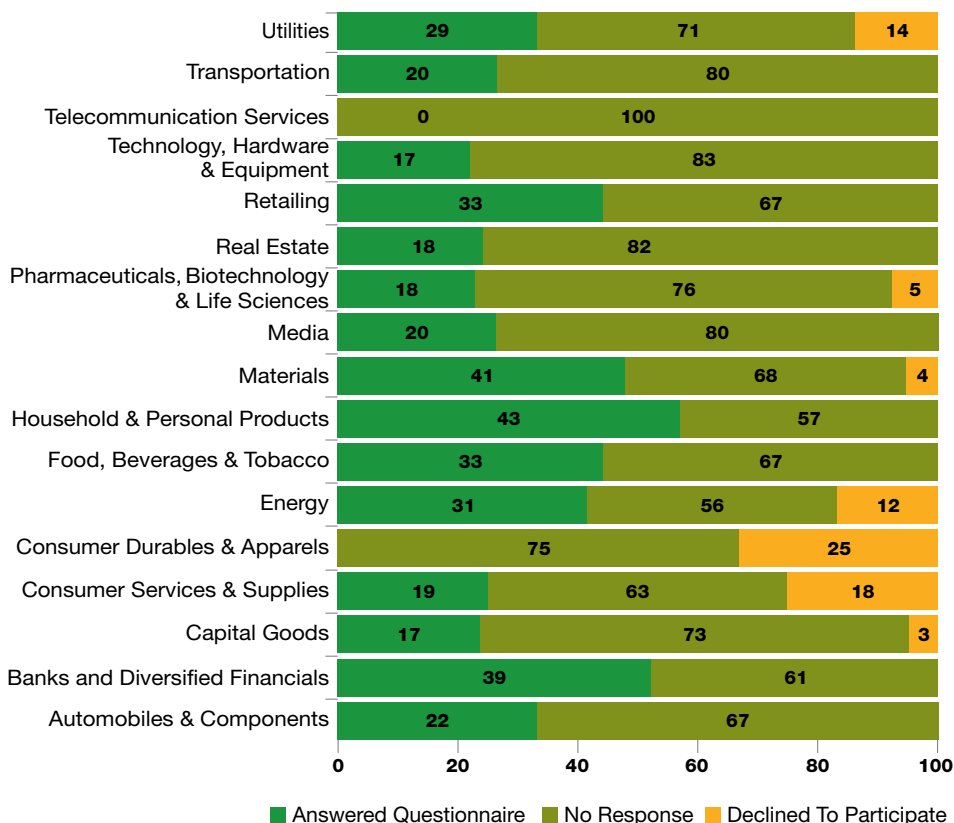


Fig. 5: CDP6 India 200 - Sectoral Response Rate (%)



HPCL

In future we anticipate greater pressure to reduce emissions from our operations and an increased demand for low carbon products

Public, Private and MNCs in CDP6 has also improved both qualitatively and quantitatively in comparison to CDP5.

Response Overview

The CDP information request which has been developed over 8 years through consultation with signatory investors, corporations and other stakeholders represents a best practice framework for the information that the companies should measure and report regarding the impact of climate change on their business. The questionnaire was developed to identify strategic risks and opportunities and their implications; to determine actual absolute greenhouse gas (GHG) emissions; to determine performance against targets; to learn about their plans to reduce GHG emissions and to determine responsibility and management approach within the companies to mitigate or adapt to risk of climate change. In the subsequent sub-sections, responses from the Indian companies are presented.

1. Risks and Opportunities

Risks

This section focuses on the significance of regulatory, physical and general risks arising from climate change as identified by the Indian companies. Companies also assessed the implications of these risks that may be faced by themselves or their business partners, clients, suppliers and customers and area of operations elsewhere. Overall there was improvement in the quality and the quantity of the responses received this year regarding risks from climate change and its impact (fig.6).

(i) Regulatory Risks

Regulatory risks generally arise from current and/or expected national policies and from global and multi-lateral policies agreed by the government on climate change including, but not limited to, the imposition of emissions limits, energy efficiency standards, and so on. Therefore, the companies responded

to the extent that it is likely to affect their businesses, effect of known or expected regulatory risks arising due to:

- International, national, regional or state regulation of emissions
- Carbon taxation
- Statutory emissions limits
- Mandatory trading programmes
- Process or product standards
- Mandatory energy efficiency standards

37% (19) of the respondents see regulations arising at the national level or globally with regard to climate change as a risk to their business. Remaining 63% (32) of the responding companies do not consider existing regulatory mechanisms as risks to their business and they comply with the existing norms. However, these companies consider future regulations which may arise as risks that may affect their business.

In the absence of regulations pertaining to climate change at the national level, majority of the Indian companies do not consider themselves exposed to regulatory risk. Some of the companies also consider that if such regulations do occur in future, then they will be in a position to comply with such regulations. Most of the responding companies acknowledge that there are no regulatory risks as India is a Non-Annex 1 country under the Kyoto Protocol and does not have any commitments for emissions reduction. However, it must be noted that majority of the companies who did not identify regulatory risks were those who responded prior to the release of Government of India's National Action Plan on Climate Change.

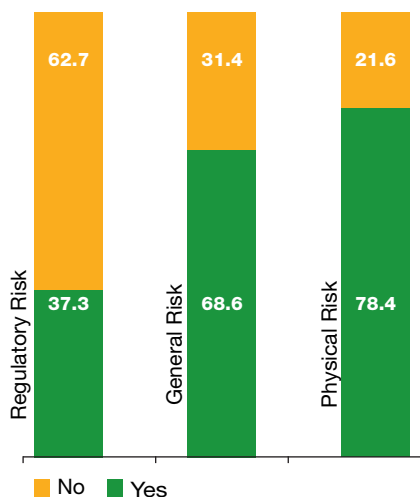
Hindustan Petroleum Corporation

“In future we anticipate greater pressure to reduce emissions from our operations and an increased demand for low carbon products.”

JSW Steel

India, though a signatory to the Kyoto Protocol, has no mandated

Fig. 6: Risks identified due to Climate Change



GHG reduction targets at present. We do not anticipate any cap on gross GHG emissions either at country level or at industry level, as it will have a negative effect on poverty alleviation, the very foundation of Kyoto Protocol.

Cummins

Over the long-term, we anticipate regulations in the US and tighter restrictions internationally — although we expect developing countries such as China and India will in all likelihood lag these restrictions which recognised their needs as developing countries.

(ii) Physical Risks

Physical risks as identified by the Indian companies included numerous factors like small changes in temperature and precipitation, shifts in species distribution, drought, floods, increased storm and hurricane activity, rising sea levels and higher incidence of diseases.

78% (40) of the respondent companies see physical risks arising due to climate change as a risk to their business. Damage, disruption and displacement resulting on account of climate change are some of the major challenges faced directly or indirectly by the respondents resulting in physical and financial losses. These companies feel that climate change is expected to affect weather patterns leading to more intense and/or more frequent hurricanes and storms, sea level rise, drought, incessant rain and rising temperatures. Some companies even identified health impacts. These changes are expected to result in losses in production and business opportunities in view of interruption or suspension of companies' operations.

Cairn India

Cyclone Sidr in November 2007 caused the closure of the drilling rigs offshore Bangladesh for four days at a cost of around £1million.

GAIL

Extreme climate change situations like rising sea level, increased

storm/incessant rain, hurricane, drought etc may interrupt our business operations and result in loss of business opportunities, interruption/suspension of operations, logistical problems etc.

ICICI Bank

Our lending to agricultural sector, besides the industry, is significant and any adverse effect on crop production is likely to have a significant effect on our lending portfolio.

HDFC Bank

Customers with business base in flood prone areas may face damages and rising insurance premium could impact the bank's profitability. 70% of Indian population is still dependent on agriculture and any change in climatic conditions would directly impact the crop production and livelihood, which in turn would affect their disposable income and hence affect our bank's retail business.

Financial companies identified rise in insurance payment for the company's operations located in flood prone areas as a risk, as these insurance coverages have considerable impact on the overall profitability of these companies.

Companies also recognise that rise in temperature due to climate change is likely to increase the energy demand for maintaining temperature for all business operations. Some companies are considering potential impacts of climate change on their business while others have already taken it into account during designing, developing and operating assets.

Remaining 22% (11) of the responding companies do not consider any physical risk due to climate change for multiple reasons. These include those types of businesses or manufacturing sites and operations that are located in areas not particularly sensitive to changes in climate conditions (for example ABB, Cummins, Infosys, Tata Steel) and also those the companies that have mitigation and disaster

HDFC Bank

Customers with business base in flood prone areas may face damages and rising insurance premium could impact the bank's profitability

ICICI Bank

Our lending to agricultural sector, besides the industry, is significant and any adverse effect on crop production is likely to have a significant effect on our lending portfolio

Cairn India

Growth of alternative energy is not a significant risk to oil and gas exploration and production business

Mahindra & Mahindra

The readiness of support infrastructure and the vendors to mitigate and adapt to the challenges is another India-specific risk

State Bank of India

As concern for climate change increases, there would be adverse impact on brand value and reputation of companies that show inadequate information on GHG emissions or lax treatment of it

management plans in place (for example Colgate, Cummins).

(iii) General Risks

General risks associated with climate change are those which arise due to energy and/or resource scarcity caused by a variety of scenarios. Price changes prompted by scarcity, changes in consumer attitude and demand, production and supply chain or supply process disruption are all feasible general risks. The companies were requested to share how they are exposed to general risks and types of commercial risks faced due to climate change.

68% (35) of the respondents see general risks arising due to climate change as a risk to their business. Commercial risk and competitive risk due to loss and delay in production and sale, scarcity of resources, change in consumption patterns and disruption in supply chain operations could drive up costs. Disruption in the transportation of raw materials and finished products hampering business are some of the other risks involved. Some of the companies also see it as reputation loss associated with company's action leading to shift in consumer attitude and demand. The statutory requirements in the global market are getting more stringent over the years, and henceforth, to compete, Indian companies need to bring in transformation in their business as usual.

Yes Bank

Other than severe impact on agricultural insurance, health insurance, insurance used by building contractors etc, rapid and unexpected changes in fuel and commodity prices resulting from storms and typhoons can pose risk in financial portfolios; prolonged impairment of infrastructure, access to banking and financial services and timely transactions.

Cairn

Global demand for fossil fuels is predicted to increase by over 50% by 2025, therefore growth of alternative energy is not a significant

risk to oil and gas exploration and production business.

HDFC

Direct impact of climate change is relatively small, however if we fail to adequately manage and control the risks in this area, it may have financial impacts, and more importantly damage our reputation.

Mahindra & Mahindra

An increased awareness of green and energy efficient products could increase demand for such products and initially lead to higher cost to customers. The readiness of support infrastructure and the vendors to mitigate and adapt to the challenges is another India-specific risk.

WIPRO

In the Energy & Utilities sector, the big oil companies and utility companies are likely to face increased regulatory and public pressure to become more ecologically sensitive. This in turn may increase their cost of operations and have an impact on the quantum of business that they do with IT vendors like Wipro.

State Bank of India

In future, investors would demand adequate carbon disclosures. As concern for climate change increases, there would be adverse impact on brand value and reputation of companies that show inadequate information on GHG emissions or lax treatment of it.

Remaining 31 %(16) of the responding companies do not consider any general risk is likely to occur due to climate change for different reasons; modernisation of plants, adopting state-of-the-art technology and energy efficient technologies and type of services and products they are offering.

(iv) Risk Management

Managing risks associated with climate change and its impacts are critical and companies responded by identifying actions already

undertaken or planned to be taken by them to manage these risks.

74% (38) of the respondents have taken initiatives or have planned steps to be undertaken to mitigate and adapt to the risks. Companies did not consider risk management options in response to regulatory risks. However companies are putting preventive actions in place to mitigate any such risks arising due to future regulations. Measures undertaken by the responding companies include setting up of risk management committees, performing risk analysis, incorporating business risk models and sustainable viable investments. Companies are also bringing in changes in their policies, operations, changes in product design, their resource consumption patterns, strengthening their supply chain and planning shifts in energy source and energy use.

Yes Bank

The bank operates according to its Environment and Social Policy (ESP) which identifies key environmental and social risks that can adversely impact the bank or affect its sustainability performance. This includes, for example, wasteful consumption of resources and the consumption and emissions of harmful substances at its facilities. The bank is taking active steps to monitor and reduce its carbon footprint. It has also invested in various initiatives to sensitise customers/clients towards their impact on the environment.

WIPRO

As part of our 'Business Continuity Planning (BCP)' framework, we have put in place a broad range of risk management procedures, processes and mitigating steps for extreme weather events. In association with BCP, Facilities Management group reviews potential risks regularly, and initiates mitigating steps wherever required including insuring real estate property against any damage due to such calamities.

Tata Motors has incorporated environmentally sound practices as one of its prime objectives in its

processes, products and services. We have been implementing various environment management programmes on energy conservation such as reduction in electricity and fuel consumption and thereby reducing GHG emissions.

GSK plans to reduce its operational energy consumption and global warming impact (measured as CO₂-e) by 20% before the end of 2010 and 45% before the end of 2015 from a 2006 baseline relative to net operating revenue.

Areva T&D

The group has drawn up a business risk model (BRM) to be used by its business units. Working from a defined number of typical risks or families of risk (BRM risk), the model indexes all of the foreseeable or unexpected situations or events that could have an impact on employee safety, the financial performance of the business unit, those of the subsidiary or even of the group, and its corporate image.

Colgate

Emerging risks such as those associated with climate change scenarios are also considered as new information obtained.

Cummins

Our internal company-wide climate change workgroup is taking a three pronged approach (1) evaluating potential policies; (2) reducing emissions at plants; and (3) reviewing current and future products for improved energy efficiency.

Due to the significant lead time associated with our products, we must minimise the risk of potential regulations by taking steps today. As a result of this work, we expect to be well positioned among our peers in the event of such regulations arising.

V) Financial and Business Implications

This section focuses on whether the responding companies assess the current as well as future financial effects of the climate related risks

WIPRO

As part of our 'Business Continuity Planning (BCP)' framework, we have put in place a broad range of risk management procedures, processes and mitigating steps for extreme weather events

YES Bank

The bank is taking active steps to monitor and reduce its carbon footprint

HDFC Bank

We may face increased costs while adopting measures necessary to understand and respond to climate change

Gujarat Ambuja

Loss of production of cement at one of our main cement manufacturing units could lead to loss of business in the range of US \$1 million per day and this loss is an opportunity for competitors

Mahindra & Mahindra

Regulatory requirements in the near future will demand enhanced fuel efficiency and emission compliance of all Mahindra vehicles, elimination of all hazardous materials in production and more stringent waste management

they have identified and how those risks might affect their businesses. 50% (26) of the respondent companies are in the process of assessing the financial and business implications due to risks associated with climate change.

Indian companies also believe that rising regulatory, competitive and public pressure to reduce GHG emissions are also associated with financial implications. As a result, there is a need for appropriate policies and technological and financial innovation. However, some companies already have and are now integrating financial and business implications arising out of climate change impacts into their risk management process.

The major financial and business implications identified by the responding companies include change in energy use and energy source resulting in additional cost. Other financial implications identified by companies include higher insurance premiums, policy exclusions, possible increased operations cost with emissions reduction, retrofitting of existing equipments, carbon financing, participating in carbon markets and purchasing of carbon credits and competitive disadvantage from lack of experience in carbon trading. Some companies such as Hindustan Petroleum consider investments made in the processing and design of the structures vulnerable to climate impacts. However, other companies believe that investments made are also resulting in benefits derived from CDM initiatives, which is enabling them to recover the capital cost. Besides this the companies feel that carbon markets also provide future opportunities to them by implementing energy efficient measurements.

HDFC Bank

The climate changes will impact our operations, those of our customers and the economies in which we operate. It is likely that the challenges in the operating environment will alter the credit profile of our customers, which may

also result in dramatic changes to asset valuations.

Gujarat Ambuja

Loss of production of cement at one of our main cement manufacturing units could lead to loss of business in the range of \$ 1 million per day and this loss is an opportunity for competitors.

Mahindra & Mahindra

Regulatory requirements in the near future will demand enhanced fuel efficiency and emission compliance of all Mahindra vehicles, elimination of all hazardous materials in production and more stringent waste management.

Hindustan Zinc

There will be a need for more investments to be made in case of more stringent regulatory norms, emission reporting requirements and emission reduction activities taking place in future. These activities will require additional resources, research and analysis for efficiency improvements, or adopting new technologies, implementation and reporting.

HPCL

We invest heavily in engineering structures that are vulnerable to climatic changes necessitating, over engineering solutions and, consequently, increasing our construction and abandonment cost.

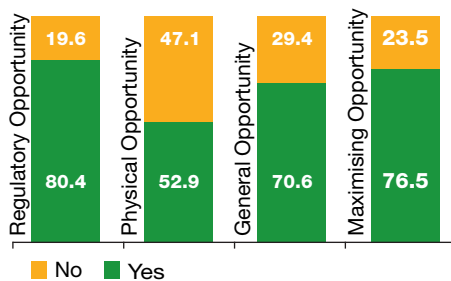
b. Opportunities

In the first CDP India report, Indian companies stated that impacts of climate change are resulting in greater opportunities. Companies responding to 2008 information request also generated information on opportunities for companies' business partners, clients, suppliers and customers (fig. 7).

Regulatory Opportunities

The companies shared information about opportunities that are arising and benefiting them as a result of regulatory changes in climate policy.

Fig. 7: Opportunities identified due to Climate Change



Regulatory opportunities generally arise from current and expected local or international governmental policy on climate change. For example, the introduction of emissions trading programmes, technology incentives and imposition of process and product standards can provide opportunities.

80% (41) of the responding companies consider current or anticipated regulatory requirements as an opportunity for their business. Response from these companies show that current or anticipated regulatory requirements are triggering the establishment of long-term investments in energy efficient technologies with financial benefits. Responses also show that companies are preparing to comply with future regulations. At present, India’s status as a Non-Annex I country, is considered to be a regulatory opportunity by the respondents. This has enabled these companies to benefit from participation in CDM. Furthermore, reduction in operating costs through optimisation of processes and products, development of alternate fuels, switching over to renewable energy, availing energy efficiency are resulting in GHG emissions reduction and are also being considered to be opportunities.

WIPRO

Regulatory policies act as catalysts in creating new markets by increasing awareness among consumers which eventually translates into changed procurement and consumption behaviour. Regulatory pressures will also bring about large scale changes

in the way industries and companies run their businesses and operations. This, in turn, will create new markets for companies with a presence in industrial and institutional solution sector.

ICICI

We assisted Energy Service Company (ESCO) to facilitate urban local bodies, manufacturing companies, commercial buildings and hospitals to reduce their energy bills. We demonstrated that upto 40% savings in energy bills of municipal corporation on street lighting and upto 25% savings in energy bills in water pumping were possible without the municipal corporations investing a single rupee, provided they implemented projects using the services of ESCO. We also brought in cleaner technologies like smokeless cupola based on natural gas to revive the foundry industry that was closed due to a Supreme Court order rendering thousands of workers jobless in Agra. Not only are we trying to help reduce pollution around the Taj Mahal, but we are also trying to revive the industry and give back these workers their jobs that they had lost.

Hindustan Zinc

Having anticipated the future risks due to probable regulatory scenario as a result of climate change, we have geared up to implement energy conservation measures, and consequently several CDM projects have been implemented.

HDFC

Future regulations may not have a direct impact on our operations. However, they will potentially impact our clients such as manufacturing, energy and utilities. This poses both an opportunity, where clients will be likely to require additional capital investment to meet the regulations or a risk as regulations may create hardships for companies that are not geared for such changes.

Tata Motors

Looking at the current export related regulatory requirements of low

WIPRO

Regulatory policies act as catalysts in creating new markets by increasing awareness among consumers which eventually translates into changed procurement and consumption behaviour

ICICI

We brought in cleaner technologies like smokeless cupola based on natural gas to revive the foundry industry that was closed due to a Supreme Court order rendering thousands of workers jobless in Agra

Infosys

We are actively pursuing business opportunities to help our clients assess their carbon footprints, energy audits and pursue sustainable initiatives

GAIL

Opportunities exist in the company for improving energy efficiency, for optimising the processes and products, utilisation of alternate or renewable sources of power etc and to derive the benefits of reduced costs and carbon credits

emission norms, we have an opportunity to develop the next level of fuel efficient diesel powered vehicles. We have upgraded the performance of our entire range of two, four and six cylinder engines to meet international emission standards.

GSK anticipates that achievement of its climate change and energy reduction targets will enable it to reduce its energy consumption and global warming impact in advance of anticipated regulatory requirements. In the context of carbon trading this may create opportunities in the future, but they are not expected to be material to GSK's overall financial performance.

ii. Physical Opportunities

Physical opportunities included opportunities being realised due to changing weather patterns and situations resulting in increased sales of particular products and services and opportunities arising from measures to adapt to the physical consequences of climate change.

52% (27) of the responding companies recognised that current or anticipated physical changes resulting from climate change present opportunities for them. These include:

- Companies such as ABB, Asian Paints, Bharat Petroleum, Cummins India and GAIL among others responded that climate change is bringing in new product solutions.
- Better market reputation and improved export potential, increase in product demand with more investment in research and development (R&D)
- Bringing in more innovations and opportunities in operations
- Better resource management
- Strengthening disaster management plan for the supply chain and distribution network.

JSW Steel

The anticipated physical impacts of climate change in this location are increased precipitation in a traditionally arid area. This will ease

the availability of water for steel making and also provide us with opportunities for rain water harvesting. This will improve water security for the steel plant operations.

Yes Bank

Yes Bank is actively involved in the Indian CDM market, offering project financing, carbon advisory, financing against Emissions Reductions Purchase Agreement (ERPA) and assistance with CER sales through its Carbon Finance Group.

GAIL

Opportunities exist in the company for improving energy efficiency, for optimising the processes and products, utilisation of alternate or renewable sources of power etc and to derive the benefits of reduced costs and carbon credits.

Infosys

We are actively pursuing business opportunities to help our clients assess their carbon footprints, energy audits and pursue sustainable initiatives.

HPCL

Accounting for emissions may help to identify the cost reduction opportunities. This can derive increased material and energy efficiency benefits as well as result in development of new products and services that reduce the GHG impacts on our customer and/or supplies. This in turn reduces production cost and helps the company in having distinct identity in an increasingly environmentally conscious market place.

iii. General Opportunities

Apart from regulatory and physical opportunities; companies also consider particular business activities, together with details of the types of opportunities climate change may create for them.

70.58% (36) of the respondent companies are of the opinion that climate change does offer general

opportunities for their business. The respondents listed a wide range of general opportunities which may arise due to climate change, such as:

- Change in the consumer behaviour in terms of demand for more energy efficient products is acting as a reputation incentive for the companies.
- Introducing new products that withstand natural calamities.
- Offering customers a wide range of low carbon energy solutions.
- Increase in demand of products required for reconstruction in areas affected by climate change was identified as a market opportunity for the construction and engineering sectors.
- Carbon trading and finance, financing renewable energy projects, financing infrastructure projects and promoting alternate energy systems are the new emerging business dimensions.

ABB

A significant proportion of ABB's revenues come from products that increase customers' energy efficiency and ABB's strategy through to 2011 identifies environmental concern as a key driver of market growth.

GSK

Climate change and its associated risks are becoming better understood and more widely accepted and stakeholder expectations are changing. GSK anticipates that its stakeholders will require more information about how GSK is responding to climate change and reassurance that GSK is using energy efficiently.

Mahindra & Mahindra

Changes in the consumer priorities and growing awareness of green products and services have led to investment and development of more fuel efficient vehicles as well as hybrid and biodiesel vehicles. Financial and environmental performance of the company will continually improve through increased energy efficiency and keeping in mind the customers' demands. Increasing awareness of

sustainability and sustainable development throughout the company has become a key priority.

GAIL

The company has opportunities for improving its processes and products and can also derive benefit from emission reductions through adoption of best practices, latest technology, high levels of efficiency, improved safety and environmental practices apart from carbon credits.

Tata Motors

With increase in demand of fuel efficient vehicles, there is an opportunity to design and develop fuel efficient & alternate energy vehicles and to work on advanced technologies, fostering innovation for design & development minimising dependence on fossil fuels. It is also an opportunity for minimising energy consumption and energy cost during manufacturing and increasing the overall productivity.

Sesa Goa Limited

The clean process of coke making technology with carbon credits as an additional incentive throws up opportunities to set up similar coke plants across the globe and earn royalty from such sales.

WIPRO

The increasing demand supply gap in conventional power combined with the compulsion to reduce GHG emissions will see the market for clean, renewable energy open up and expand rapidly. Wipro Ltd does intend to align its strategy with the market directions in the renewable energy space and we have already taken the first couple of foundational steps in this regard. These actions will be aligned with Wipro's plan to be carbon neutral in 3 years' time.

ICICI

We see this as a business opportunity where we could encourage the industry to promote energy efficiency, reduce pollution and contribute towards a cleaner and sustainable environment and at the

ABB

A significant proportion of ABB's revenues come from products that increase customers' energy efficiency and ABB's strategy through to 2011 identifies environmental concern as a key driver of market growth

Tata Motors

With increase in demand of fuel efficient vehicles, there is an opportunity to design and develop fuel efficient and alternate energy vehicles and to work on advanced technologies, fostering innovation for design and development minimising dependence on fossil fuels

ICICI

Under its “Zero Emission Initiative”, ICICI Bank has taken steps to promote a cleaner urban environment by providing concessional assistance to projects that endeavour to manufacture vehicles with zero emissions; first passenger electric cars and electric three wheelers

76%

of the respondents have committed investments to maximise opportunities

Asian Paints

In future, we have plans to come up with certified green buildings

same time, earn carbon credits. Our environment initiatives include efforts to attract and channel private financing into cleaner technologies, create public private partnership to mitigate GHG emissions and also help to build human and institutional capacity.

Moser Baer

The introduction of emissions trading programmes, technology incentives and imposition of process or product standards can provide opportunities. The huge requirement of solar energy world wide and the subsidy provided by EU is one of the most important opportunities that may be enjoyed by the company.

State Bank of India

Financing companies adopting energy efficiency measures and clean and renewable technologies is a promising opportunity. New products like weather derivatives, upfront financing of carbon credit receivables, carbon credit delivery guarantee etc would increase demand and add to business income.

(iv) Maximising Opportunities

Maximising opportunities relates to the investments already made by the companies and also investments planned for future products and services that will minimize the impacts of climate change and help in adapting to the effects of climate change.

76% (39) of the responding companies have committed investments to maximise opportunities such as research and development, patents and intellectual property rights. These include:

- Research and development into energy efficient products with improved performance.
- Investment in clean technologies to improve process efficiency and energy conversation.
- Using alternate sources of fuel and renewable energy sources reducing GHG emissions.
- Investments towards offsetting carbon emissions.

- Financing and promoting renewable energy projects, infrastructure, alternate energy projects, sustainable forestry, carbon financing, carbon trading etc.
- Integrating IT strategy into their business.
- Advisory services in sustainable, clean technology and carbon trading.

Asian Paints

We have invested in technologies like cogeneration unit that uses cleaner fuel (natural gas) for production of electricity thereby minimising the generation of greenhouse gases. Moreover, we have also incorporated lots of energy-efficiency measures reducing the specific power requirement substantially over the years. In future, we have plans to come up with certified green buildings.

ICICI

Under its “Zero Emission Initiative”, ICICI Bank has taken steps to promote a cleaner urban environment by providing concessional assistance to projects that endeavour to manufacture vehicles with zero emissions; first passenger electric cars and electric three wheelers. Currently, we are also undertaking a major CFC and energy inefficient chiller replacement initiative with non-CFC and energy efficient chillers with provision of incentives to chiller owners wanting to replace them ahead of the 2010 Montreal Protocol deadline. Besides, we have recently launched a “Go-Green” initiative to encourage our customers to sign for electronic statements.

YES BANK operates in various ways within the Indian CDM market. The bank offers loans and advisory in the RE/EE sector, totaling US\$ 8 billion. Yes Bank also acts as the India representative to the Global Environment Fund’s approximately US\$ 350 million GEEMF3 fund, which directs investment into clean energy. Our Private Equity team is also proposing the joint launch of a PE fund with GEF, sized at approximately US\$ 200 million, which will also be directed toward clean technology projects.

Sterlite had already invested INR 705 million to develop 3 CDM projects, and we plan to invest another INR 720 million to develop 3 more CDM projects.

Colgate

Since 2003, most of Colgate's larger sites have participated in comprehensive third-party energy surveys, resulting in the identification of numerous energy savings projects which have now saved the company more than US\$ 2.5 million per year in energy costs.

ICICI

We assisted in production of 10 MW of power (waste heat recovery) within a single large copper smelter in one such successful demonstration, where we not only mitigated atmospheric pollution and GHG emissions, but also saved energy. Likewise, we also demonstrated that edible oil refineries that have a very high turnover with very low margins could come off the grid completely, by using biomass fired micro turbines to generate power within the plant and more than double their earlier margin of profits.

2. GHG Emissions Accounting

The World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) in their GHG Protocol Corporate Accounting and Reporting Standard have articulated the GHG accounting and reporting principles. The principles are:

Relevance: Ensure that the GHG inventory appropriately reflects the GHG emissions of your company and serves the decision-making needs of users – both internal and external to the company.

Completeness: Account for and report all GHG emission sources and activities within your chosen boundaries. Disclose and justify specific exclusions.

Consistency: Use consistent methodologies to aid accurate comparisons of emissions over time.

Transparently document any changes to the data, boundary, methods or other relevant factors in the same time series.

Transparency: Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any important assumptions, and cite the accounting and calculation methodologies used.

Accuracy: Ensure that your GHG calculations are accurate, and provide reasonable assurance of the GHG information's integrity.

Methodology used for Identifying and Calculating GHG Emissions

Reporting Boundary

On similar guidelines as per the GHG protocol, reporting boundaries were broadly divided into 3 major categories for the companies on which they have set their boundaries for GHG emission accounting. These are:

- Companies over which financial control is exercised;
- Companies over which operational control is exercised;
- Companies in which an equity share is held.

37.5% (18) of the responding companies such as ABB, Areva T&D, Cairn, Infosys, ITC, Yes Bank, Tata Steel etc have set the boundary over which its financial control is exercised.

12.5 % (6) of the responding companies such as JSW, Moser Baer, Sobha Developers and Wipro etc have set the boundary over which operational control is exercised.

Only one company Asian Paints have set the boundary over which an equity share is held.

6.25 % (3) of the responding companies have set the boundary over all the 3 divisions (Ambuja).

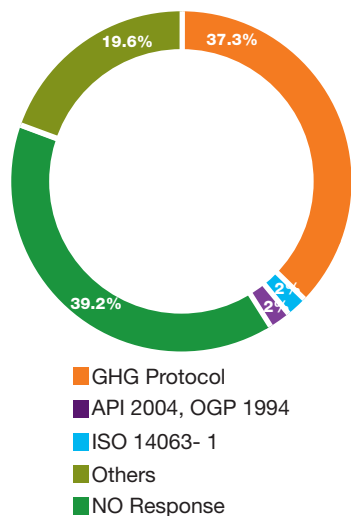
35.4 % (17) of the responding companies such as Canara Bank, CESC, HDFC, IDFC, Sesa

State Bank of India
Financing companies adopting energy efficiency measures and clean and renewable technologies is a promising opportunity. New products like weather derivatives, upfront financing of carbon credit receivables, carbon credit delivery guarantee etc would increase demand and add to business income

Colgate

Since 2003, most of Colgate's larger sites have participated in comprehensive third-party energy surveys, resulting in the identification of numerous energy savings projects which have now saved the company more than US\$ 2.5 million per year in energy costs

Fig. 8: GHG Accounting Methodology adopted



Goa etc have not clearly provided any information on their boundaries.

Methodology - GHG Emission Accounting

CDP as part of its process recommends that companies follow the standardised GHG protocol. However, companies are free to adopt a methodology to calculate their GHG emissions.

37.3 % (19) of the responding companies are using methodology described under the GHG protocol.

2.0 % (1) of the responding companies are following ISO and API, OGP.

Remaining 21% of the responding companies use different types of methodology i.e; IISI tools based on the carbon calculations tools developed by WRI as GHG protocol, ACM0004 ver. 2, Central Electricity Authority in India and Chicago Carbon Exchange (See Fig. 8).

Direct and Indirect Emissions – Scope 1 and Scope 2 of the GHG protocol

50% (26) of the responding companies have provided detailed breakdown of the direct and indirect emissions under Scope 1 and Scope 2 of the GHG protocol and electricity consumption.

Out of total number of companies, only 33.3% (17) companies have provided information on direct GHG emissions (fig. 9). Together these 17 companies emitted 34.16 million tonnes of CO₂-e of GHGs, whereas the disclosure on indirect emissions was relatively poor i.e. 29.4% (15). Together these 15 companies emitted 1.7 million tonnes of CO₂-e of GHGs indirectly. The information provided by most of the multi-national companies such as Cairn Energy are regarding cumulative emissions of their global operations and not specific to emissions from their India operation.

The disclosure is rather poor for other GHG emissions. Only 25% of

the responding companies have provided this information. Even then the GHG emission from other sources is significantly lower and stands at 0.40 million tonnes CO₂-e. Together, other GHG emissions account for 1% of total GHG emissions of CO₂-e as emitted by all the companies which have responded (see fig. 10). Only 4 companies have provided the breakdown details of other emissions from Indian operations i.e.; employee business travel, external distribution/logistics, use/disposal of companies’ products & services and supply chain.

Merely 39% (20) of the responding companies have a system in place to assess the accuracy of GHG emissions inventory calculation methods, data processes and other systems relating to GHG measurement. Some of the companies have reported changes (positive / negative) in the overall GHG emissions in comparison to previous years. GHG emissions reported by *Sterlite industries* for financial year 2006-07 was 5, 52,513 tonnes of CO₂-e, while for the year 2007-08, it was 5, 38,802 tonnes showing a marginal decline. *Asian Paints* has reported increase in their emissions level in absolute terms from 35,738 metric tonnes of CO₂-e to 40,018 metric tonnes, but emissions per metric tonne of paint production has reduced from 0.148 to 0.142 (>4% reduction) from 2005-06 to 2006-07 and from 0.142 to 0.137 (>3.5%). The overall specific reduction in emission of CO₂ in last 3 years is >7.4 %.

ICICI Bank has taken steps to ensure that its own buildings are energy efficient, leading to substantial reduction in energy savings and therefore, GHG emissions. The measures adopted in our corporate building, ICICI Bank Towers in Mumbai includes installation of energy efficient and non-CFC chillers, electronic ballasts for lighting system and capacitor banks. Energy conservation measures taken up at this building alone have helped us to save over 3 million units (kWh) per year compared to 2002, the year e-save measures were started.

Fig. 9: Proportion of disclosed Scope 1, Scope 2 & Scope 3 emissions (%)

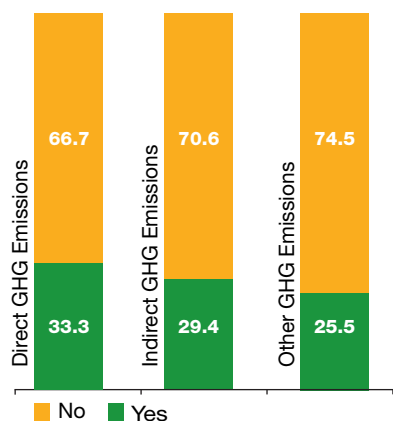
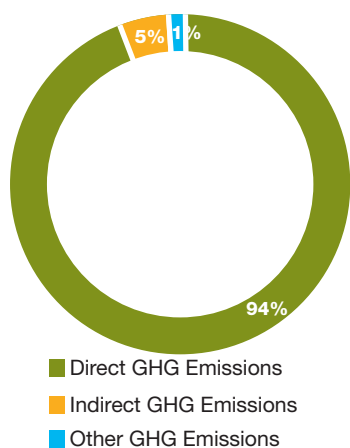


Fig. 10: Proportion of disclosed GHG emissions (%)



Energy Cost and Consumption

29% (15) of the responding companies have provided information on their purchased electricity. These 15 companies together consume 1.5 million MWh of power. The disclosure percentage of energy purchased or generated from renewable sources is significantly low or almost negligible (3.4%). This is interesting, especially since most of the companies have disclosed that they have invested in the renewable energy power generation.

46% (23) of the responding companies disclosed information on the total costs of their energy consumption – costs of fossil fuels and electric power. However, the total costs of the respondent Indian companies (excluding MNCs) for energy consumption is US \$ 2301.5 million per annum. This translates to, on average, 21.27% of the total operating costs. However, certain sectors such as Energy, Materials and Transportation which are the energy intensive sectors have their energy cost ranging from 35% to almost 71% of their total operating cost. The percentage of energy purchased or generated from renewable energy is significantly low or negligible from responding Indian companies in comparison to their MNC counterparts.

Emission Trading

35% (18) of the respondents have some strategy in place for trading or participating in regional and/or international trading schemes (e.g.: EU ETS, Regional GHG Initiative (RGGI), Chicago Climate Exchange (CCX) and Kyoto mechanisms such as CDM and JI projects. Only 4 companies (9% MNCs) are participating in the EU ETS scheme, whereas 13 (27%) Indian companies are trading in or are planning to go for more CDM projects.

TATA Motors, has developed a CDM Project based on a 35.55 MW Wind Power Project in Maharashtra; generating approximately 50 million units annually since April 2001.

Hindustan Zinc

We have already registered one project under CDM, which is expected to give 15,933 CERs for the financial year 2007- 08 for the company.

Performance

GHG reduction plans and targets are used by companies as an important part of their overall GHG strategy and to demonstrate commitment and leadership. 60% (31) of the responding companies have GHG emissions reduction plan in place. Some of these companies have provided clear target plans (see table. 2). However, the remaining companies have provided the subjective targets, which are dependent on the nature of companies' activities. These include reduction plans which might directly or otherwise effect the GHG emissions including operation and process optimisation, energy efficiency targets, investment in renewables and energy

29%
of the respondents have provided information on their purchased electricity

Tata Motors
We have been implementing various environment management programmes on energy conservation such as reduction in electricity and fuel consumption and thereby reducing GHG emissions

Table. 2: GHG Reduction Plans

Company	Baseline Year	Performance Targets
ABB	2007	Reduce energy use by 5% over the next two years
Ambuja Cements	1990	20% reduction in net specific CO ₂ emissions by year 2010
Areva T&D	2004	20% reduction in energy consumption and 50% in GHG emissions
Colgate Palmolive	2002	Reduced energy use and carbon dioxide (CO ₂) emissions by 25% per tonne of product produced by end of 2010.
Cummins Inc	2005	Reduce total global GHG emissions by 25% per dollar of revenue by 2010
Glaxo Smithkline	2006	Reduced operational energy consumption and global warming impact [measured as CO ₂ -e] by 20% before the end of 2010 and 45% before the end of 2015
Nestle	1997	Annual energy savings of 1% -2% per ton of product over the next 5 years
Wipro	2007	Carbon neutral by 2011 by progressive reductions of 25%, 35% and 40% on the baseline levels of energy intensity i.e. kWh per person
Yes Bank	2008	Reduced global energy consumption by almost 10%, once the plan is in place.
Tata Steel	Not Disclosed	Reduced carbon emission level from 2.13 t/tcs to 1.8 t/tcs by Financial Year 2010.
Hindustan Zinc	2007	For the year 2007-08, target set for 5% reduction (vis a vis 2006-07) in the specific energy consumption in all operations. The actual reduction was 13%
JSW Steel	2006-07	Plan to bring down the energy consumption to 6.5 GCal per tcs
Sesa Goa	2008-09	Company has set target of 3% reduction in energy consumption.

WIPRO

While Wipro's business has grown from less than US \$1 billion in 2001-02 to nearly US \$5 billion in 2007-08, the net energy consumption per person has reduced by nearly 15% over this period. This has resulted in significant energy and cost savings

efficient technologies, shift towards clean/alternate fuels, consumption patterns, and changes in travel, energy audits, and CO₂ sequestration through farm and social forestry initiatives. Interestingly many of the companies has shared information on emissions reductions and associated costs or savings (see table.3)

Hindustan Petroleum

In our view the goal must be to stabilise GHG levels through sustainable long term emission reduction measures. We support the emerging consensus that it would be prudent to limit the increase in world's temperature to 2°C above pre-industrial temperature. One way to achieve this would be to ensure that global emissions in 2050 are not higher than today's. This is a major challenge but we believe that reduction can be achieved through a mix of existing and emerging technologies.

Our strategy includes making available more clean fuels, increasing energy efficiency in operations including in the buildings and also tapping renewably energy sources viz. wind power/solar power. Government and business need to work together to create a policy framework that drives economic progress and provides energy security but at the

same time, aims at significant emission reductions. At the moment we do not have specific target/ plan with respect to GHG reduction. In the past and from 2000 onwards, through energy efficiency and process optimisation projects, we have been able to bring about a reduction of approximately 400,000 tonnes of CO₂ emissions by way of reduction in fuel consumption. However various energy efficiency projects already underway in the corporation would lead to reduction in GHG emissions on a sustainable basis in the years to come.

HDFC

Annual energy reduction target of 5% is emphasised through tighter control of building management and use of innovative lighting products. Investment plans are made on a property specific basis, depending on whether it is an owned or leased property. We propose the use of multi-functional devices (advanced energy efficient printers), energy efficient air conditioning units, use of capacitors, etc.

- Reduce energy consumption per employee by 5% over the next 5 year horizon.
- Reduce per capita travel costs.
- Reduce paper consumption per head by 15% over the next 5 years.

Table.3 Emissions Reductions and Associated Costs or Savings

ABB	Energy intensity has been reduced by approximately 5% per output unit over a period of two years (2006 and 2007).
CESC Ltd	Achieved over 145000 CERs.
Colgate Palmolive	Colgate has reduced its carbon dioxide emissions per tonne of product by approximately 14% from 2002 to 2007. We have improved our energy efficiency (energy use per ton of product produced) globally by approximately 29% from 1998 to 2007. We realised an estimated US \$5.6 million in energy savings in 2007.
Cummins Inc.	Emissions reductions of 149,000 tonnes eq.CO ₂ from 2005 as baseline year.
GlaxoSmithKline Pharmaceuticals(GSK)	GSK's latest energy reduction and climate change programme commenced in 2007. Between 2006 and 2007 it has saved around 46,000,000 kWh or US \$4.5 million.
Unilever	We made savings of around £ 234 million during the 5 year period from 2000-2005 approximately 80% of which were from energy savings.
Moser Baer	Energy conservation Plan has resulted in energy savings of 1071 Kw and 1553 kW for the year 2007 and 2008 respectively.
Nestle	Since 1998, the CO ₂ emissions from our manufacturing sites were reduced by 20%. During the same period, our increased by 76% resulting in an improvement of our GHG eco-efficiency, measured in CO ₂ per tonne of product, by more than 55%.
Wipro	Over a six year period from 2001-02 to 2007-08, the electricity consumption per person has reduced from 360 KWh per annum to 309 KWh per annum, a 15% reduction.
Sterlite Industries	Cost savings of Rs. 320.8 million between 2001- 08 under the energy conservation programme.
Yes Bank	Reduction in travel cost through video conferencing, hence reducing air travel by at least 150 trips annually — cost savings — US \$.004 million per annum.
	Reducing electricity consumption in each branch by switching off lights 2 hours earlier — cost saving- US \$.075 million per annum
	Double side printing will help reduce paper usage by 3 million pages annually — cost saving - US \$.00225 million per annum.

WIPRO

While Wipro's business has grown from less than \$ 1 billion in 2001-02 to nearly \$ 5 billion in 2007-08, the net energy consumption per person has reduced by nearly 15% over this period. This has resulted in significant energy and cost savings.

Sterlite Industries

Sterlite is keen to develop more number of GHG emission reduction projects to become a low carbon company or a carbon neutral company.

Emissions Intensity

Emissions intensity means the ratio of CO₂-e produced to a measure of economic output or other suitable denominator. No standards have yet been developed and as a result, various units are used. For example, the total profits of a company, the units of a particular product or the number of full time employees. For many sectors, turnover provides a default metric (CO₂-e per \$m turnover) and likewise different sectors use different units

The responding companies are using different emission intensity measurements which vary from sector to sector and company to company (see table. 4).

Cairn India

The treaty planned to succeed the Kyoto Protocol in 2013 signals the intent of the UNFCCC to regulate GHG emissions through carbon intensity targets. However, the uncertainty of these measures means the financial impact on projects or facility designs cannot be accurately measured at this point of time.

Planning for Future Energy Use and Emissions

Majority of the responding companies do not forecast or estimate their future emissions and therefore have no planning and strategy towards their future energy

use and emissions control. Only 28% (14) companies have estimated their future emissions.

The methodology adopted by most of the companies to estimate their future emissions is based on their expansion plans. For example, according to *Gujarat Ambuja*, estimation was done based on its capacity expansions under implementation as two new clinkering lines and associated grinding units will be in operation in year 2009. Similarly, *Cairn Energy India* makes its forecasts based on historic data and the proposed work plan and production forecast.

In contrast *Unilever* sets for itself a target and then works towards achieving these targets. Future emissions are estimated through the target setting process where each site sets an energy target in agreement with the regions. The overall Unilever target is then aggregated from the individual site targets and overall progress is then reviewed annually. Capital expenditure planning and payback for energy investments are determined at the site level.

Clearly, this is a much forward thinking and proactive approach as there is a conscious effort towards emission reduction.

Another MNC which has adopted a different strategy is *Nestle India*, which estimates its GHG emissions according to a methodology named Preliminary Environmental and Safety Impact Survey. However, details of these have not been shared.

Only 5 out of these 13 companies, take cost factor of future emissions in capital expenditure planning. None of the Indian companies, other than *Areva T&D*, factor in future GHG emissions in their capital expenditure planning or new investments. The remaining 4, all MNCs (*Nestle, Colgate, Glaxo Smithkline and Unilever*), do plan their capital expenditure after taking into account GHG emissions. *Glaxo Smithkline* has taken into account future GHG emissions in its investment decisions. It says "Decisions to invest in energy reduction and climate change

HDFC

Annual energy reduction target of 5% is emphasised through tighter control of building management and use of innovative lighting products

Sterlite Industries

Sterlite is keen to develop more number of GHG emission reduction projects to become a low carbon company or a carbon neutral company

Table 4: Energy intensity ratio used by companies from different sectors

Sub Sector	Company	Measurement of Emission Intensity
Sub Sector	Company	Measurement of Emission Intensity
Automobiles	Cummins India Ltd	CO ₂ -e per inflation adjusted revenue
	Mahindra & Mahindra	CO ₂ -e / US \$m turnover
	Tata Motors	CO ₂ emissions per unit of product
Banks - Asia	YES Bank	CO ₂ -e per employee
Cement	Ambuja Cements	kg CO ₂ / tonne cementitious material
Construction & Engineering	Sterlite Industries	Metric tonnes of CO ₂ -e per ton output
Diversified Industrial	ABB Ltd (India)	Metric tonnes of CO ₂ -e per employee
Industrial Products & Services	Areva T&D India	GHG emissions per turnover
IT Consulting & Services	Wipro	(i) IT businesses: 'Metric tonnes of CO ₂ -e per employee'
		(ii) Non-IT businesses (WIN & WCCLG): 'Metric tonnes of CO ₂ -e per unit of output (tonne or discrete units)'
		(iii) For both businesses, a common measure is 'Metric tonnes of CO ₂ -e per dollar of revenue' and 'Metric tonnes of CO ₂ -e per dollar of EBIT'. The other common measure that is appropriate is 'CO ₂ -e per square meter'
Oil and Gas Exploration	Cairn India	Tonnes CO ₂ -e / thousand tonnes of hydrocarbon production
	Hindustan Petroleum Corporation	MT of CO ₂ -e emissions per MT of crude processed.
Food Products	Nestle India	Metric tonnes of CO ₂ -e per ton output
Household and Personal Products	Hindustan Unilever	Metric tonnes of CO ₂ -e per tonne output
	Colgate-Palmolive (India) Ltd	kilograms of CO ₂ -e per ton of product produced
	Asian Paints	Metric tonnes of CO ₂ -e per litre
Diversified Chemicals	Asian Paints	Metric tonnes of CO ₂ -e per litre
Metals & Mining	Hindustan Zinc	Power consumed in KWH or energy used in GJ per unit of metal used
Steel	JSW Steel	Tonnes of CO ₂ emitted per ton of crude steel
	Tata Steel	Tonnes of CO ₂ emitted per ton of crude steel produced.
Movies & Entertainment	Zee Entertainment Enterprises	Metric tonnes of CO ₂ -e per square meter
Pharmaceuticals	GlaxoSmithKline Pharmaceuticals	tonnes CO ₂ -e per £ million sales
Real Estate	Sobha Developers	Tonnes of CO ₂ -e / million SBA (Square Foot Built up Area)
Electronic Equipment & Instruments	Moser Baer India Ltd	Energy savings per year

Cairn India

The uncertainty of a post-2012 treaty means that the financial impact on projects or facility designs cannot be accurately measured at this point of time

projects have been made earlier than would normally be the case”.

For the rest of the companies, even though they may be estimating their future GHG emissions, these are not being used and taken into account to decide company's future investment.

Governance

An overwhelming 62% (32) of the companies, recognise the importance of climate change and have appointed an executive board or committee to oversee and deal with the problem of climate change. In most other companies, the executive board comprises of senior management. For example, *Wipro* has formed a governance council called Ecoeye comprising of 7 senior level officials. Of these, 3 of the council members report directly to the chairman of the company. This, according to the company, is an indication of its serious commitment to ecological sustainability. In some

cases, for example *Hindustan Petroleum, Bharat Petroleum, and Sterlite* industries, the safety, health and environment department has been made responsible for climate change. Making a managing director or a top functionary responsible is indicative of the importance and the seriousness with which a company perceives climate change.

In most cases, the board or executive body assesses the performance of the company on climate change through presentations, quarterly reporting, annual environmental reports, etc.

Only 27.45% (14) of the companies have an incentive system for management of climate change or attainment of GHG emissions reduction. Some companies have implemented innovative ideas to promote better practices. *Sterlite Industries* have cash awards for creative ideas which could reduce GHG emissions. In case of *Unilever*,

Unilever

The CEO and Unilever Executive approve environmental strategy and policies, with operational responsibility held within the business regions and categories. A day-to-day responsibility for policy implementation and environmental management rests with the operating companies in each country.

A number of governance and advisory structures support climate change activities including:

- The Corporate Responsibility Council that has strategic responsibilities for the environment. Its members include senior executives from across the business.
- The Board's Corporate Responsibility and Reputation Committee which meets quarterly. This has governance of Unilever's conduct as a responsible corporate citizen.
- Unilever Sustainable Development Group – a group of five external experts in corporate responsibility and sustainability who meet twice a year.

achievement of GHG reductions and other environmental performance targets is part of the pay review process of those managers responsible for the relevant programmes/activities. Similar strategy is employed in some other MNCs like Colgate and Glaxo Smithkline. In Hindustan Zinc, individuals or groups can suggest and implement energy saving projects which qualify for CDM guidelines and they can gain attractive incentives on successful completion of such projects.

Communications

45% (23) of the companies communicate the risks and the opportunities presented by climate change, details of GHG emissions and plans to reduce emissions through various projects. Of these, 27.45% (14) of the companies use their annual reports to share the information. Almost 29% (15) companies directly interact and communicate with the shareholders. Another 43% (22) companies have also adopted voluntary communication methods such as publishing corporate sustainability reports to disclose their information.

Public Policy

40% of the responding companies engage with policymakers on possible responses and solutions to climate change including taxation, regulation and carbon trading. Most of the Indian companies have indicated that they are part of such dialogues through industry associations such as Confederation of Indian Industry (CII). In case of MNCs, they have also listed several examples; however, these conform to their global operations. However, the practice of lobbying in India is still in its infancy and is mostly done through associations and representations of companies.

Yes Bank

Both the Board of Directors and the Management Committee take into account the work being done; evaluate the process in which new and innovative technology can be put in place within the bank to reduce our carbon footprint

Glaxo Smithkline

Decisions to invest in energy reduction and climate change projects have been made earlier than would normally be the case

4

CDP6 India 200: Sector Analysis

Analysis of climate change impacts shows variance in vulnerability of sectors. This section provides an insight of responses at sectoral level and breaks down the responses to industry level to compare and contrast how each sector performs with respect to their climate vulnerabilities.

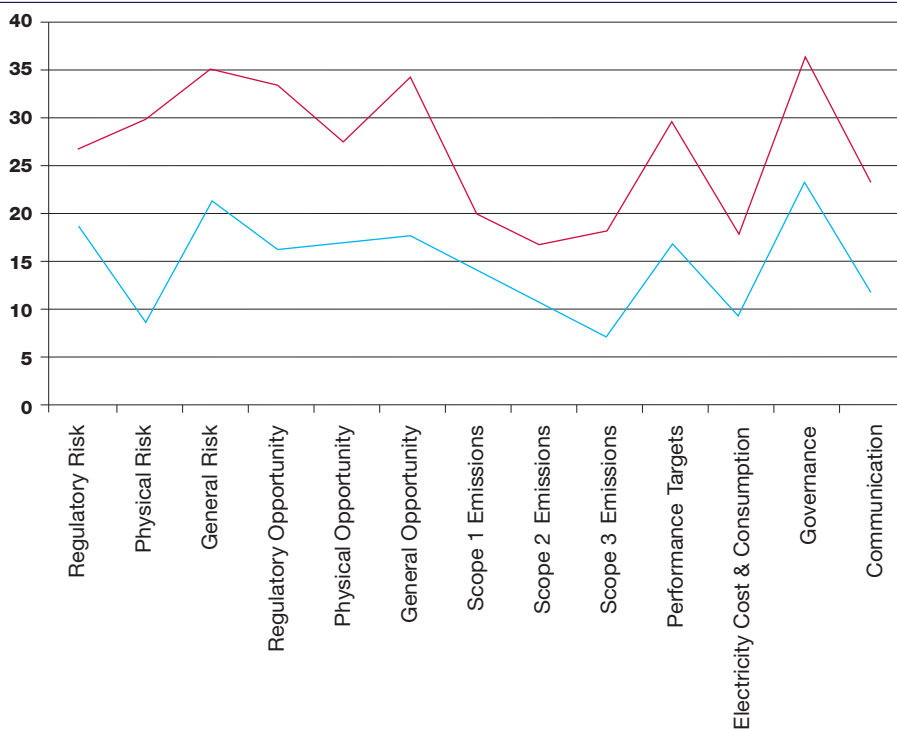
The 200 companies contacted for the CDP6 India Report have been broadly classified into energy intensive and non-energy intensive industries, based on the designated consumer criteria defined by the Environmental Conservation Act, 2001 (Table 5). According to this, the CDP6 India Report had identified 9 energy intensive sectors and grouped the remaining 8 sectors under the non-energy intensive sectors.

The sector analysis methodology involves a comparison of energy intensive versus non-energy intensive industries; individual sectors as well as the respondent companies that constitute these sectors. Figure 11 clearly differentiates between the response rate received from energy and non-energy intensive sectors, however, it is interesting to note the similarity of trends displayed by both clusters in their CDP disclosures. These trends have been analysed in detail within the subsequent sector-specific analysis. For more details please see table 6 at the end of this chapter.

Table 5: Classification of Sectors as per Energy Intensity

Energy Intensive Sector	Non-Energy Intensive Sector
Automobiles & Components	Banks & Diversified Financials
Capital Goods	Commercial Services & Supplies
Consumer Durables & Apparels	Household & Personal Products
Energy	Media
Food, Beverage & Tobacco	Pharmaceuticals, Biotechnology & Life Sciences
Materials	Retailing
Real Estate	Technology, Hardware & Equipment
Transportation	Telecommunication Services
Utilities	

Fig. 11: Response Comparison: Energy and Non - Energy Intensive Sectors



ENERGY INTENSIVE SECTORS

In the energy intensive sector, no response was received from 4 companies contacted in the consumer durables and apparels segment. In the transportation sector, only Great Eastern Shipping answered the CDP6 questionnaire; however, they declined to publicly disclose their response.

Automobiles and Components Sector

- In this report, the automobiles industry includes two sub-sectors: automobile companies and automobile component companies.

- In 2008, 8 companies in the automobiles sector were contacted and of these, 2 responded – Mahindra & Mahindra and Tata Motors.
- The 2 responding companies acknowledge the possibility of regulatory risks in the future and are taking steps towards reducing their GHG emissions and improving their energy efficiency. Emission regulations are expected to change manufacturing processes as well as GHG targets. The increase in fuel prices will have a significant bearing on the market demand for automobiles.

Key Sector Metrics

Automobiles and Components Sector

- Number of companies in the CDP6 India 200 in sector: **8**
- Number of companies responding in sector: **2**
- Number of companies disclosing publicly: **2**
- Percentage of respondents disclosing emissions: Scope 1: **12.50 %**, Scope 2: **12.50%**, and Scope 3: **0%**

Tata Motors

Low GHG emitting vehicles are an integral part of our product development and manufacturing strategy

Key Sector Metrics

Capital Goods

- Number of companies in the CDP6 India 200 in sector: **28**
- Number of companies responding in sector: **6**
- Number of companies disclosing publicly: **4**
- Percentage of respondents disclosing emissions: Scope 1: **7.14%**, Scope 2: **7.14%**, and Scope 3: **0%**

- Both the industry players also consider current and expected regulatory policy as an opportunity to invest in clean-technologies and to tap into the carbon markets and markets for alternative-fuel engines and vehicles. This is amply demonstrated in the rising trend of manufacturing of CNG, LPG and other alternative-fuel based vehicles. Tata Motors has successfully introduced CNG buses, Light Commercial Vehicles and has followed up with an LPG version of a passenger car, the Indica and a CNG version of ACE goods carrier. Tata Motors is also developing passenger cars with Integrator Starter Generator (ISG), to be launched in the market by 2010. Mahindra & Mahindra, on the other hand, has also launched the CRDe bio-diesel Scorpio, making it the first Asian vehicle in its class to achieve this feat. Mahindra's farm equipment sector also unveiled a 5% bio-diesel B5 tractor along with several utility vehicles, another first in the country. Mahindra & Mahindra envisions a future where mass market deployment of advance niche technologies may be a possibility.
- The automobile industry is also actively working to mitigate climate change impacts from its operational processes and supply chain. Mahindra & Mahindra has adopted a 'Sustainability Champion' structure for each of its business units to ensure the implementation of operational measures designed to reduce GHG emissions and energy losses. Tata Motor's "hub and spoke" approach for goods and passenger movement is an example of improving logistical performance through fuel conservation and shorter turnaround time.

Tata Motors

We are committed to reduction of greenhouse gases emissions throughout the lifecycle of our

products and development of fuel efficient & low GHG emitting vehicles are an integral part of our product development and manufacturing strategy.

Capital Goods

- For analytical purposes, the capital goods sector is comprised of the following sub-sectors: cement, construction & engineering, diversified industrials, industrial conglomerate, industrial machinery, industrial products & services and renewables.
- Of the 28 companies contacted from this sector, 6 responded – ABB, Areva T&D, Cummins India, GMR Infrastructure Ltd, Hindustan Machine Tools (HMT) and Thermax.
- As operatives in a Non-Annex I country, a majority of the indigenous companies from the capital sector do not perceive that there is any regulatory risks to their businesses. However the concept of 'Green Buildings' and following of the Energy Conservation and Building Code (ECBC) guidelines are expected to have a significant impact on the construction sector as government pressure (through voluntary implementation of the ECBC guidelines) and consumer awareness increases. The construction & engineering companies do consider that they may face new regulatory specifications designed to promote sustainability within this sector by optimising the energy efficiency of their structures, and are encouraging the integration of environmentally neutral construction materials.
- Physical risks pose a greater threat as this sector is heavily reliant on its industrial operations, and rising sea levels, floods/droughts and other climate change related natural calamities may jeopardize construction sites, make factories vulnerable as well as affect logistical networks.

- The likelihood of stringent future emission laws presents a lucrative opportunity for engineering companies with a portfolio of products and services designed to mitigate GHG emissions and save energy. ABB is one such company, and a substantial amount of its revenue is derived from products that increase energy efficiency. It considers climate change to be a key driver for market growth and offers solutions to other players in the market for related issues such as water management.
- Market player Areva T&D perceived strong growth prospects in the renewable energy sector and to this end created its Renewable Energy Business Unit in September 2006. It has a strong involvement in wind power, bio-energy, hydrogen/fuel cells and carbon free, nuclear energy.
- A majority of the responding companies in the capital goods sectors have established targets and plans to reduce their environmental footprint through reduction of greenhouse gases. Specific initiatives undertaken within this sector include ABB's process modifications in production plants and purchase of low-carbon electricity, and Areva's environmental policy which targets a 50% GHG reduction by 2011 at all contributing sites.

ABB

We have a large portfolio of products and services that help our customers in the utility and industry sectors save energy and reduce greenhouse gas emissions. For example, our advanced industrial information technology for the control and optimisation of integrated systems, electrical power grids, buildings and industrial processes, saves energy and reduces emissions. High-efficiency motors and variable-speed drives for motors contribute to large emission reductions. ABB drives installed worldwide save some 130 million megawatt-hours of energy per year, corresponding to an

ongoing reduction of CO₂ emissions of 109 million tonnes each and every year.

Energy

- In this report, the energy sector includes following sub-sectors: oil & gas exploration, oil & gas production and refining & distribution.
- Out of the 16 companies contacted, 7 responded Bharat Petroleum Corporation Ltd (BPCL), Cairn India, Castrol India, GAIL, Hindustan Petroleum Corporation Ltd (HPCL), Oil & Natural Gas Corporation (ONGC) and Reliance Natural Resources. Cairn and Castrol are MNC operations, while BPCL, GAIL, HPCL and ONGC belong to the Indian public sector.
- Whilst acknowledging National Action Plan on Climate Change, public sector companies consider that their operations are not exposed to regulatory risks as India does not currently have emission norms in place. More concern was expressed over exposure to the physical threats posed by climate change. Oil exploration and refinery operations located in low lying and coastal areas are susceptible to rising sea levels and hurricanes, as they threaten the safety of personnel as well as infrastructure.
- Also, as a sector heavily reliant on logistical networks, oil & gas companies can suffer considerable losses in the event of disruption of their supply chain. Reputation concerns and shifts in consumer demand due to increased acceptance of clean and renewable fuels also pose a formidable risk to oil exploration and production firms.
- As part of their risk management process, HPCL has accounted for physical risks in the design, development and operation of its facilities, and GAIL has drafted disaster management plans to mitigate these threats to the best of its abilities. HPCL

Key Sector Metrics

Energy

- Number of companies in the CDP6 India 200 in sector: **16**
- Number of companies responding in sector: **7**
- Number of companies disclosing publicly: **5**
- Percentage of respondents disclosing emissions: Scope 1: **6.25%**, Scope 2: **0%**, and Scope 3: **6.25%**

ABB

Drives installed worldwide save some 130 million megawatt-hours of energy per year, corresponding to an ongoing reduction of CO₂ emissions of 109 million tonnes each and every year.

GAIL

Loss of business opportunities, interruptions/suspensions of operations, logistical problems etc are major physical risks arising due to climate change

and BPCL have already begun setting up green fuel (LPG/CNG) terminals and are conducting R&D for alternate fuels, specifically bio-fuels and hydrogen cells. This will enable the companies to prepare for future shifts in market demand. Restructuring of logistical networks has also been prioritised and companies have begun to construct cross country pipelines, thereby reducing GHG emissions associated with transportation of fuels.

- Development of renewable energy sources presents two benefits for the oil & gas sector; it allows companies to avail energy efficiency, thereby reducing cost factors in the long run and it also provides access to a new and growing market for non-conventional fuels. These objectives can be supplemented with the development of CDM projects, and ONGC has already established itself as one of the leading Indian public sector companies in that regard. HPCL also considers that GHG accounting can be used to identify cost-reduction opportunities and derive increased material and energy efficiency benefits in its organisation.
- Of the 7 respondents, only Cairn India and GAIL have disclosed direct and indirect GHG emissions data. However, companies such as ONGC and HPCL are in the initial stages of implementing their respective GHG accounting programmes. BPCL, HPCL and ONGC have established and identified various plans and activities to reduce GHG emissions.
- All of the respondents have established internal governance structures to manage climate change strategy, and of these, BPC publishes relevant climate change data in its annual and CSR reports, whilst Cairn India has made information available to stakeholders through its corporate website.

GAIL

Loss of business opportunities, interruption/suspension of operations, logistical problems etc are major physical risks arising due to climate change. However risk management and disaster management plans are in place to mitigate these risks to the extent possible and to minimise the negative impact of any such occurrence.

BPCL

As a proactive company, we have already started initiatives and undertaken projects to reduce the GHG emissions.

- Setting up green fuel (LPG/CNG) terminals/stations,
- Laying cross country pipelines,
- Using oil industry common carrier cross country pipelines for supplies,
- Increasing Refining position,
- Developing renewable energy sources, e.g. windmills / solar cells
- R&D for alternate fuels (e.g. Bio-diesel, Hydrogen cells)
- Forming joint ventures for setting up of Bio-diesel value chain

ONGC

We are the leading central PSU in developing the CDM projects in India. We have 4 registered CDM projects with potential reduction of 1, 19,655 tonnes of CO₂ emission annually. We are also developing 13 more potential CDM projects.

HPCL

Being innovative is a key strategy to tackle climate change. Accounting for emissions may help to identify the cost reduction opportunities. This can derive increased material and energy efficiency benefits as well as development of new products and services that reduce the GHG impacts on our customer and/or supplies.

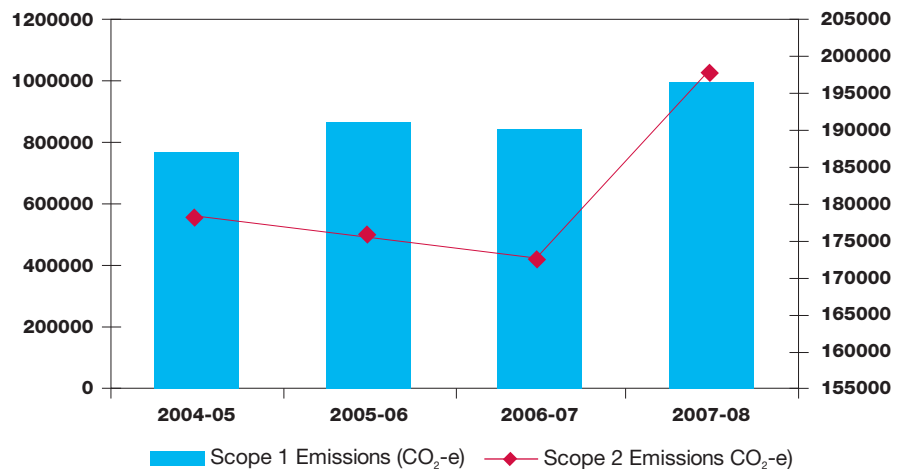
BPCL

We have an environmental management system to restrict emission to low levels through a number of programmes, alongside business operations, emission reduction has been achieved through upgrading infrastructure, modernisation, introducing clean technology/ monitoring devices, automation of loading and unloading activities, product storage management , increasing process safety level etc.

Food, Beverages & Tobacco

- CDP6 India Report contacted 6 companies from the Food, Beverages & Tobacco sector, of which 2 responded – Nestle (Food & Beverages) and ITC (Tobacco).
- This sector derives its raw materials from agricultural inputs. The physical response of crops to climatic events and drought and precipitation could affect the supply chain and availability of raw materials. Nestle India observes that these physical risks could redefine the market demand due to change in consumers, food consumption habits when rising overheads are transferred on to them through increased sale prices. Furthermore, as a production centric sector, assembly lines may become debilitated as and when electric utility companies raise energy costs due to regulatory and physical threats. The co-dependency between various Indian sectors and the ‘viral effect’ of climate change risks is observed here.
- Even though this sector is not carbon intensive, its environmental footprint extends through all stages of the product lifecycle. Consumers have become more environment conscious and companies like Nestle have opted to use this as an opportunity to tap demand through initiatives such as eco-friendly packaging and a transparent waste management programme.

Fig. 12: Scope 1 & Scope 2 GHG Emission Trend-ITC



- ITC states that energy conservation, clean technology and CDM projects have provided it with significant financial and competitive advantage. These efforts have also contributed positively to company’s goodwill and reputation amongst stakeholders. ITC has also taken the lead in mapping their scope 1 and scope 2 emissions (see fig.12)
- Nestle has utilised a combination of cleaner fuels, a co-generation plant , introducing reduction targets and a CFC phase out programme to help reduce its GHG emissions from manufacturing sites by 20% whilst increasing production by 76%. Its future GHG mitigation strategy includes plans for the development of CDM projects, implementation of IT solutions and a shift towards renewable energy sources.

ITC

We have set up a “Carbon Committee” consisting of senior managers from Finance, Environment & Legal Functions at the corporate level, to focus on issues related to climate change and CDM. ITC R&D is looking at agricultural productivity issues with respect to climate change and evaluates risk with respect to coastal manufacturing locations.

Key Sector Metrics

Food, Beverages & Tobacco

- Number of companies in the CDP6 India 200 in sector: **6**
- Number of companies responding in sector: **2**
- Number of companies disclosing publicly: **2**
- Percentage of respondents disclosing emissions: Scope 1: **33.3%**, Scope 2: **33.3%**, and Scope 3: **33.3%**

Nestle India

CFC phase out programme will reduce GHG emissions from manufacturing sites by 20% whilst increasing production by 76%

ITC

R & D is looking at agricultural productivity issues with respect to climate change and evaluates risk with respect to coastal manufacturing locations

Key Sector Metrics

Materials

- Number of companies in the CDP6 India 200 in sector: **25**
- Number of companies responding in sector: **10**
- Number of companies disclosing publicly: **7**
- Percentage of respondents disclosing emissions: Scope 1: **25%**, Scope 2: **25%**, and Scope 3: **25%**

Nestle

Reducing of GHG emissions are driven by:

1. Energy reduction targets set at global and local levels. Globally we target annual energy savings of 1% - 2% per tonne of product over the next 5 years.
2. Locally initiated Clean Development Mechanism projects, including fuel conversion.
3. Focused GHG reduction projects in factories qualified for the EU Emissions Trading Scheme.
4. Co-generation plants when relevant.
5. Energy management software.
6. Renewable energy sources (solar energy, biomass energy, geothermal energy, photovoltaic energy).

This will result in annual GHG emissions reduction of at least 1% - 2% per tonne of product over the next 5 years.

ITC

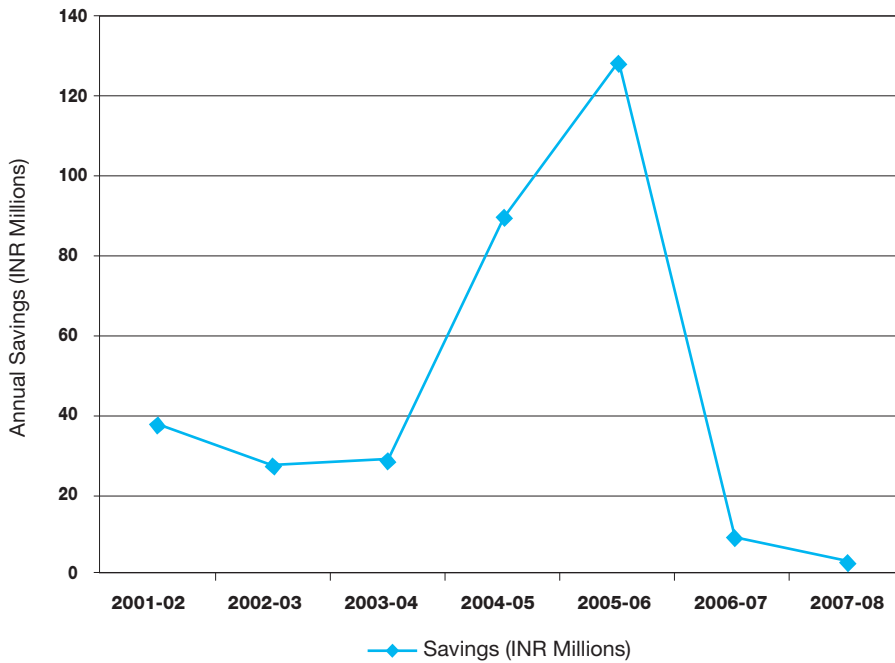
Our strategy on 'emissions reduction' comprises of

1. Energy conservation, energy audits and benchmarking to achieve the lowest specific energy consumption (energy used per tonne of product) in each business.
2. Maximisation of use of renewable sources of energy.
3. Carbon Dioxide (CO₂) sequestration through farm & social forestry initiatives.
4. Identification of ways to mitigate adverse effects of climate change caused by Global Warming through implementation of CDM projects under Kyoto Protocol

Materials

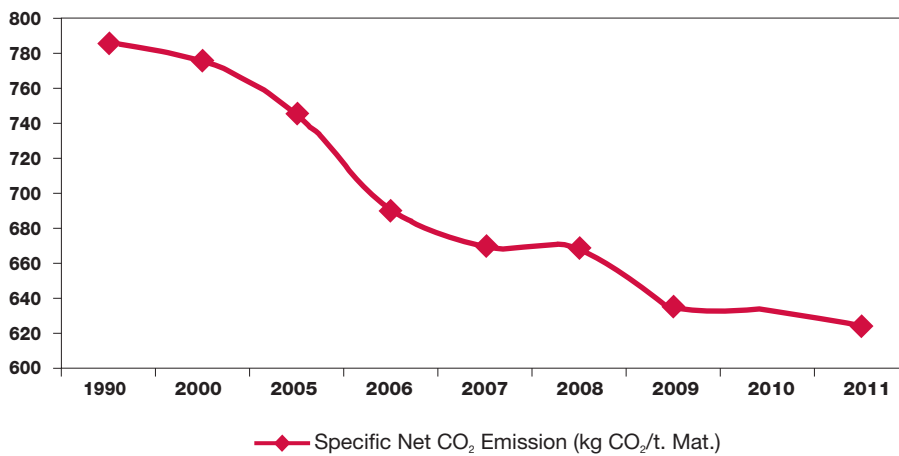
- In this analysis, the Materials sector includes the following sub-sectors: Aluminum, Cement, Chemicals and Diversified chemicals, Metals and Mining and Steel.
- Of the 25 companies contacted from the materials sector, 10 responded. These include Ambuja Cement, Asian Paints, Godrej Industries, Hindustan Copper, Hindustan Zinc, JSW Steel, Sesa Goa, Sterlite Industries, Tata Steel and Ultra-Tech Cement.
- Only Tata Steel perceived regulatory risks as being of concern given the energy intensive nature of this sector. The materials sector is more concerned about the physical risks with Ambuja Cements and JSW Steel listing availability of water as their key concern while 3 companies listed impacts of climate change on supply chain, manufacturing and distribution of finished products, to be of primary concern. Additionally, the dependence of steel industries on coal has been listed as a financial challenge as coal price directly affects profit margins. JSW Steel also predicts that climate change will create a greater demand for low ash coal which will ultimately drive its prices up. Under its risk management plan, JSW Steel has identified long-term agreement with international coal suppliers to ensure energy security.
- The integration of new technologies to improve energy efficiency and resource conservation forms a large part of the materials sector's risk management strategy. Some other strategies adopted by the sector include a mix of patented eco-friendly technologies, waste heat utilisation processes, rainwater harvesting, CDM projects as well as Environmental Management Systems and corporate sustainability reporting. Ambuja Cements currently has 2

Fig. 13: Sterlite Industries-Savings Through Energy Conservation



JSW Steel
Climate Change will create a greater demand for low ash coal

Fig. 14: Ambuja Cements - Performance and Targets



registered CDM projects whilst Sterlite industries have invested over US\$ 14 million to develop 3 CDM projects, and plans to invest an additional US\$ 14 million. It should be noted that Sterlite Industries has achieved savings of INR 257 million since 2003 as a result of its proactive stance on energy conservation (see fig. 13).

- Companies such as Asian Paints, JSW Steel and Sesa Goa are also dedicating resources towards exploring CDM opportunities. For instance,

besides using its patented coke making technology as a CDM project, Sesa Goa is also selling this technology commercially in the international market which allows it to enjoy royalties. Steel producing companies also expect a rise in consumer demand for value-added steels as climate change issues gain momentum and international steel producers begin to migrate to developing economies in the face of growing GHG regulations abroad. Certain by-products are also being sold to related industries and serve as a green

Tata Steel
We have targeted a reduction in carbon emission levels from 12.13 tonnes per tonne of crude steels (t/tcs) to 1.8 t/tcs by 2012

JSW Steel

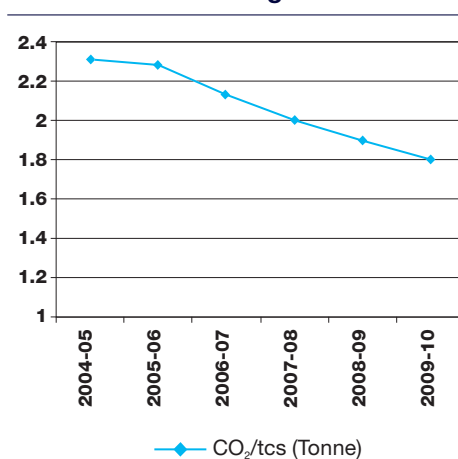
Steel industry will have to develop high quality steels, reduce energy intensity and explore possibility of 100 percent recycling steel

Key Sector Metrics

Real Estate

- Number of companies in the CDP6 India 200 in sector: **11**
- Number of companies responding in sector: **2**
- Number of companies disclosing publicly: **1**
- Percentage of respondents disclosing emissions: Scope 1: **0%**, Scope 2: **0%**, and Scope 3: **0%**

Fig. 15: Carbon Emissions in past and future targets - Tata Steel



alternative to raw materials.

- 8 out of the 9 respondents have outlined plans and activities including Ambuja Cements to reduce their GHG emissions (fig. 14). These firms are undertaking significant R&D to improve their energy efficiency. Tata Steel has targeted a reduction in their carbon emissions level from 2.13 t/tcs to 1.8 t/tcs by FC 2010, while JSW aims to reduce energy consumption by 6.5 G Cal per tcs (see fig.15). Some of the activities that are being conducted to realise these goals include technical processes such as Vapour Absorption and Waste Heat Recovery.

Ambuja Cements

We are conscious of our commitment towards GHG reduction and have formulated Climate Change Mitigation Policy (as annexed) which is signed by Managing Director and 3 Business Heads who are responsible for projects and performance of climate change.

Sesa Goa

We have developed and patented in India "A System of Making Coke by the Non-Recovery Method and the Process thereof" (Patent no. 196523 dated 10/09/1999). Sesa Goa has appointed licensees for various geographical regions giving them the right to manufacture products using

this technology. A 1.2 million coke plant has been set up in India by a corporate entity using Sesa's coke making technology. The clean process of coke making technology with carbon credits as an additional incentive provides an excellent opportunity to set up similar coke plants and earn royalty from such sales.

JSW Steel

The higher carbon intensity in steel manufacturing coupled with increasing energy costs will pose major threat which will affect the margins. Steel industry will have to develop high quality steels, reduce energy intensity and explore possibility of 100% recycling steel.

Real Estate

- Out of the 11 companies contacted, only 2 responded – Ansal Properties & Infrastructure and Sobha Developers. Since the request from Ansal Properties & Infrastructure was not to disclose their information in public, this analysis only focuses on the response from Sobha Developers.
- The responding company considers the need to adopt cleaner construction principles in order to promote sustainable growth and reduce the environmental footprint associated with the development of its projects. This could translate into higher overheads in the short run. However, the company also realises that increasing regulatory control over GHG emissions and land use patterns have a direct impact on the real estate business. It is interesting to note that even though India's energy conservation building codes are in their voluntary stages, companies such as Sobha Developers have already undertaken process modifications to account for their presence. Real estate projects are also subjected to physical risks as harsh weather conditions could disrupt supply lines and delay the completion of tasks

leading to additional financial and resource constrains.

- It is thought that government policies regarding the development of sustainable business practices like green buildings will create a new sub-sector within the real estate industry.
- The main GHG emissions from this sector occur during the development of buildings and other real estate infrastructure projects. Even though respondents from this sector have not defined a concrete GHG reduction plan involving targets and related mechanisms, they claim to be using the latest in emission reduction technology. Specifically, firms are involved in green building, carbon sequestration and renewable energy generation.

Utilities

- In this report, Utilities include electricity generation and distribution companies.
- Out of the 8 companies contacted, CESC Limited and Tata Power responded to the information request; whereas Reliance Energy declined to participate. However, since Tata Power decided not to make its disclosure public, only information from CESC Limited is presented.
- CESC does not perceive any regulatory risks in the short or medium term, however, it has not ruled out this possibility in the long run. CESC is paying significant attention to its transmission and distribution ability as breakdown of networks may occur under extreme weather conditions. Additionally, electricity generation may be hampered in the event of abnormal rainfall and precipitation patterns, as they may result in operational constraints or even the total cessation of power station functionality. To this end, the company engages in continuous

augmentation of their generation capacity and transmission & distribution network in order to mitigate the threats posed by climate change.

- Improvements have been facilitated through process optimisations, technology upgrades, absorption etc and have resulted in higher operational efficiency, reduction of burden on consumers and higher incoming CDM revenue. The company has successfully registered two CDM projects with UNFCCC which would result in annual reduction of 35,719 MT of CO₂ emissions.
- The utility provider plans to invest more resources into green initiatives. Furthermore, it expects anticipated regulatory requirements to offer new areas of business development, particularly in renewable energy. Increased demand for cooling and heating will also result due to changes in temperature. CESC perceives this as a physical opportunity rather than a demand management risk.

Sobha Developers

Being a socially responsible corporate organisation, we commit ourselves to address environmental sustainability while carrying out our core activity, i.e. construction adopting cleaner construction principles

Key Sector Metrics

Utilities

- Number of companies in the CDP6 India 200 in sector: **8**
- Number of companies responding in sector: **3**
- Number of companies disclosing publicly: **1**
- Percentage of respondents disclosing emissions: Scope 1: **12.5%**, Scope 2: **12.5%**, and Scope 3: **12.5%**

Key Sector Metrics

Banks and Diversified Financials

- Number of companies in the CDP6 India 200 in sector: **28**
- Number of companies responding in sector: **11**
- Number of companies disclosing publicly: **7**
- Percentage of respondents disclosing emissions: Scope 1: **0%**, Scope 2: **3.57%**, and Scope 3: **3.57%**

HDFC Bank

Credit profile of our customers can change due to regulatory policy changes of disincentivising/penalising companies with high carbon emissions, forcing closure/relocation of their manufacturing facilities resulting in disruptions of production and unfavourable cost structure

NON-ENERGY INTENSIVE SECTORS

Six of the 8 non-energy intensive sectors was able to provide a response except for companies contacted from the retailing and telecom sector

Banks and Diversified Financials Sector

- For analytical purposes, the Financial Services sector has been segregated into two sub-sectors: Banks and Diversified Financials.
- Out of the 28 companies that were contacted, 11 responded – Allahabad Bank, Canara Bank, Centurion Bank of Punjab, HDFC Bank, ICICI Bank, Industrial Development Bank of India (IDBI), Infrastructure Development Finance Company (IDFC), Punjab National Bank, Reliance Capital, State Bank of India and Yes Bank.
- While Indian financial institutions perceive no immediate regulatory risks, banks expressed concern about the indirect effect of new climate policy regulations on organisations operating in carbon intensive sectors. Some of the banks observed that changes in regulatory policy may impact guidelines concerning financing of other sectors, whilst State Bank of India pinpointed potential credit risks and solvency issues that may arise if new legislations are imposed. IDFC also considers portfolio companies and investments to be susceptible to changes in government policy.
- The need for informational transparency with regard to GHG emission disclosures has also been identified as a potential threat to brand value and reputation. Banks also state that climate change related damage to bank-owned properties and assets is a physical risk in terms of financial valuation and insurance claims. Insurance forms an important part of diversified financial business, and

physical risks in terms of severe weather events present a potential challenge as they may lead to rising insurance claims. Additionally, investments in infrastructure projects are also subject to environmental risks, which may result due to delay in completion of the projects. This ultimately influences the revenue stream of financial institutions like IDFC.

- As a low emission sector, risk management in the financial services sector is largely concerned with spreading climate change awareness and its role as a responsible lender. Banks can reach a state of readiness by supporting the development of environmentally sound business ventures and investing in projects aimed at reducing dependency on fossil fuels and carbon emissions. SBI's Green Banking Policy and Yes Bank's Environment & Social Policy are two examples of risk management.
- Strategies for risk management amongst diversified financial institutions include re-insurance against natural calamities and careful consideration of physical risks whilst undertaking infrastructural projects and expansion of operations. IDFC has established an Environmental Management and Social Development Group (EMSD) which uses internal systems and procedures to ensure that its investments remain environmentally and socially sustainable in the long run. Furthermore, the organisation is planning on integrating carbon finance and project finance models to safeguard itself against any climate-change related impacts on its revenue stream.
- CDM has created opportunities for banks to partake in the carbon market. Even though there is no direct involvement in carbon trading under the EU-ETS, banks such as Yes Bank's Carbon Finance Group (CFG) and SBI cite CER sales, upfront

carbon credit financing and the provision of advisory services as additional sources of business income.

- Banking sector respondents also see regulatory opportunities in financing clean technologies, CDM projects and servicing loans to the renewable energy sector. Banks are also promoting financing for renewable energy equipments. Furthermore, Yes Bank has utilised the regulatory opportunity to create a Sustainable Investment Bank (SIB), dedicated to sponsoring environmental initiatives such as CDM projects and this offers Yes Bank a revenue-generating opportunity to tackle climate change. Yes Bank also acts as India's representative to the Global Environment Fund (approximately US \$ 350 million), which it directly invests into clean energy. In addition to this, businesses may be faced with capital requirements to successfully adapt to their dynamic legal environment. One such example is the Automobile sector, wherein regulatory policies such as the integration of CNG technology within public transport, are making it mandatory for car manufacturers to seek out additional finances.
- The diversified financials sub-sector also foresees opportunities to grow their business as a result of climate change. IDFC is continually nurturing the development of relevant skills required for the implementation of CDM projects. This will enable it to undertake carbon transactions in a cost effective manner by mitigating transactional expenses.
- As a low emission sector, a majority of the financial sector institutions did not partake in the measurement of GHG emissions. However, some of the respondents outlined certain approaches adopted to curtail the energy consumption of their offices and service outlets, and diminish

wastage of scarce resources such as paper and fuel.

IDFC

We recognise the importance of environment risk management for the projects we finance, especially given the long gestation period and potential environmental impacts associated with such projects. In this regard IDFC is committed to identifying and addressing all short, medium and long-term environmental risks associated with its activities through environmental management of its project portfolio, as well as through making interventions pertaining to governance frameworks and policy.

Commercial Services and Supplies Sector

- For the purpose of this analysis, this sector is comprised of companies in following sub-sectors: Diversified Consumer Services, Financial Services, IT Consulting & Services and Software. Out of the 16 companies contacted, 3 responded - Infosys Technologies, Tata Consultancy Services and Wipro – to the information request. Whereas other three companies - Firstsource Solutions, HCL Infosystems, and HCL Technologies - declined to participate.
- GHG emissions within this sector are largely a by-product of employees' travel and electricity consumption at service outlets, corporate offices and campuses. Therefore, the respondents unanimously agreed that emission caps presented no direct regulatory threat in the near future. However, Wipro stated that regulations imposed on its client base could decrease the quantum of business conducted, thereby reducing revenue and profitability.
- This sector also identified regulatory threats in the form of carbon duties/tax that may be levied on the import of carbon-

Canara Bank

The effects of Government policies on reduction of emission levels and improving the energy efficiency may result in the regulator to the Banks modifying guidelines on financing to related sectors of the economy. The sudden change in the policy by the government and the regulatory authorities are likely to affect the existing asset portfolio to some extent

Key Sector Metrics

Commercial Services and Supplies

- Number of companies in the CDP6 India 200 in sector: **16**
- Number of companies responding in sector: **6**
- Number of companies disclosing publicly: **3**
- Percentage of respondents disclosing emissions: Scope 1: **12.5%**, Scope 2: **6.25%**, and Scope 3: **18.75%**

Wipro

We have identified Green IT as one of the seven innovation themes with the express goal of designing and developing several point and integrated solutions that help customers become more ecologically sustainable

heavy goods. As organisations with operations in several countries, respondents explained that some of the proposed regulations in the EU and the US demand additional duties on the import of carbon-intensive goods and may pose a risk in future. Furthermore, the highly likely possibility of implementation of e-waste regulations in India presents additional regulatory challenges. Infosys Technologies and Wipro also highlighted market risks associated with climate change events. For example, increased insurance payoffs in relation to severe weather events have resulted in a sales decline for commercial services equipment such as portable computers within the Insurance sector due to their diminishing liquidity and funds.

- Opportunities for this sector lie in its ability to provide business solutions that can drive sustainable development. Tata Consultancy Services is actively pursuing business opportunities to help clients assess their carbon footprints, carry out energy audits and pursue sustainable initiatives. IT service providers such as Wipro have introduced innovative eco-friendly products such as low-carbon PCs and LED lighting technology, in addition to green software solutions for supply chain optimisation and GHG compliance. Wipro now plans to invest in renewable energy solutions to help companies switch from fossil fuel dependency towards biogas, solar, wind, biomass cogeneration and geothermal power. Both Infosys Technologies and Wipro also partake in in-house restructuring aimed at reducing their footprint through electricity conservation and integration of renewable energy.
- Infosys Technologies and Wipro have expressed an interest in becoming carbon neutral in the near future, with the latter setting a 2011 deadline. Under its comprehensive charter for ecological sustainability (EcoEye),

Wipro has identified over 120 projects in the areas of electricity, transport, heat fuels and carbon sinks to help achieve this objective. At a micro-level its aims to reduce its GHG footprint by decreasing employees' commuting and business travel through video/web-conferencing, using energy-saving lighting and air-conditioning technologies as well as shaping carbon-friendly attitudes and behaviours amongst its workforce. Infosys has implemented cutting edge technological, hardware and environmental solutions to facilitate efficient heating, lighting and power-consumption. It is also carrying out carbon sequestration across its campuses and engages in waste, paper and water management to promote sustainable growth. Tata Consultancy Services' efforts in the area of GHG reduction are also notable and some of its initiatives include the use of solar energy, enhancing its green belt, construction of green data centres and building LEED certified Green Rated Buildings.

Wipro

There are several areas in the Green IT space that we are targeting. Some of the solutions that have already been rolled out to the market or offered to customers are:-

1. The Greenware range of PCs that are ROHS compliant and 30% more energy efficient
2. E-Freight, a solution that helps logistics companies optimise their freight so that the carbon footprint is minimised
3. A GHG compliance management system
4. Data centre efficiency solutions

Tata Consultancy Services

We have identified all probable climate change risks and have led/planned investment to minimise risks and maximise opportunities. Every initiative like ISO 14001 certification, green buildings, solar

Tata Consultancy Services

We have developed new service/practice areas like Green IT and Green Business and invested in manpower and infrastructure to support these two emerging areas as a result of climate change

water heaters, solar lighting systems, biodigester plants, rain water harvesting, ground water recharging, monitoring of resources, regulatory compliances, carbon footprint analysis, technical environment experts etc has led to investment; which is being planned and accounted for. Senior management considers all climate change initiatives as per our targets and investments and they are planned & accounted accordingly on financial year basis.

Household and Personal Products Sector

- For the purpose of the analysis, Household and Personal Products sector includes two sub-sectors: Household appliances and Personal products, especially the fast moving consumer products.
- Out of the top 200 companies, 7 companies were from the household and personal products sector. Only 3 companies responded of which 2 were MNCs (Colgate Palmolive & Unilever) and one was an Indian company (Godrej Consumers).
- The responding companies consider regulatory risks as minor and feel that they have little or no influence over their revenue-generating ability. This is mainly due to the nature of the sector (low energy intensive), absence of regulations and their preparedness and commitment towards eco-efficiency. They consider upstream emissions resulting from logistical functions and raw material supplies as a significant threat due to their reliance on availability of resources such as vegetable and palm oils. Colgate Palmolive and Unilever, however, expressed their concerns over CO₂ emissions and market competitiveness.
- Responding companies have disclosed that they have a contingency and business plan to mitigate climate change risks and to drive the sector in a sustainable manner. A case in

point is Colgate's promotion of an energy efficient transportation network, which is an example of a forward-thinking organisational planning for possible changes in regulatory climate.

- Another highlight is the holistic approach towards risk management, with Colgate relying on a mix of quantitative and qualitative assessment measures. Unilever on the other hand, has developed an approach called Brand Imprint. The thinking behind this approach is to integrate social, environmental and economic factors including climate change in development of a brand. This approach would provide a 360° scan of the social, economic and environmental impact of the different brands of the company.
- Opportunities in CDM have been identified as a lucrative source of savings and income. For example, Hindustan Unilever's 'ploughshare technology' became its first project in the country to be awarded carbon credits. This brought additional revenue of approximately \$330,000 a year for the company. Physical opportunities identified include temperature changes resulting in more demand for household and personal products such as soaps and woolen clothing. The possibility for obtaining raw materials from new geographical areas was also identified as a realistic opportunity.
- Colgate Palmolive's GHG reduction strategy includes on-site energy assessments, training, sharing best practices, supply chain reconfiguration and green buildings. Unilever has developed an Energy Management Programme specifying targets for energy savings and CO₂-e reduction.

Unilever

Our company is exposed to regulatory risks and costs through mechanisms/policies that affect our value chains such as raw material

Key Sector Metrics

Household and Personal Products

- Number of companies in the CDP6 India 200 in sector: **7**
- Number of companies responding in sector: **3**
- Number of companies disclosing publicly: **2**
- Percentage of respondents disclosing emissions: Scope 1: **0%**, Scope 2: **0%**, and Scope 3: **28.75%**

Unilever

From our knowledge of the life cycle of products, the majority of emissions and energy consumption occur either upstream (raw material suppliers) or in the consumers use and disposal of products

Key Sector Metrics

Media

- Number of companies in the CDP6 India 200 in sector: **5**
- Number of companies responding in sector: **1**
- Number of companies disclosing publicly: **1**
- Percentage of respondents disclosing emissions: Scope 1: **0%**, Scope 2: **20%**, and Scope 3: **20%**

Key Sector Metrics

Pharmaceuticals, Biotech and Life Sciences

- Number of companies in the CDP6 India 200 in sector: **17**
- Number of companies responding in sector: **4**
- Number of companies disclosing publicly: **1**
- Percentage of respondents disclosing emissions: Scope 1: **11.75%**, Scope 2: **11.75%**, and Scope 3: **6%**

production, transportation and consumer habits.

Colgate Palmolive

Our approach to addressing climate change may lead to opportunities such as the following:

1. Emerging carbon-trading markets, use and development of new, cleaner energy resources, reputation incentives, competitive edge by applying energy cost savings to R&D, production, etc.
2. Using innovation to develop new products addressing consumer needs and climate change concerns.

Unilever

Our Indian business, Hindustan Unilever, has developed a new process that eliminates the need for steam in soap manufacturing. This process, called 'Ploughshare technology', reduces carbon emissions by 15,000 tonnes a year – around 4% of our manufacturing emissions in India, and is now being used in 8 plants across the country.

Media Sector

- For the purpose of analysis for this report, the Media Sector has two sub-sectors: Movies & Entertainment and Publishing.
- Out of the five companies contacted, only one responded – Zee Entertainment Enterprises.
- Given the nature of this industry, the respondent does not consider itself exposed to any risks or opportunities related to climate change.
- Media, both electronic and print, can play a major role in raising awareness regarding climate change and its impacts as well as solutions to adapt and mitigate the risks. While media in both forms has been actively providing air time programmes and print coverage, yet it can be observed that it does not disclose its own carbon footprint.

- It's most significant areas of GHG emission are employees' travel and electricity consumption at company-owned facilities. It is interesting to note that despite the sector's low carbon-intensity, it is in the process of developing a plan to reduce emissions and keep its energy costs low in relation to total operating costs.

Pharmaceuticals, Biotech and Life Sciences Sector

- Out of the 17 companies contacted, 4 responded – Aurobindo Pharma, Dr. Reddy's Laboratories, GlaxoSmithKline Pharmaceuticals and Nicholas Piramal India. Aurobindo Pharma declined to participate and only GlaxoSmithKline Pharmaceuticals made its information public.
- 2 of the respondents from the Pharmaceuticals, Biotech and Life Sciences sector perceived regulatory threats arising out of government caps on greenhouse gas emissions. This is particularly relevant to pharmaceutical enterprises, as the release of GHG gases like HFCs and CFCs is associated with this sector. The emission of HFCs occurs from chillers and refrigeration equipment used to maintain environmental conditions for storage of products, whilst Inhalers used by Asthma patients discharge CFCs into the atmosphere. Rising temperatures can also contribute to increases in electricity costs as certain chemicals need to be stored under prescribed conditions. Respondents also identified risks such as the disruption of raw material supply and logistical networks due to extreme weather events.
- The sector expects rising disease burdens due to climate change which will increase demand for existing and new medicines.
- Companies also state that adaptation and mitigation of their carbon footprint will automatically lead to

improvements in areas like material efficiency, energy costs and waste disposal. Key players have identified CDM opportunities under the Kyoto Protocol to implement a planned shift towards renewable energy.

- Companies are currently undertaking activities to reduce their emissions. Some of the notable initiatives include the establishment of a climate change fund to achieve climate change targets and energy efficiency, as well as the replacement of fossil fuels in boilers with biomass based renewable energy.

GSK

New medicines are needed for the treatment and, ultimately, prevention of diseases most susceptible to climate change. GSK is committed to ongoing research into affected areas; both as part of our broader commitment to tackling diseases that disproportionately affect the developing world (such as malaria and dengue fever) as well as our mainstream respiratory, infectious diseases and neuroscience research programmes.

We manufacture Metered Dose Inhalers (MDIs) which are used to treat asthma and chronic obstructive pulmonary disease (COPD). Traditionally these devices used CFCs which were released into the atmosphere when the devices were used by patients. Currently more than 98% of the devices which GSK manufacture no longer use CFCs. They have been replaced with dry powder devices that don't require propellant gases and with devices containing Hydrofluoroalkane (HFAs), which have much less climate change impact than CFCs.

Technology Hardware and Equipment Sector

- For the purpose of this analysis, the Technology Hardware and Equipment sector has the following sub-sectors: Electronic Equipment and Instruments.

- Out of the 6 companies contacted, only Moser Baer responded.
- Some of the risks identified within this sector include the influx of new entrants in the clean technology market in the future. Furthermore the changing regulatory climate may force compliance with new international and local norms and standards which may have a bearing on a technology firm's product portfolio and manufacturing cycle. Moser Baer also outlined economic implications associated with the increasing abundance of green technologies in the worldwide market.
- Moser Baer's risk management strategy is focused on continually improving their products and process technologies; diversifying into emerging markets such as renewable energy and adopting worldwide standards like ISO14001 and OSHAS 18001 in order to facilitate the execution of their diversification strategy. This strategy is not only designed to mitigate climate change risks, but also to exploit any opportunities that may arise.
- Moser Baer has identified the growth of the renewable energy sector as its most important opportunity. It is particularly interested in the solar energy market as the worldwide demand for it is more than 15000 MWh. The demand for this form of renewable energy is driven by physical climate change impacts including the decline of fossil fuel usage and the rising importance of clean technologies and preservation of the environment. To this effect, Moser Baer has diversified into Solar Photovoltaic Cells and has become the first Thin Film based Solar Cell manufacturer. The need for this kind of green technology is expected to rise as the incidence of solar farms and buildings integrated with photovoltaic capacity continues to increase.

GSK

We have already made a public commitment to cease the manufacturing of products containing CFC's before the end of 2010

Moser Baer

Our diversification into Solar Photovoltaic is expected to yield handsome returns

Key Sector Metrics

Technology Hardware and Equipment

- Number of companies in the CDP6 India 200 in sector: **6**
- Number of companies responding in sector: **1**
- Number of companies disclosing publicly: **1**
- Percentage of respondents disclosing emissions: Scope 1: **16%**, Scope 2: **0%**, and Scope 3: **0%**

Table 6: Summary of Sectoral Responses

		Risk Regulatory General	Physical Risk Management	Financial and Business Implications	Opportunity Regulatory Physical General	Maximizing Opportunity	GHG Emissions Accounting Direct Indirect Other	Electricity Consumption	Emission Trading	Performance Targets	Governance	Reporting
Automobiles & Components	Mahindra & Mahindra											
	Tata Motors											
Banks & Diversified Financials	Canara Bank											
	HDFC / Centurion Bank of Punjab											
	Infrastructure Development Finance Company											
	Reliance Capital											
	State Bank of India											
	Yes Bank											
Capital Goods	ABB											
	Areva T&D											
	Cummins											
	HMT											
Commercial Services & Supplies	Infosys Technologies											
	Tata Consultancy Services											
	Wipro											
Energy	Bharat Petroleum Corporation											
	Cairn India											
	GAIL											
	Hindustan Petroleum Corporation											
	ONGC											
Food, Beverages & Tobacco	ITC											
	Nestle											
Household & Personal Products	Colgate Palmolive India											
	Hindustan Unilever											
Materials	Ambuja Cements											
	Asian Paints											
	Hindustan Zinc											
	JSW Steel											
	Sesa Goa											
	Sterlite Industries											
	Tata Steel											
Media	Zee Entertainment Enterprises											
Pharmaceuticals, Biotech & Life Sciences	GlaxoSmithKline											
Real Estate	Sobha Developers											
Technology Hardware & Equipment	Moser Baer											
Utilities	CESC Ltd											

5

Conclusion

Indian companies encouragingly are responding to measure and disclose their carbon emissions and integrate the long-term value and cost of climate change into their assessment of the financial health and prospects of their business, but there is still lot of spade work to be undertaken to beef-up their capacities.

The results from the second CDP India project (2008) continue to demonstrate the leadership of Indian companies in measuring, reporting and managing GHG emissions. This is a positive continuation of the results from the first CDP report. The decision to increase the number of Indian companies contacted for this report has provided encouraging results with a corresponding increase in the number of responding companies. This clearly indicates a positive attitude and a proactive approach among the Indian companies towards addressing the challenges of climate change in their businesses as well as willingness to share information voluntarily with stakeholders.

The most significant change from last year's process was a marked improvement in the quality of disclosure by the companies bringing out more in-depth assessments of risks they perceive, opportunities they have identified and steps and strategies undertaken for mitigating as well as adapting to the challenges posed by climate change. Companies have not only been forthcoming in sharing information on their initiatives but the responses were also very focused on risks and opportunities, implications of climate change on financial performance and business, performance targets, governance, and reporting.

Mahindra & Mahindra
Changes in the consumer priorities and growing awareness of green products and services have led to investment and development of more fuel efficient vehicles as well as hybrid and biodiesel vehicles

It is hoped that the experience of this year continues into next the CDP in 2009, a year which is expected to bring out a landmark decision of dealing with climate change at the global and national levels through further detailing and implementation of the NAPCC. However given that 69% (139) of companies contacted did not answer the CDP6 questionnaire in 2008, it is clear that there is still an enormous amount of work to do for Indian companies and for CDP to raise awareness among Indian companies to disclose their GHG emissions. A lack of response from few companies that responded in 2007 is a concern for CDP as well as for investors, since science and available knowledge shows that climate change is clearly going to affect some of these businesses.

Another concern relates to “decline to participate” by some of the energy intensive companies. It may be due to the fact that these companies do not have adequate risk management strategies in place or are missing significant opportunities to benefit from the shift to a low carbon economy. However, there is a ray of hope, because a large number of companies have shown interest and willingness to participate in the process, but could not do so in 2008 because they are yet to estimate their GHG emissions as well as validate them before making disclosures.

The findings of the CDP report 2008 in India of companies from diverse sectors brings out Indian companies’ appreciation of associated risks as well as the commercial potential of the carbon markets. Indian companies have initiated steps to engage with the climate change challenge. Disclosures from energy-intensive and non-energy intensive sectors provide for an interesting comparison.

The energy intensive sectors provided detailed measures of their emissions and outlined plans and activities for curtailing the carbon footprint of their manufacturing processes and final products in some cases. Notably, the responses of some of the high impact sector companies demonstrate an

appreciation of climate change challenges. Lack of detailed disclosures on GHG emissions from other energy-intensive sectors raises concern, particularly as the energy sector single handedly contributes 61% of India’s carbon emissions.

In comparison, the non-energy sector has not underestimated their role in finding solutions to problems of climate change. There are also reflections of growing awareness within the financial sector regarding their indelible impact on the mitigation of carbon emissions through conscious investments in cleaner technologies; carbon offset mechanisms and renewable energies, and integrating carbon disclosure as part of their investment decision making process. The responses of financial institutions are critical as they have a crucial role in encouraging businesses to move towards a low carbon economy through their investment choices. While some of the financial institutions and banks revealed an understanding of climate change risks, there are still large number of financial institutions and banks that are yet to integrate climate change risk assessment into their project appraisals and investment decisions.

The companies also agree that tackling GHG emissions present business opportunities such as for those for clean energy, energy efficient products, and emissions trading; and companies have made investments or are planning investments to tap this potential. Clearly, there is a greater appreciation of opportunities offered by climate change than the various risks that the companies are exposed to. This could be because most climate change impacts are perceived to be beyond the planning horizons of companies. Importantly, respondents did not identify the timeframes or detail the likely financial implications of the climate change risk.

Companies consider the existing as well as anticipated regulatory requirements as an opportunity for triggering long term investment in energy efficient technologies; enabling them also for compliance in future if needed. Opportunities have

HPCL
Being innovative is a key strategy to tackle climate change

also been identified in terms of new product solutions and internal measures through efficient utilization of resources to increase companies' market reputation and innovations and opportunities in operations and managing supply chain and distribution network.

Emissions trading particularly CDM were reported to be the business opportunities of interest to most Indian companies including setting-up facilities for providing fund management by the financial sector. A wide range of other commercial opportunities were reported which ranged from energy & material efficiency to R&D for development of new products and technologies such as energy efficient products, clean technologies, alternate sources of fuel, offsetting carbon emissions, sustainable forestry, carbon financing and carbon trading.

Clearly, a large number of Indian companies who responded to CDP6 acknowledge climate change and GHG emissions as a major challenge. The Indian companies, like their MNC counterparts, realise that climate change is a serious issue that is likely to impact their business and financial performance, market and customers, if not today then in the future. Some proactive companies have already started incorporating policy and decisions which will lower their carbon emissions. While some are putting plans in place towards this end, there are also some which have not done much to counter climate risks in spite of recognizing its importance.

There are also challenges associated with accounting of GHG emissions, as only few companies are doing it, and this remains a cause of concern. While companies have disclosed information related to plans to offset emissions reduction, most of these are subjective plans and do not have quantitative targets or timelines. Companies are not yet prepared for predicting their future emissions and they also do not incorporate the costs of future emissions into capital investment decisions.

The survey findings from CDP6 further reiterate the need for

awareness building and training on GHG accounting (deploying available approaches such as the GHG Protocol) for Indian companies. While there is strong emergence of Indian companies which are expected to provide climate solutions to the world, these companies could also benefit from global companies by drawing on from their experiences of taking steps and measures to reduce their GHG emissions.

The current global and national economic situation and role that Indian business and industry is playing, provides optimism that these companies are geared towards mitigating and adapting to risks of climate change. Encouragingly, there is evidence from the CDP6 survey of how Indian companies view the climate change challenge and that companies are engaging with the policy makers on issues of climate policy. This demands that as we take CDP into next year, these issues are built in as part of raising awareness and capacities of the Indian companies.

State Bank of India
In future, investors would demand adequate carbon disclosures

6

Company Responses

Key:

AQ: Answered Questionnaire

IN: Interested; but did not answer questionnaire. This was not analyzed

DP: Declined to Participate

NR: No Response

Appendix 1

Company Responses:
CDP6 & CDP5

Company Responses on CDP6 & CDP5

Company Name	Sector	CDP6	CDP5
Aban Offshore	Energy	NR	
ABB	Capital Goods	AQ	AQ
ACC	Capital Goods	NR	NR
Adani Enterprises	Transportation	NR	NR
Aditya Birla Nuvo	Consumer Durables and Apparels	NR	NR
Akruti City	Real Estate	NR	
Allahabad Bank	Banks and Diversified Financials	AQ	
Alstom Projects India	Capital Goods	NR	NR
Ambuja Cements	Materials	AQ	NR
Amtek Auto	Automobiles and Components	NR	
Anant Raj Industries	Real Estate	NR	
Andhra Bank	Banks and Diversified Financials	NR	
Ansal Properties & Infrastructure	Real Estate	AQ	
Areva T&D India - See Areva	Capital Goods	AQ	
Ashok Leyland	Automobiles and Components	NR	NR
Asian Paints	Materials	AQ	NR
Aurobindo Pharma	Pharmaceuticals, Biotechnology and Life Sciences	DP	
Aventis Pharma	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Axis Bank	Banks and Diversified Financials	NR	IN
Bajaj Auto	Automobiles and Components	NR	NR
Bank of Baroda	Banks and Diversified Financials	NR	NR
Bank of India	Banks and Diversified Financials	NR	NR
BEML	Capital Goods	NR	
BF Utilities	Capital Goods	NR	NR
Bharat Electronics	Technology Hardware and Equipment	NR	NR
Bharat Forge	Capital Goods	NR	NR
Bharat Heavy Electricals	Technology Hardware and Equipment	NR	AQ
Bharat Petroleum Corporation	Energy	AQ	AQ
Bharti Airtel	Telecommunication Service	NR	AQ
Biocon	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Britannia Industries	Food Beverage and Tobacco	NR	
Cadila Healthcare	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Cairn India	Energy	AQ	
Canara Bank	Banks and Diversified Financials	AQ	AQ
Castrol India	Energy	DP	
Central Bank of India	Banks and Diversified Financials	NR	
Centurion Bank of Punjab - see HDFC Bank	Banks and Diversified Financials	AQ	
Century Textiles & Industries	Consumer Durables and Apparels	NR	NR
CESC Ltd	Utilities	AQ	AQ
Chennai Petroleum Corporation	Energy	NR	
Cipla	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR
Colgate Palmolive India - see Colgate Palmolive	Household and Personal Products	AQ	
Container Corporation of India	Transportation	NR	NR
Corporation Bank	Banks and Diversified Financials	NR	
Crompton Greaves	Technology Hardware and Equipment	NR	NR
Cummins India - see Cummins Inc.	Capital Goods	AQ	NR
Dabur India	Household and Personal Products	NR	NR
Deccan Chronicle Holdings	Media	NR	
Dish TV India	Media	NR	
Divi's Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	NR	
DLF	Real Estate	NR	AQ
Dr. Reddy's Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	AQ	AQ
Educomp Solutions	Commercial Services and Supplies	NR	
EIH	Retailing	NR	
Essar Oil	Energy	NR	AQ
Essar Steel	Materials	NR	
Exide Industries	Technology Hardware and Equipment	NR	

Company Name	Sector	CDP6	CDP5
Financial Technologies	Commercial Services and Supplies	NR	NR
Firstsource Solutions	Commercial Services and Supplies	DP	
GAIL	Energy	AQ	NR
Gammon India	Capital Goods	NR	
GlaxoSmithKline Pharmaceuticals - see GSK	Pharmaceuticals, Biotechnology and Life Sciences	AQ	AQ
Glenmark Pharmaceuticals	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR
GMR Infrastructure Limited	Capital Goods	DP	NR
Godrej Consumer Products	Household and Personal Products	AQ	
Godrej Industries	Materials	AQ	
Grasim Industries	Consumer Durables and Apparels	DP	NR
Great Eastern Shipping Co.	Transportation	AQ	
Great Offshore	Energy	NR	
Gujarat Fluorochemicals	Materials	NR	
Gujarat State Petronet	Energy	NR	
HCL Infosystems	Commercial Services and Supplies	DP	
HCL Technologies	Commercial Services and Supplies	DP	NR
HDFC Bank	Banks and Diversified Financials	AQ	AQ
Hero Honda Motors	Automobiles and Components	NR	AQ
Hindalco Industries	Materials	NR	AQ
Hindustan Copper	Materials	AQ	NR
Hindustan Petroleum Corporation	Household and Personal Products	AQ	NR
Hindustan Unilever - see Unilever	Energy	AQ	AQ
Hindustan Zinc	Materials	AQ	NR
HMT	Capital Goods	AQ	
Housing Development & Infrastructure	Real Estate	NR	
Housing Development Finance Corporation	Banks and Diversified Financials	NR	AQ
HT Media	Media	NR	NR
ICICI Bank	Banks and Diversified Financials	AQ	AQ
Idea Cellular	Telecommunication Service	NR	
I-flex Solutions	Commercial Services and Supplies	NR	
India Bulls Real Estate Ltd	Banks and Diversified Financials	NR	
India Cements	Real Estate	NR	
India Infoline Ltd	Materials	NR	
Indiabulls Financial Services	Commercial Services and Supplies	NR	NR
Indian Bank	Banks and Diversified Financials	NR	
Indian Hotels Co.	Retailing	AQ	NR
Indian Oil Corporation	Energy	NR	NR
Indian Overseas Bank	Banks and Diversified Financials	NR	DP
Indian Petrochemicals Corporation	Materials	NR	NR
Industrial Development Bank of India	Banks and Diversified Financials	AQ	AQ
Industrial Finance Corporation of India	Banks and Diversified Financials	NR	
Infosys Technologies Ltd	Commercial Services and Supplies	AQ	AQ
Infrastructure Development Finance Company	Banks and Diversified Financials	AQ	NR
ITC	Food, Beverage and Tobacco	AQ	AQ
IVRCL Infrastructures & Projects	Capital Goods	NR	
Jai Corporation	Real Estate	NR	
Jain Irrigation Systems	Capital Goods	NR	
Jaiprakash Associates	Capital Goods	NR	NR
Jammu & Kashmir Bank	Banks and Diversified Financials	NR	
Jaybharat Textiles & Real Estate	Consumer Durables and Apparels	NR	
Jet Airways	Transportation	NR	
Jindal Steel & Power	Materials	NR	NR
JM Financial	Banks and Diversified Financials	NR	
JSW Steel	Materials	AQ	AQ
Jubilant Organosys	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Kalpataru Power Transmission	Capital Goods	NR	
Kirloskar Brothers	Capital Goods	NR	

Company Name	Sector	CDP6	CDP5
Kotak Mahindra Bank	Banks and Diversified Financials	NR	AQ
Lakshmi Machine Works	Capital Goods	NR	
Lanco Infratech	Capital Goods	NR	
Larsen & Toubro	Capital Goods	NR	NR
Lupin	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Madras Cements	Materials	NR	
Mahanagar Telephone Nigam	Telecommunication Service	NR	NR
Maharashtra Seamless	Capital Goods	NR	
Mahindra & Mahindra	Automobiles and Components	AQ	NR
Mangalore Refinery and Petrochemicals	Energy	NR	NR
Marico	Household and Personal Products	NR	
Maruti Suzuki India	Automobiles and Components	NR	AQ
Matrix Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Max India	Commercial Services and Supplies	NR	
MMTC	Materials	NR	
Moser Baer India	Technology Hardware and Equipment	AQ	AQ
Motor Industries Co.	Automobiles and Components	NR	NR
Mphasis	Commercial Services and Supplies	NR	
Nagarjuna Construction Co.	Capital Goods	NR	
National Aluminium Co.	Materials	NR	NR
National Mineral Development Corporation	Materials	NR	
National Thermal Power (NTPC)	Utilities	NR	AQ
Nestle India - see Nestle	Food, Beverage and Tobacco	AQ	AQ
Neyveli Lignite Corporation	Utilities	NR	NR
Nicholas Piramal India	Pharmaceuticals, Biotechnology and Life Sciences	AQ	NR
Oil & Natural Gas	Energy	AQ	AQ
Omaxe	Real Estate	NR	
Oriental Bank of Commerce	Banks and Diversified Financials	NR	NR
Pantaloon Retail	Retailing	NR	NR
Parsvnath Developers	Real Estate	NR	
Patni Computer Systems	Commercial Services and Supplies	NR	NR
Petronet LNG	Energy	NR	
Pidilite Industries	Materials	NR	
Power Finance Corporation	Banks and Diversified Financials	NR	
Praj Industries	Capital Goods	NR	
Punj Lloyd	Capital Goods	NR	
Punjab National Bank	Banks and Diversified Financials	AQ	NR
Ranbaxy Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR
Reliance Capital	Banks and Diversified Financials	AQ	AQ
Reliance Communications	Telecommunication Service	NR	
Reliance Energy Ltd	Utilities	DP	NR
Reliance Industries	Capital Goods	NR	NR
Reliance Natural Resources	Energy	DP	
Reliance Petroleum	Energy	NR	NR
Rolta India	Commercial Services and Supplies	NR	
Satyam Computer Services	Commercial Services and Supplies	NR	NR
Sesa Goa	Materials	AQ	AQ
Shipping Corporation of India	Transportation	NR	
Shree Cement	Materials	NR	
Siemens	Technology Hardware and Equipment	NR	NR
Sobha Developers	Real Estate	AQ	
Spice Communications	Telecommunication Service	NR	
State Bank of India	Banks and Diversified Financials	AQ	NR
Steel Authority of India	Materials	NR	NR
Sterling Biotech	Pharmaceuticals, Biotechnology and Life Sciences	NR	
Sterlite Industries	Materials	AQ	NR
Sun Pharmaceutical Industries	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR

Company Name	Sector	CDP6	CDP5
Sun TV Network	Media	NR	NR
Suzlon Energy	Utilities	NR	NR
Syndicate Bank	Banks and Diversified Financials	NR	
Tata Chemicals	Materials	NR	
Tata Consultancy Services	Commercial Services and Supplies	AQ	NR
Tata Motors	Automobiles and Components	AQ	NR
Tata Power Co	Utilities	AQ	NR
Tata Steel	Materials	AQ	AQ
Tata Tea	Food Beverage and Tobacco	NR	
Tata Teleservices (Maharashtra)	Telecommunication Service	NR	
Tech Mahindra	Commercial Services and Supplies	NR	NR
Thermax	Capital Goods	IN	
Titan Industries	Household and Personal Products	NR	
Torrent Power	Utilities	NR	
Ultratech Cement	Capital Goods	DP	NR
Union Bank of India	Banks and Diversified Financials	NR	DP
Unitech	Real Estate	NR	
United Breweries	Food, Beverage and Tobacco	NR	
United Breweries (Holdings)	Capital Goods	NR	
United Phosphorus	Materials	NR	NR
United Spirits	Food, Beverage and Tobacco	NR	NR
Videocon Industries	Household and Personal Products	NR	
Videsh Sanchar Nigam	Telecommunication Service	NR	NR
Voltas	Capital Goods	NR	
Welspun-Gujarat Stahl Rohren	Capital Goods	NR	
Wipro	Commercial Services and Supplies	AQ	AQ
Wockhardt	Pharmaceuticals, Biotechnology and Life Sciences	NR	
YES Bank	Banks and Diversified Financials	AQ	
Zee Entertainment Enterprises	Media	AQ	NR

Appendix 2

Global Key Trends

(As published in CDP 2008 Global
500 Report)

“CDP extends it’s sincere thanks to all of our partners and sponsors around the world for their help in making the CDP process a global success.”

Paul Dickinson
Chief Executive,
Carbon Disclosure
Project

Key Trends From CDP Samples Around The World

The sixth iteration of the Carbon Disclosure Project saw even greater expansion than in previous years, with information being requested from over 3,000 companies worldwide.

In 2008 CDP expanded to cover 21 geographical samples (up from 16 in 2007) and 2 sector samples (Electric Utilities and Transport). New geographical expansions in 2008 include China, Korea, Latin America, the Netherlands, and Spain. The corporations responses and reports analysing findings from these samples will be posted on the CDP website as they are launched worldwide. Please see www.cdproject.net for further details.

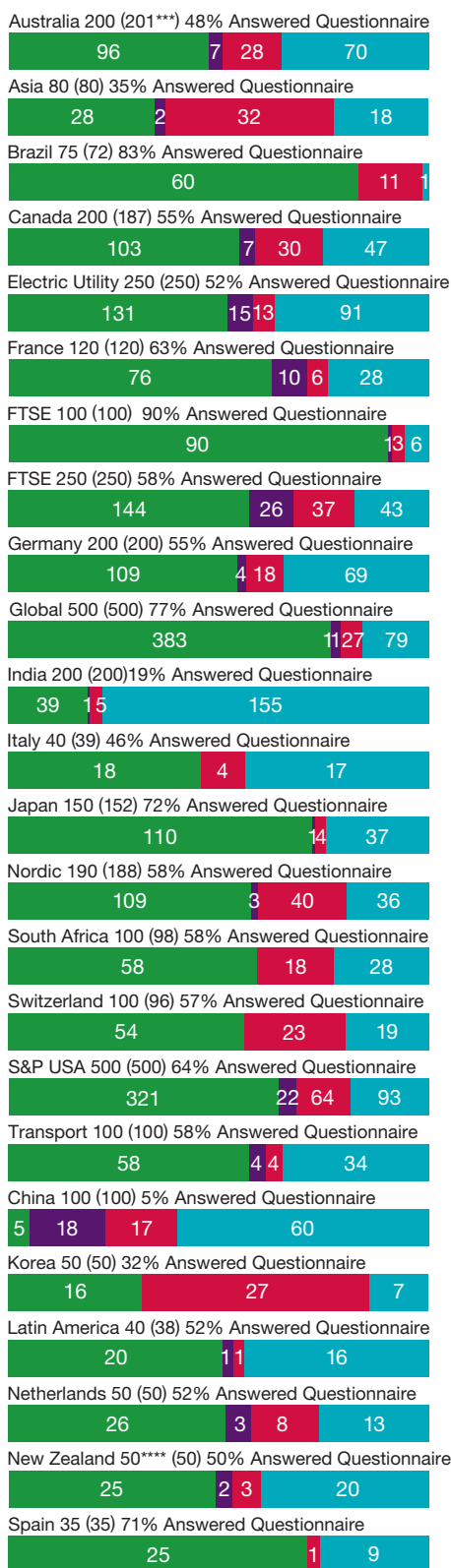
Response rates across the vast majority of expansions are above 50% with an average rate of 55%; the highest being the FTSE 100 reporting a 90% (90 companies) response rate. The Brazil 75 came a close second with 83% (60) of companies answering the questionnaire compared to the Global 500 which saw 77% (383) of companies answer the questionnaire. Despite the political hesitancy to take action on climate change within the U.S., responses from S&P 500 companies improved significantly: up from 56% (282) in 2007 to 64% (321) this year. This increase sends a positive message from corporate

America, signalling that companies are preparing for the inevitable carbon-constrained economy.

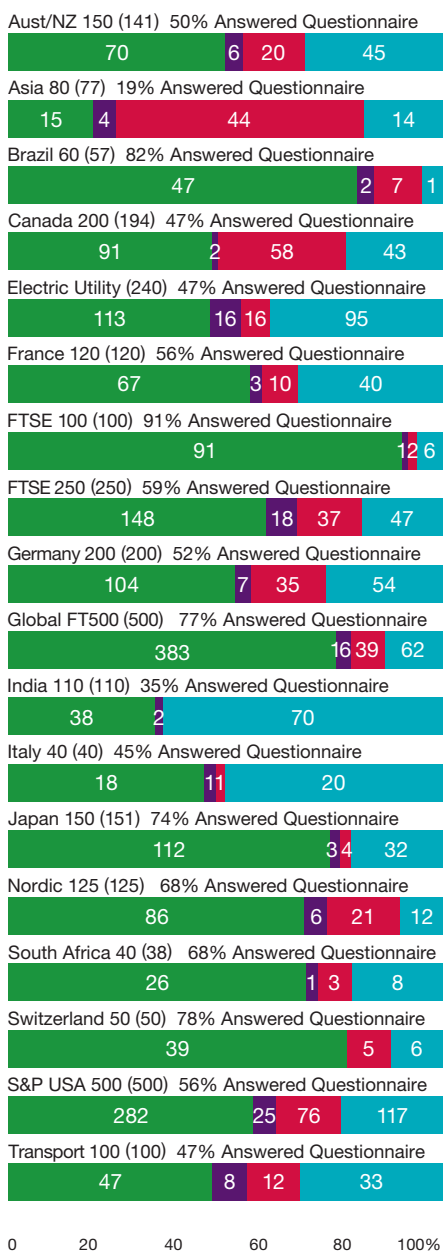
There has been an overall increase in response rates in ten of the samples compared to CDP5; Asia , Brazil, Canada, Electric Utility, France, Germany, Italy, New Zealand, S&P 500 and Transport. The Global 500, FTSE 100/250 and Japan 150 samples reported similar response rates to last year. India was also similar in terms of absolute responses but declined overall due to a doubling of the sample size. Four further samples reported an increase in the absolute numbers of responses but an overall percentage decrease because the sample size was expanded this year; Australia 200, Nordic 190, South Africa 100 and the Switzerland 100.

In some of the emerging economies where CDP has recently expanded such as Asia, China and India there are significant challenges caused by: lack of familiarity with CDP amongst companies new to the process, language and cultural barriers and a lack of regulation on climate change which all contribute to a lower response rates from these regions. CDP is working closely with its global partners to overcome these barriers.

CDP6 Response by Sample*



CDP5 Response by Sample**



Sample (number of companies)

- No Response
- Declined to Participate
- Provided Information
- Answered Questionnaire

* Response rates calculated at 31 July 2008, numbers may differ from local report that calculated response rates before or after this date.

** Response rate as published in CDP5 Report.

*** The first listing is the official sample name, the number in brackets is the actual number of companies that were included in CDP6 for that sample.

**** New Zealand is included as an individual sample for the first time, having previously been combined with Australia.

0 20 40 60 80 100%

As media coverage of climate change has increased alongside talks of regulatory restrictions, corporations are being given little choice but to consider what climate change means for their business. Compared to CDP5 there has been a sharp increase across nearly all expansions in the percentage of companies addressing climate change at the board level. Especially notable is the increase in board members taking responsibility for climate change. In the FTSE100 companies from 53% (48) to 89% (80), as well as the FTSE 250 expansion's dramatic increase from 24% (35) to 84% (121) of responding companies. For meaningful corporate change to occur, it must come from the board room, and these trends imply that awareness is likely to lead to action.

While the increased focus on climate change can be attributed to a variety of factors, companies are increasingly commenting on the specific risks and opportunities

driving new management plans. Both regulatory and physical risks factor heavily into corporate strategy, as can be seen in the key trends table. The Australia 200, Electric Utilities 250, FTSE 100, Japan 150 and Spain 35 expansions are particularly attuned to potential risks from climate change.

The results show a significant increase in the percentage of responding companies that have GHG emissions reductions plans. Especially notable are the Nordic 190 sample's increase: from 23% (19) to 62% (68) of responding companies who have reduction plans, and the FTSE 100's progress from 41% (37) to 81% (73) when compared to CDP5. While this increase in attention to climate change targets is a positive step, there is still a need for formal verification of emissions figures and reductions. This will become fundamental as further regulation comes into force and the price for carbon globalizes and increases.

Given the significant increase in companies making reduction plans we anticipate that in the coming years there will be a subsequent uptake in companies verifying their emissions data.

While the China 100 sample answered questionnaire rate was lowest, it can still be interpreted positively. 2008 was the first time the China 100 was asked to respond to the CDP information request. A variety of factors, including language, cultural differences and a lack of historical requirements on Chinese companies to measure and report climate change information made the initial approach challenging. However the fact that 5% of Chinese companies answered the questionnaire and a further 18% provided information is a promising start and it is likely that the number of responses will grow in the future as CDP develops a presence in China.

CDP6 Global Partner Information*

Country/Expansion	Partner	Web Address
Asia ex-Japan	Association for Sustainable and Responsible Investment in Asia (ASrIA)	www.asria.org
Australia & New Zealand	Investor Group on Climate Change Australia/New Zealand (IGCC)	www.igcc.org.au
Brazil	Brazilian Association of Pension Funds (ABRAPP) & Banco Real	www.abrapp.org.br www.bancoreal.com.br
Brazil	Brazil Facilitation Team: Fabrica Ethica Brasil	www.fabricaethica.com.br
Canada	The Conference Board of Canada	www.conferenceboard.ca
China	China Facilitation Team: SynTao	www.syntao.com
France	AXA	www.axa.com
Germany	BVI Bundesverband Investment und Asset Management e.V./WWF Germany	www.bvi.de www.wwf.de
India	WWF India	www.wwfindia.org
Korea	Korea Sustainability Investing Forum (KoSIF)/Eco-Frontier/ ASrIA	www.kosif.org www.ecofrontier.kr www.asria.org
Latin America	Brazilian Institute of Investor Relations (IBRI)	www.ibri.org.br
Latin America	Latin America Facilitation Team: Fabrica Ethica Brasil	www.fabricaethica.com.br
Netherlands	VROM (The Dutch Ministry of Housing, Spatial Planning and the Environment)	www.vrom.nl
Nordic	ATP, Folksam, KLP and Nutek (Swedish Agency for Economic & Regional Growth)	www.atp.dk www.folksam.se www.klp.no www.nutek.se
South Africa	National Business Initiative (NBI)	www.nbi.org.za
Spain	Ecodes	www.ecodes.org
Switzerland	Ethos/Pictet Asset Management	www.ethosfund.ch www.pictet.com

Key Trends

	Number of Responses Analysed*	% of companies that see regulatory risks	% of companies that see physical risks	% of companies that see regulatory opportunities	% of companies that see physical opportunities
Asia 80	28	71	79	79	71
Australia 200	94	84	82	82	61
Brazil 75	47	49	77	83	57
Canada 200	90	70	63	78	58
China 100	3	33	33	33	33
Electric Utility 250	109	88	77	86	62
France 120	71	60	52	79	56
FTSE 100	88	81	76	80	65
FTSE 250	125	71	66	75	61
Germany 200	94	51	46	68	40
Global 500	384	74	74	80	62
India 200	27	33	70	82	52
Italy 40	17	71	77	82	65
Japan 150	104	90	82	79	64
Korea 50	15	67	93	100	60
Latin America 40	15	73	73	80	60
Netherlands 50	26	64	68	84	52
New Zealand 50	25	72	64	80	60
Nordic 190	109	72	61	81	57
S&P 500	318	60	64	70	50
South Africa 100	53	76	89	85	64
Spain 35	25	84	68	80	56
Switzerland 100	53	45	49	59	45
Transport 100	59	80	81	75	51

	% of responding companies that disclosed GHG emissions data	% of responding companies that had their GHG emissions data externally verified	% of responding companies that have a GHG emissions reduction plan	% of companies that have a Board Committee responsible for CC	% of companies engaged/considering participation in emissions trading**
Asia 80	57	36	54	68	18
Australia 200	78	39	49	73	17
Brazil 75	49	19	43	60	21
Canada 200	70	28	46	72	18
China 100	0	0	66	33	33
Electric Utility 250	70	57	60	75	46
France 120	75	56	75	69	42
FTSE 100	91	71	81	89	41
FTSE 250	65	35	50	84	14
Germany 200	51	3	50	68	33
Global 500	80	57	74	80	35
India 200	41	19	52	52	23
Italy 40	77	65	53	59	53
Japan 150	95	50	90	94	43
Korea 50	67	13	60	80	40
Latin America 40	73	33	47	73	53
Netherlands 50	84	68	64	76	36
New Zealand 50	60	40	48	56	8
Nordic 190	71	42	61	80	28
S&P 500	67	35	53	64	22
South Africa 100	79	30	45	81	21
Spain 35	96	80	76	84	40
Switzerland 100	64	34	53	68	17
Transport 100	71	46	70	85	24

Appendix 3

CDP 6 Questionnaire

The CDP questionnaire has been developed over six years through consultation with signatory investors, corporations and other stakeholders. The CDP6 questionnaire represents a best practice framework for the information companies should measure and report regarding the impact of climate change on their business.

CDP 6 Questionnaire

1 Risks and Opportunities

Objective: To identify strategic risks and opportunities and their implications.

- a Risks:** (CDP5 Question 1a)
- i **Regulatory Risks:** How is your company exposed to regulatory risks related to climate change?
 - ii **Physical Risks:** How is your company exposed to physical risks from climate change?
 - iii **General Risks:** How is your company exposed to general risks as a result of climate change?
 - iv **Risk Management:** Has your company taken or planned action to manage the general and regulatory risks and/or adapt to the physical risks you have identified?
 - v **Financial and Business Implications:** How do you assess the current and/or future financial effects of the risks you have identified and how those risks might affect your business?
- b Opportunities:** (CDP5 Question 1b)
- i **Regulatory Opportunities:** How do current or anticipated regulatory requirements on climate change offer opportunities for your company?
 - ii **Physical Opportunities:** How do current or anticipated physical changes resulting from climate change present opportunities for your company?
 - iii **General Opportunities:** How does climate change present general opportunities for your company?
 - iv **Maximizing Opportunities:** Do you invest in, or have plans to invest in products and services that are designed to minimize or adapt to the effects of climate change?
 - v **Financial and Business Implications:** How do you assess the current and/or future financial effects of the opportunities you have identified and how those opportunities might affect your business?

2 Greenhouse Gas (GHG) Emissions Accounting

Objective: To determine actual absolute Greenhouse Gas emissions.

The term GHG Protocol below refers to The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). This may be found on the GHG Protocol Website www.ghgprotocol.org

- a Accounting Parameters** (CDP5 Question 2a)
- i **Reporting Boundary:** Please indicate the category that best describes the company, entities or group for which your response is prepared:
 - a. Companies over which financial control is exercised – per consolidated audited Financial Statements.
 - b. Companies over which operational control is exercised.
 - c. Companies in which an equity share is held.
 - d. Other (please provide details).

Please use the same approach for all answers.

- ii **Reporting Year:** Please explicitly state the dates of the accounting year or period for which GHG emissions are reported.
- iii **Methodology:** Please specify the methodology used by your company to calculate GHG emissions.

b Direct and Indirect Emissions – Scope 1 and 2 of the GHG Protocol (CDP5 Question 2b)

- i Are you able to provide a breakdown of your direct and indirect emissions under Scopes 1 and 2 of the GHG Protocol and to analyse your electricity consumption? If so, please provide the following information together with a breakdown of the emissions reported under each category by country where possible. If not, please proceed to question 2b ii:

Scope 1 Direct GHG Emissions

- a. Total global Scope 1 activity in metric tonnes CO₂-e emitted.
b. Total Scope 1 activity in metric tonnes CO₂-e emitted for Annex B countries.

Scope 2 Indirect GHG Emissions

- c. Total global Scope 2 activity in metric tonnes CO₂-e emitted.
d. Total Scope 2 activity in metric tonnes CO₂-e emitted for Annex B countries.

Electricity consumption

- e. Total global MWh of purchased electricity.
f. Total MWh of purchased electricity for Annex B countries.
g. Total global MWh of purchased electricity from renewable sources.
h. Total MWh of purchased electricity from renewable sources for Annex B countries.

- ii If you are unable to detail your Scope 1 and Scope 2 GHG emissions and/or electricity consumption, please report the GHG emissions you are able to identify together with a description of those emissions.

c Other Emissions – Scope 3 of GHG Protocol: (CDP5 Question 2c)

How do you identify and/or measure Scope 3 emissions? Please provide where possible:

- a. *Details of the most significant Scope 3 sources for your company.*
b. *Details in metric tonnes CO₂-e of GHG emissions in the following categories:*
i *Employee business travel.*
ii *External distribution/logistics.*
iii *Use/disposal of company's products and services.*
iv *Company supply chain.*
c. *Details of the methodology you use to quantify or estimate Scope 3 emissions.*

d External Verification (CDP5 Question 2a iii)

- i Has the information reported in response to Questions 2b – c been externally verified or audited or do you plan to have the information verified or audited? If so:
ii *Please provide a copy of the audit or verification statement or state your plans for verification.*
iii *Please specify the Standard or Protocol against which the information has been or will be audited or verified.*

e Data Accuracy (New to CDP6)

Does your company have a system in place to assess the accuracy of GHG emissions inventory calculation methods, data processes and other systems relating to GHG measurement? If so, please provide details. If not, please explain how data accuracy is managed.

f Emissions History (CDP5 Question 2a iv)

Do the emissions reported for your last accounting year vary significantly compared to previous years? If so, please explain the reasons for the variations.

g Emissions Trading (CDP5 Question 4b)

- i Does your company have facilities covered by the EU Emissions Trading Scheme? If so:
a. Please provide details of the annual allowances awarded to your company in Phase I for each of the years from 1 January 2005 to 31 December 2007 and details of allowances allocated for Phase II commencing on 1 January 2008.
b. Please provide details of actual annual emissions from facilities covered by the EU ETS with effect from 1 January 2005.
c. What has been the impact on your company's profitability of the EU ETS?

- ii What is your company's strategy for trading or participating in regional and/or international trading schemes (eg: EU ETS, RGGI, CCX) and Kyoto mechanisms such as CDM and JI projects?

h Energy Costs (CDP5 Question 4d)

- i Please identify the total costs in US \$ of your energy consumption eg from fossil fuels and electric power.*
- ii What percentage of your total operating costs does this represent?*
- iii What percentage of energy costs are incurred on energy from renewable sources?*

3 Performance

Objective: To determine performance against targets and plans to reduce GHG emissions.

a Reduction Plans (CDP5 Questions 1d and 4a)

- i Does your company have a GHG emissions reduction plan in place? If so, please provide details along with the information requested below. If there is currently no plan in place, please explain why.*
- ii What is the baseline year for the emissions reduction plan?*
- iii What are the emissions reduction targets and over what period do those targets extend?*
- iv What activities are you undertaking to reduce your emissions eg: renewable energy, energy efficiency, process modifications, offsets, sequestration etc? What targets have you set for each and over what timescales do they extend?*
- v What investment has been or will be required to achieve the targets and over what time period?*
- vi What emissions reductions and associated costs or savings have been achieved to date as a result of the plan?*

b Emissions Intensity (CDP 5 Question 4c)

- i What is the most appropriate measurement of emissions intensity for your company?*
- ii Please state your GHG emissions intensity in terms of total tonnes of CO₂-e reported under Scope 1 and Scope 2 per US \$m turnover and EBITDA for the reporting year.*
- iii Has your company developed emissions intensity targets? If so:*
 - a. Please state your emissions intensity targets.*
 - b. Please state what reductions in emissions intensity have been achieved against targets and over what time period.*

If not, please explain why.

c Planning (CDP5 Question 4e)

Do you forecast your company's future emissions and/or energy use? If so:

- i Please provide details of those forecasts, summarize the methodology used and the assumptions made.*
- ii How do you factor the cost of future emissions into capital expenditure planning?*
- iii How have these considerations made an impact on your investment decisions?*

4 Governance

Objective: To determine responsibility and management approach to climate change.

a Responsibility (CDP5 Question 5a)

Does a Board Committee or other executive body have overall responsibility for climate change? If not, please state how overall responsibility for climate change is managed. If so:

- i Which Board Committee or executive body has overall responsibility for climate change?
- ii What is the mechanism by which the Board or other executive body reviews the company's progress and status regarding climate change?

b Individual Performance (CDP5 Question 5b)

Do you assess or provide incentive mechanisms for individual management of climate change issues including attainment of GHG targets? If so, please provide details.

c Communications (New to CDP6)

Please indicate whether you publish information about the risks and opportunities presented to your company by climate change, details of your GHG emissions and plans to reduce emissions through any of the following communications:

- i the company's Annual Report or other statutory filings, and/or*
- ii formal communications with shareholders or external parties, and/or*
- iii voluntary communications such as Corporate Social Responsibility reporting.*

If so, please provide details and a link to the document(s) or a copy of the relevant excerpt.

d Public Policy (New to CDP6)

Do you engage with policymakers on possible responses to climate change including taxation, regulation and carbon trading? If so, please provide details.

Appendix 4

Glossary

Glossary of Key Terms

API	Application Programming Interface
BCP	Business Continuity Planning
BEE	Bureau of Energy Efficiency
BRM	Business Risk Model
CCI	Clinton Climate Initiative
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CER	Certified Emission Reduction
CFC	Chlorofluorocarbon
CNG	Compressed Natural Gas
CO₂e	Carbon Dioxide Equivalent

EBIT	Earning Before Interest & Taxes	RGGI	Regional Greenhouse Gas Initiative
ECBC	Energy Conservation and Building Code	Tco2-e	Metric Tonnes of Carbon Dioxide Equivalent
EI	Energy Intensive	TQM	Total Quality Management
ERPA	Emissions Reductions Purchase Agreement	UNFCCC	United Nations Framework Convention on Climate Change
ESCO	Energy Service Company	WBCSD	World Business Council for Sustainable Development
ESP	Environment and Social Policy	WRI	World Resources Institute
EU ETS	European Union Emission Trading Scheme		
GBC	Green Business Centre		
GDP	Gross Domestic Product		
GEF	Global Environment Fund		
GHG	Greenhouse Gases		
GW	Gigawatt		
IISI	International Iron & Steel Institute		
ISG	Integrator Starter Generator		
ISO	International Organisation for Standardisation		
JI	Joint Initiative		
LED	Light Emitting Diode		
LEED	Leadership In Energy & Environmental Design - US Construction Standards		
LPG	Liquefied Petroleum Gas		
MNC	Multinational Company		
MWh	Megawatt Hour		
NAPCC	National Action Plan on Climate Change		
NEI	Non Energy Intensive		
OGP	Optical Gaging Products		
PSU	Public Sector Undertaking		
R&D	Research & Development		
RE/EE	Renewable Energy/Energy Efficiency		

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