CARBON DISCLOSURE PROJECT

British
High Commission
New Delhi

Carbon Disclosure Project Report 2009
India 200

On behalf of 475 investors with assets of $55 trillion



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CII-ITC Centre of Excellence
for Sustainable Development

WWF

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This report and all of the public responses from corporations are available to download free of charge from www.cdproject.net.

CDP Members 2009

CARBON DISCLOSURE PROJECT

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ASN Bank Netherlands

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Aviva Investors UK

AXA Group France

Bank of America Corporation US

BBVA Spain

BlackRock US

BP Investment Management Limited UK

Caisse de dépôt et placement du Québec Canada

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California State Teachers Retirement System US

Calvert Group US

Catholic Super Australia

CCLA Investment Management Ltd UK

CIBC Canada

Daiwa Asset Management Co. Ltd Japan

Essex Investment Management, LLC US

Ethos Foundation Switzerland

Folksam Sweden

Fortis Investments Belgium

Generation Investment Management UK

Grupo Santander Brasil Brazil

ING Netherlands

KLP Insurance Norway

Legg Mason, Inc. US

Libra Fund, L.P. US

London Pensions Fund Authority UK

Mistra, Foundation for Strategic Environmental Research Sweden

Mitsubishi UFJ Financial Group (MUFG) Japan

Morgan Stanley Investment Management US

National Australia Bank Limited Australia

Neuberger Berman US

Newton Investment Management Limited UK

Northwest and Ethical Investments LP Canada

Pictet Asset Management SA Switzerland

Rabobank Netherlands

Robeco Netherlands

Russell Investments UK

Schroders UK

Second Swedish National Pension Fund (AP2) Sweden

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Standard Chartered PLC UK

Sun Life Financial Inc. Canada

Swiss Reinsurance Company Switzerland

The RBS Group UK

The Wellcome Trust UK

Zurich Cantonal Bank Switzerland

CDP Signatories 2009

475 institutional investors with assets of over US$55 trillion were signatories to the CDP 2009 information request dated 1st February 2009, including:

Aachener Grundvermögen Kapitalanlagegesellschaft mbH Germany
Aberdeen Asset Managers UK
Acuity Funds Canada
Addenda Capital Inc. Canada
Advanced Investment Partners US
Advantage Asset Managers (Pty) Ltd South Africa
Aegon N.V. Netherlands
Aeneas Capital Advisors US
AGF Management Limited Canada
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Alberta Investment Management Corporation (AIMCo) Canada
Alberta Teachers Retirement Fund Canada
Alcyone Finance France
Allianz Group Germany
Altshuler Shacham LTD Israel
AMP Capital Investors Australia
AmpegaGerling Investment GmbH Germany
APG Investments Netherlands
ARIA (Australian Reward Investment Alliance) Australia
Arkitekternes Pensionskasse Denmark
Artus Direct Invest AG Germany
ASB Community Trust New Zealand
ASN Bank Netherlands
ATP Group Denmark
Australia and New Zealand Banking Group Limited Australia
Australian Ethical Investment Limited Australia
AustralianSuper Australia
Aviva Investors UK
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Baillie Gifford & Co. UK
Bakers Investment Group Australia
Banco Sweden
Banco Bradesco S.A Brazil
Banco de Galicia y Buenos Aires S.A. Argentina
Banco do Brazil Brazil
Banco Santander, S.A. Spain
Banesprev – Fundo Banespa de Seguridade Social Brazil
Bank of America Corporation US
Bank Sarasin & Co, Ltd Switzerland
Bank Vontobel Switzerland
BANKINTER S.A. Spain
Barclays Group UK
BayernInvest Kapitalanlagegesellschaft mbH Germany
BBC Pension Trust Ltd UK
BBVA Spain
Bedfordshire Pension Fund UK
Beutel Goodman and Co. Ltd Canada
BlackRock US
Blue Marble Capital Management Limited Canada
BMO Financial Group Canada
BNP Paribas Investment Partners France
Boston Common Asset Management, LLC US
BP Investment Management Limited UK
Brasilprev Seguros e Previdência S/A. Brazil
British Columbia Investment Management Corporation (bcIMC) Canada
BT Financial Group Australia
BT Investment Management Australia
Busan Bank South Korea
CAAT Pension Plan Canada
Caisse de dépôt et placement du Québec Canada
Caisse des Dépôts France
Caixa de Previdência dos Funcionários do Banco do Nordeste do Brasil (CAPEF) Brazil
Caixa Econômica Federal Brazil
Caixa Geral de Depósitos Portugal
California Public Employees' Retirement System US
California State Teachers Retirement System US
California State Treasurer US
Calvert Group US
Canada Pension Plan Investment Board Canada
Canadian Friends Service Committee (Quakers) Canada
CAPESESP Brazil
Capital Innovations, LLC US
CARE Super Pty Ltd Australia
Carlson Investment Management Sweden
Carmignac Gestion France
Catherine Donnelly Foundation Canada
Catholic Super Australia
Cbus Superannuation Fund Australia
CCLA Investment Management Ltd UK
Central Finance Board of the Methodist Church UK
Ceres, Inc. US
Cheyne Capital Management (UK) LLP UK
CI Mutual Funds' Signature Advisors Canada
CIBC Canada
Clean Yield Group, Inc. US
ClearBridge Advisors, Socially Aware Investment US
Close Brothers Group plc UK
Colonial First State Global Asset Management Australia
Comite syndical national de retraite Bâtirente Canada
Commerzbank AG Germany
CommInsure Australia
Companhia de Seguros Aliança do Brasil Brazil
Compton Foundation, Inc. US
Connecticut Retirement Plans and Trust Funds US
Co-operative Financial Services (CFS) UK
Corston-Smith Asset Management Sdn. Bhd. Malaysia
Crédit Agricole Asset Management France
Credit Suisse Switzerland
Daegu Bank South Korea
Daiwa Securities Group Inc. Japan
DB Advisors Deutsche Asset Management Germany
DEFO – Deutsche Fonds für Immobilienvermögen GmbH Germany
DEGI Deutsche Gesellschaft für Immobilienfonds mbH Germany
Deka FundMaster Investmentgesellschaft mbH Germany
Deka Investment GmbH Germany
DekaBank Deutsche Girozentrale Germany
Deutsche Bank Germany
Deutsche Postbank Privat Investment Kapitalanlagegesellschaft mbH Germany
Development Bank of Japan Japan
Development Bank of the Philippines (DBP) Philippines
Dexia Asset Management France
DnB NOR ASA Norway
Domini Social Investments LLC US
DPG Deutsche Performancemessungs-Gesellschaft für Wertpapierportfolio mbh Germany
East Sussex Pension Fund UK
Economus Instituto de Seguridade Social Brazil
ELETRA – Fundação Celg de Seguros e Previdência Brazil
Environment Agency Active Pension fund UK
Epworth Investment Management UK
Erste Group Bank AG Austria
Essex Investment Management, LLC US
Ethos Foundation Switzerland
Eureko B.V. Netherlands
Eurizon Capital SGR Italy
Evangelical Lutheran Church in Canada Pension Plan for Clergy and Lay Workers Canada
Evli Bank Plc Finland
F&C Management Ltd UK
Faelba Brazil
FAELCE – Fundação Coelce de Seguridade Social Brazil
Fédéris Gestion d'Actifs France
First Affirmative Financial Network US
First Swedish National Pension Fund (AP1) Sweden
FirstRand Ltd. South Africa
Fishman & Co. Israel
Five Oceans Asset Management Pty Limited Australia
Florida State Board of Administration (SBA) US
Folksam Sweden
Fondaction CSN Canada
Fonds de Réserve pour les Retraites – FRR France
Fortis Bank Nederland Netherlands
Fortis Investments Belgium
Forward Management, LLC US
Fourth Swedish National Pension Fund, (AP4) Sweden
Frankfurter Service Kapitalanlagegesellschaft mbH Germany
FRANKFURT-TRUST Investment Gesellschaft mbH Germany
Franklin Templeton Investment Services Gmbh Germany
Frater Asset Management South Africa
Friends Provident UK
Front Street Capital Canada

Fukoku Capital Management Inc Japan

Fundação AMPLA de Seguridade Social – Brasiletros Brazil

Fundação Atlântico de Seguridade Social Brazil

Fundação Banrisul de Seguridade Social Brazil

Fundação CEEE de Seguridade Social – ELETROCEEE Brazil

Fundação Codesc de Seguridade Social – FUSESC Brazil

Fundação de Assistência e Previdência Social do BNDES – FAPES Brazil

Fundação Forluminas de Seguridade Social – FORLUZ Brazil

Fundação Promon de Previdência Social Brazil

Fundação São Francisco de Seguridade Social Brazil

Fundação Vale do Rio Doce de Seguridade Social – VALIA Brazil

FUNDIÁGUA - Fundação de Previdência da Companhia de Saneamento e Ambiental do Distrito Federal Brazil

Gartmore Investment Management Ltd UK

Generation Investment Management UK

Genus Capital Management Canada

Gjensidige Forsikring Norway

GLG Partners LP UK

Goldman Sachs & Co. US

Governance for Owners UK

Government Employees Pension Fund ("GEPF"), Republic of South Africa South Africa

Green Cay Asset Management Bahamas

Green Century Funds US

Groupe Investissement Responsable Inc. Canada

GROUPE OFI AM France

GrowthWorks Capital Ltd. Canada

Grupo Banco Popular Spain

Grupo Santander Brasil Brazil

Gruppo Monte Paschi Italy

Guardian Ethical Management Inc Canada

Guardians of New Zealand Superannuation New Zealand

Hang Seng Bank Hong Kong

HANSAINVEST Hanseatische Investment GmbH Germany

Harrington Investments US

Hastings Funds Management Limited Australia

Hazel Capital LLP UK

Health Super Fund Australia

Helaba Invest Kapitalanlagegesellschaft mbH Germany

Henderson Global Investors UK

Hermes Fund Managers UK

HESTA Super Australia

Hospitals of Ontario Pension Plan (HOOPP) Canada

HSBC Holdings plc UK

Hyundai Marine & Fire Insurance Co, Ltd South Korea

IDBI Bank Limited India

Ilmarinen Mutual Pension Insurance Company Finland

Impax Group plc UK

Industrial Bank China

Industry Funds Management Australia

Infrastructure Development Finance Company Ltd. (IDFC) India

ING Netherlands

Inhance Investment Management Inc Canada

Insight Investment Management (Global) Ltd UK

Instituto de Seguridade Social dos Correios e Telégrafos- Postalis Brazil

Instituto Infraero de Seguridade Social – INFRAPREV Brazil

Insurance Australia Group Australia

Internationale Kapitalanlagegesellschaft mbH Germany

Investec Asset Management UK

Itaú Unibanco Banco Múltiplo S.A. Brazil

J.P. Morgan Asset Management US

Janus Capital Group Inc. US

Jarislowsky Fraser Limited Canada

Jubitz Family Foundation US

Jupiter Asset Management UK

K&H Investment Fund Management/K&H Befektetési Alapkezelö Zrt Hungary

KB Kookmin Bank South Korea

KBC Asset Management NV Belgium

KCPS and Company Israel

KDB Asset Management Co., Ltd. South Korea

Kennedy Associates Real Estate Counsel, LP US

KfW Bankengruppe Germany

Kibo Technology Fund South Korea

KLP Insurance Norway

Korea Investment Trust Management Co., Ltd. South Korea

KPA Pension Sweden

Kyobo Investment Trust Management Co., Ltd. South Korea

La Banque Postale Asset Management France

La Financiere Responsable France

LBBW – Landesbank Baden-Württemberg Germany

LBBW Asset Management GmbH Germany

LD Lønmodtagernes Dyrtidsfond Denmark

Legal & General Group plc UK

Legg Mason, Inc. US

Lend Lease Investment Management Australia

Libra Fund, L.P. US

Light Green Advisors, LLC US

Living Planet Fund Management Company S.A. Switzerland

Local Authority Pension Fund Forum UK

Local Government Superannuation Scheme Australia

Local Super SA-NT Australia

Lombard Odier Darier Hentsch & Cie Switzerland

London Pensions Fund Authority UK

Lothian Pension Fund UK

Macif Gestion France

Macquarie Group Limited Australia

Magnolia Charitable Trust US

Maine State Treasurer US

Man Group plc UK

Maple-Brown Abbott Limited Australia

Marc J. Lane Investment Management, Inc. US

Maryland State Treasurer US

McLean Budden Canada

MEAG Munich Ergo Asset Management GmbH Germany

MEAG Munich Ergo Kapitalanlagegesellschaft mbH Germany

Meeschaert Gestion Privée France

Meiji Yasuda Life Insurance Company Japan

Merck Family Fund US

Mergence Africa Investments (Pty) Limited South Africa

Meritas Mutual Funds Canada

Metzler Investment Gmbh Germany

Midas International Asset Management South Korea

Miller/Howard Investments US

Mirae Investment Asset Management South Korea

Mistra, Foundation for Strategic Environmental Research Sweden

Mitsubishi UFJ Financial Group (MUFG) Japan

Mitsui Sumitomo Insurance Co.,Ltd. Japan

Mizuho Financial Group, Inc. Japan

Mn Services Netherlands

Monega Kapitalanlagegesellschaft mbH Germany

Morgan Stanley Investment Management US

Motor Trades Association of Australia Superannuation Fund Pty Ltd Australia

MP Pension – Pensionskassen for Magistre og Psykologer Denmark

Munich Re Group Germany

Mutual Insurance Company Pension-Fennia Finland

Natcan Investment Management Canada

Nathan Cummings Foundation, The US

National Australia Bank Limited Australia

National Bank of Canada Canada

National Bank of Kuwait Kuwait

National Grid Electricity Group of the Electricity Supply Pension Scheme UK

National Grid UK Pension Scheme UK

National Pensions Reserve Fund of Ireland Ireland

Natixis France

Needmor Fund US

Nest Sammelstiftung Switzerland

Neuberger Berman US

New Alternatives Fund Inc. US

New Jersey Division of Investment US

New Mexico State Treasurer US

New York City Employees Retirement System US

New York City Teachers Retirement System US

New York State Common Retirement Fund (NYSCRF) US

Newton Investment Management Limited UK

NFU Mutual Insurance Society UK

NH-CA Asset Management South Korea

Nikko Asset Management Co., Ltd. Japan

Nissay Asset Management Corporation Japan

Nordea Investment Management Sweden

Norfolk Pension Fund UK

Norges Bank Investment Management (NBIM) Norway

Norinchukin Zenkyouren Asset Management Co., Ltd Japan

North Carolina State Treasurer US

Northern Ireland Local Government Officers' Superannuation Committee (NILGOSC) UK

Northern Trust US

Northwest and Ethical Investments LP Canada
Oddo & Cie France
Old Mutual plc UK
OMERS Administration Corporation Canada
Ontario Teachers Pension Plan Canada
Opplysningsvesenets fond (The Norwegian Church Endowment) Norway
Oregon State Treasurer US
Orion Asset Management LLC US
Pax World Funds US
PBU – Pension Fund of Early Childhood Teachers Denmark
Pension Fund for Danish Lawyers and Economists Denmark
Pension Protection Fund UK
Pensionskassen for Jordbrugsakademikere og Dyrlæger Denmark
PETROS – The Fundação Petrobras de Seguridade Social Brazil
PFA Pension Denmark
PGGM Netherlands
Phillips, Hager & North Investment Management Ltd. Canada
PhiTrust Active Investors France
Pictet Asset Management SA Switzerland
Pioneer Alapkezelö Zrt. Hungary
Pioneer Investments Kapitalanlagegesellschaft mbH Germany
PKA Denmark
Portfolio 21 Investments US
Portfolio Partners Australia
Porto Seguro S.A. Brazil
PPM Premiepensionsmyndigheten Sweden
PRECE Previdência Complementar Brazil
PREVI Caixa de Previdência dos Funcionários do Banco do Brasil Brazil
Principle Capital Partners Limited UK
PSP Investments Canada
QBE Insurance Group Limited Australia
Q Capital Partners South Korea
Railpen Investments UK
Rathbones/Rathbone Greenbank Investments UK
Real Grandeza Fundação de Previdência e Assistência Social Brazil
Rei Super Australia
Rhode Island General Treasurer US
RLAM UK
Robeco Netherlands
Rose Foundation for Communities and the Environment US
Royal Bank of Canada Canada
RREEF Investment GmbH Germany
Russell Investments UK
SAM Group Switzerland
Sanlam Investment Management South Africa
Santa Fé Portfolios Ltda Brazil
Sauren Finanzdienstleistungen Germany
Savings & Loans Credit Union (S.A.) Limited. Australia
Schroders UK
Scotiabank Canada
Scottish Widows Investment Partnership UK
SEB Sweden
SEB Asset Management AG Germany
Second Swedish National Pension Fund (AP2) Sweden
Seligson & Co Fund Management Plc Finland
Sentinel Funds US
SERPROS Fundo Multipatrocinado Brazil
Service Employees International Union Benefit Funds US
Seventh Swedish National Pension Fund (AP7) Sweden
Shinhan Bank South Korea
Shinhan BNP Paribas Investment Trust Management Co., Ltd South Korea
Shinkin Asset Management Co., Ltd Japan
Shinsei Bank Limited Japan
Siemens Kapitalanlagegesellschaft mbH Germany
Signet Capital Management Ltd Switzerland
Skandia Nordic Division Sweden
SMBC Friend Securities Co., LTD Japan
Smith Pierce, LLC US
SNS Asset Management Netherlands
Social(k) US
Société Générale France
Sompo Japan Insurance Inc. Japan
Souls Funds Management Limited Australia
SPF Beheer bv Netherlands
Sprucegrove Investment Management Ltd Canada
Standard Chartered PLC UK
Standard Life Investments UK
State Street Corporation US
Statewide Superannuation Trust Australia
Storebrand ASA Norway
Strathclyde Pension Fund UK
Stratus Group Brazil
Sumitomo Mitsui Banking Corporation Japan
Sumitomo Mitsui Card Company, Limited Japan
Sumitomo Mitsui Finance & Leasing Co., Ltd Japan
Sumitomo Mitsui Financial Group Japan
Sumitomo Trust & Banking Japan
Sun Life Financial Inc. Canada
Superfund Asset Management GmbH Germany
Svenska Kyrkan, Church of Sweden Sweden
Swedbank Sweden
Swiss Reinsurance Company Switzerland
Swisscanto Holding AG Switzerland
Syntrus Achmea Asset Management Netherlands
TD Asset Management Inc. and TDAM USA Inc. Canada
Teachers Insurance and Annuity Association – College Retirement Equities Fund (TIAA-CREF) US
Tempis Capital Management South Korea
Terra Forvaltning AS Norway
TfL Pension Fund UK
The Bullitt Foundation US
The Central Church Fund of Finland Finland
The Collins Foundation US
The Co-operators Group Ltd Canada
The Daly Foundation Canada
The Dreyfus Corporation US
The Japan Research Institute, Limited Japan
The Joseph Rowntree Charitable Trust UK
The Local Government Pensions Insitution (LGPI)(keva) Finland
The Presbyterian Church in Canada Canada
The RBS Group UK
The Russell Family Foundation US
The Shiga Bank, Ltd. Japan
The Standard Bank of South Africa Limited South Africa
The Sustainability Group at the Loring, Wolcott & Coolidge Office US
The Travelers Companies, Inc. US
The United Church of Canada – General Council Canada
The University of Edinburgh Endowment Fund UK
The Wellcome Trust UK
Third Swedish National Pension Fund (AP3) Sweden
Threadneedle Asset Management UK
Tokio Marine & Nichido Fire Insurance Co., Ltd. Japan
Toronto Atmospheric Fund Canada
Trillium Asset Management Corporation US
Triodos Bank Netherlands
TrygVesta Denmark
UBS AG Switzerland
Unibanco Asset Management Brazil
UniCredit Group Italy
Union Asset Management Holding AG Germany
Union Investment Institutional GmbH Germany
Union Investment Privatfonds GmbH Germany
Union Investment Service Bank AG Germany
Union PanAgora Asset Management GmbH Germany
UniSuper Australia
Unitarian Universalist Association US
United Methodist Church General Board of Pension and Health Benefits US
United Nations Foundation US
Universal Investment Gesellschaft mbH Germany
Universities Superannuation Scheme (USS) UK
Vancity Group of Companies Canada
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VicSuper Pty Ltd Australia
Victorian Funds Management Corporation Australia
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Waikato Community Trust Inc New Zealand
Walden Asset Management, a division of Boston Trust and Investment Management Company US
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WestLB Mellon Asset Management (WMAM) Germany
Westpac Investment Management Australia
Winslow Management Company US
WOORI BANK South Korea
YES BANK Limited India
York University Pension Fund Canada
Youville Provident Fund Inc. Canada
Zurich Cantonal Bank Switzerland

Foreword

The CDP India Report 2009 is being published at an important time of worldwide action on climate change. Just as global leaders, campaigners and lobbyists prepare for the crucial meeting at Copenhagen, the report reflects the progress that the Indian business community is making to combat climate change.

The global problem of climate change has significant local implications. It, therefore, demands effective local action within, as well as the evolving global framework. The fourth report of the Intergovernmental Panel on Climate Change (IPCC) highlights the vulnerability of the Indian sub-continent to climate change induced impacts. Businesses in the sub-continent are not only vulnerable to these risks, but they are also deemed to face the newly crafted trade barriers, carbon pricing, and other penalties being designed by different regimes globally. Leading companies, however, realise that mitigating climate change risks can be essentially possible if they are able to capture the 'climate opportunities'.

Without doubt climate change makes a place as a business risk in the boardrooms and then transforms itself into an opportunity. The stress is on thinking out of the box and switching over to low-carbon operations. Companies that manage to mitigate their exposure to climate change risks while seeking new opportunities for profit will generate a competitive advantage over rivals in a carbon constrained future.

Indian industry is sending out clear signals of embracing an approach that can help India bypass the energy and resource intensive growth trajectory of developed nations and leapfrog to a low carbon economy. This report highlights the actions of the top 200 Indian companies in reducing emissions as well as adapting to the direct impacts of climate change. It also identifies the challenges faced by the Indian industry in view of an uncertain international climate regime.

It is heartening to see an increasing trend in both the quantity and quality of disclosures by the Indian companies over the last couple of years. More companies are undertaking focused efforts to account for, reduce and manage their carbon footprints, with support from their top management. The information furnished in the disclosures is already playing a significant role in influencing the decision-making of financial institutions. While making their investment decisions, these institutions can now pay attention to the profile of greenhouse gas (GHG) emissions, mitigation and adaptation plans, and the risks and opportunities faced by the companies due to climate change.

I am extremely pleased to note that India's leading industry association, the Confederation of Indian Industry (CII), and WWF-India, a leading conservation organisation, have worked together with the team of the Carbon Disclosure Project (CDP) to bring out the third Indian report of CDP, encouraging more companies to voluntarily disclose their GHG emissions, and also highlight the various risks and opportunities posed by climate change.

Suresh P Prabhu
Former Union Minister

Executive Summary

WWF-India and CII-ITC Centre of Excellence for Sustainable Development entered into a partnership with the Carbon Disclosure Project (CDP) for the third consecutive year to bring out the CDP 2009 report.

The report brings out the challenges Indian companies are facing and outlines how they have integrated the long-term value and costs of climate change impacts into the assessment of the financial health and future prospects of their businesses. The companies' disclosures are based on their commitments towards the environment and averting climate change. CDP is a platform that enables them to share and highlight such initiatives amongst stakeholders both at local and global levels.

This year CDP was backed by 475 global institutional investors (representing more than US$55 trillion of funds under management), including Indian investors such as IDBI Bank Ltd, Infrastructure Development Finance Company Ltd (IDFC) and Yes Bank Ltd. The CDP 2009 information request was sent to more than 3,700 of the world's largest corporations.

In India, the top 200 Indian companies (identified on the basis of their market capitalisation) were approached for information on their greenhouse gas (GHG) emissions, the potential risks and opportunities related to climate change and their strategies for managing these risks and opportunities.

This report documents the response of the Indian business community to climate change; whether they view climate change as a risk or an opportunity, the absolute emissions levels, emissions intensity, performance over time, benefits, and the management strategy. The report has been prepared by CII-ITC Centre of Excellence for Sustainable Development and WWF-India based on the analysis of the responses received from the participating Indian companies.

CDP 2009 India Highlights

Participation

With every passing year, the disclosure of Indian companies to the CDP has been improving in terms of content and comprehensiveness of the understanding climate impacts on businesses. For CDP 2009, a total of 44 companies from as many as 13 sectors responded[1] to the information request, while two companies provided partial information and three declined to participate (*see Figure 1*). This year six of the 44 respondents are from the public sector. Of the responding 44 companies, 11 opted not to make their disclosures public. Compared to 2008, the number of companies participating in CDP 2009 went down slightly. To a certain extent this decline may be attributed to the ongoing financial recession. However, compared to CDP6 (2008), there was also a significant improvement in the quality of disclosure this year. A larger number of companies have not only started disclosing information on their GHG emissions, but they are also adopting more accurate methodologies for doing so and are providing categorical break-downs of their GHG emissions.

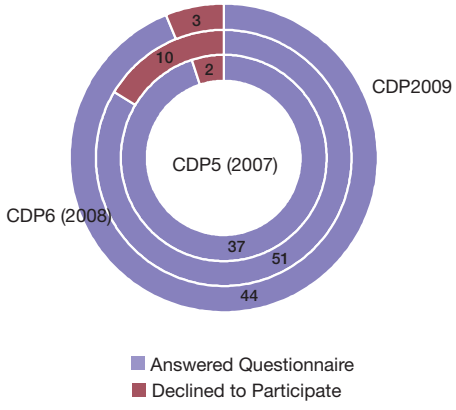
Sectoral summary

For the second consecutive year, the Household & Personal Products sector recorded the highest response rate among of all contacted sectors (*See Table 1*).[2] The Automobiles & Components sector followed suit with a response rate of 43%. The Software and Services sector's disclosure rate was 38%.

The Software & Services sector has taken the lead in mapping its GHG emissions and designing mitigation measures (*see Table 1*). About 38% of the companies approached in this sector by CDP are reportedly monitoring their Scope 1 and 2 emissions and have plans in place to mitigate their GHG footprint. Software & Services sector has outperformed its compatriots in carbon and energy intensive sectors such as Energy & Capital Goods sector, whose disclosure was below average.

There has been a marked improvement as far as governance related climate change issues are

Fig. 1: CDP India Response Rate (In No's)



Increasingly, board level managerial resources are spearheading the execution of climate change strategies within their organisations.

Table 1: Disclosure trends by sector in CDP 2009

Sector	Overall Response Rate (number of companies in brackets)	GHG Accounting Response (number of companies in brackets)
Automobiles & Components	43% (3)	29% (2)
Banks & Diversified Financials	26% (8)	6% (2)
Capital Goods	16% (4)	8% (2)
Commercial Services and Supplies	-	-
Consumer Durables and Apparels	-	-
Energy	24% (4)	12% (2)
Food Beverage and Tobacco	25% (2)	13% (1)
Healthcare Equipment and Services	-	-
Household and Personal Products	60% (3)	20% (1)
Materials	30% (8)	25% (7)
Pharmaceuticals, Biotechnology and Life Sciences	15% (2)	8% (1)
Real Estate	13% (1)	0
Retailing	33% (1)	0
Software and Services	38% (3)	38% (3)
Technology Hardware and Equipment	25% (2)	13% (1)
Telecommunication Service	-	-
Transportation	-	-
Utilities	22% (2)	11% (1)

[1] Respondents include companies that responded to CDP by submitting a completed Questionnaire directly (response status "AQ*" or "AQ") or indirectly (via parent company, "SA"). The methodology has been updated since CDP6 (2008) where companies providing information (response status "IN") were also considered as a response.

[2] It should be noted however that the responses from the sector were mainly comprised of Multinational Companies and were therefore analyzed as part of the CDP Global 500 report.

concerned. Increasingly, board level managerial resources are spearheading the execution of climate change strategies within their organisations. This was observed most frequently in the following sector: Software & Services (38%), Automobiles & Components (29%), Technology, Hardware & Equipment (25%) and Materials (25%). CDP 2009 in India also noted positive trends in the number of companies engaged with government committees on climate change policy. Here too, Software & Services (38%) and Automobiles & Components (29%) sectors took the lead.

Identifying risks and opportunities

Regulatory risk is acknowledged by responding companies but is not considered of significance, at least for now. This was demonstrated by a drop in the number of respondents who perceived climate change regulations as a risk. Only 34% (13) of the companies recognised regulatory risks as compared to 37% (19) in CDP6 (2008). This can be largely attributed to increasing level of interaction between government and industry directly, as well as through industry associations on India's position towards climate change. Similar to previous CDP iterations, most respondents acknowledged physical (82%) and other risks* (71%) presented due to climate change as being more relevant to their business.

Financial institutions, including insurance firms, predict an increase in credit risks of the energy intensive sectors as the Indian government changes its climate change policies and tighten regulations, which will translate into increased compliance costs for certain sectors

At the same time, certain responding companies expect regulatory risk to have greater significance in the future with compliance pressures intensifying in India. This has already started changing with the formulation of National Action Plan for Climate Change (NAPCC). Financial institutions, including insurance firms, predict an increase in credit risks of the energy intensive sectors as the Indian government changes its climate change policies and tighten regulations, which will translate into increased compliance costs for certain sectors.

The companies also acknowledge the emergence of new opportunities due to regulatory changes focused on climate change. Many of the companies have already moved fast to tap this potential market. Specifically, 84% (32) of the respondents consider current or anticipated climate change regulations as an opportunity for their business. Physical and other opportunities arising out of climate change are also highlighted. There is an increase in the number of respondents who see "other"** opportunities arising from climate change, with numbers going up from 71% (36) in CDP6 (2008) to 79% (30) in CDP 2009. There is, however, only a very minor increase as regards to the perception about physical opportunities 55% in CDP 2009 vs. 53% in CDP6 (2008).

Emission disclosures

The Indian companies have started putting in place systems to monitor and report their GHG emissions. Quite a significant number of companies are reporting their GHG emissions and the figure is increasing every year. The percentage of companies giving an account of their GHG emissions in CDP 2009 stands at 63% (24). This number has almost doubled since CDP6 (2008), when only 33% (17) of the respondents disclosed their GHG emissions. The overall total GHG emissions reported by the respondents of CDP 2009 stands at 68.9 million metric tonnes (MT), which is almost double the GHG emissions reported in last two years. This is clearly reflective of the better capacity of Indian companies to monitor their GHG footprint. More importantly, the comprehensiveness of monitoring has also improved. The government of India's (GOI) introduction of disclosing energy consumption by energy intensive unit, also made a significant contribution. As compared to CDP6 (2008), more respondents are monitoring their Scope 1 and Scope 2 emissions. While only 0.4 MT of Scope 2 emissions were reported in CDP6 (2008), the figure rose by ten times to

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* Resource Scarcity, increased production and operational cost, shift in consumer demand, commercial and competitive risks, etc.

** Enhanced financial and environmental performance, increased productivity, carbon finance business etc.

4 MT in CDP 2009. The number of companies reporting Scope 3 emissions remains unchanged at 25% (as was the case in 2008).

Performance targets in place

Companies responding to CDP are also formulating targets and setting standards to reduce their energy consumption and thereby their GHG emissions. 68% (26) of the respondents to CDP 2009 have reduction plans in place for slashing either their energy or GHG emissions as compared to 61% last year. Another major difference is that the targets set by companies in CDP 2009 are mostly quantitative, while in previous years most companies had subjective targets without any timelines. About 35% (13) of the respondents also shared information on the benefits they derived from their energy/emissions reduction plans and targets, including financial gains.

Governance

Top level managers are increasingly starting to manage and oversee climate change issues that affect their businesses. In CDP5 (2007), only 39% of the responding companies had executive committees headed by the chairman/CEO/MD and responsible for climate change issue. This figure has gone up to 62% and 74% (28) respectively in CDP6 (2008) and CDP 2009.

Communication

Improved transparency on climate change issues is a highlight of CDP 2009, with more companies indicating they publish sustainability reports and engage with policymakers. About 51% (19) of the respondents shared the risks and opportunities posed by climate change (including the details of emissions and mitigation plans) with their stakeholders through various corporate communication channels. Compared to international trends, a sizeable number of Indian companies are yet to partake in any form of sustainability reporting. However, at the same time 55% (21) of the respondents are engaging with the policymakers on various aspects of climate change such as pricing, subsidies, policies, etc.

Internationalization of climate change

Despite recognising the importance of climate change, Indian companies are yet to incorporate it into their investment decisions. It's only when these risks are internalised can a company claim to acknowledge that climate change has a real impact on its bottom line.

Conclusion

The results of the third year of CDP in India reflect the success of the positive start in 2007. They show that many Indian corporations are already measuring, reporting and managing their GHG emissions. It is encouraging that there has been a marked improvement in the comprehensiveness and depth of information disclosed by the participating companies. This shows the preparedness of the companies to deal with the risks and opportunities associated with climate change.

A significant percentage of the responding companies acknowledge the various risks and opportunities emerging from climate change. The reported investments of some proactive companies into research and development as well as adopting measures that will lower their carbon emissions and make them compliant with future regulations exemplify how the business relevance of climate change is being recognised in India. Some leading companies have already positioned themselves to bring in sectoral reforms both at national and international forums. An increasing number of companies across various sectors believe that the present and future climate change regulations will drive resource efficiency and hence positively impact the bottom line. The support of the business community may encourage the government to protect the climate and level the playing ground within India.

Generally, the CDP 2009 reporting trends demonstrate an increase in

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awareness about climate change issues among Indian companies, and greater integration of these issues with strategic business planning. While the number of companies who do not respond to CDP – and hence to the 475 international investors CDP represents – is still high, the CDP 2009 trends provides optimism. The companies participating in CDP are geared towards adapting and mitigating the risks of climate change. This is demonstrated by their commitment to transparency and disclosure, and emphasised by reported emissions reductions targets and plans. As more and more Indian companies understand and take on the issues of climate change, the responders to CDP 2009 have distinguished themselves as leaders, and joined the group of more than 2,000 international participants who reported to CDP this year.

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The Carbon Disclosure Project – Overview of CDP

The turmoil in the financial markets and the global economy over the last year has highlighted the importance of effective disclosure and high-quality risk management.

The financial crisis of 2008 suggests we need to better understand systemic risks that can cause significant de-stabilizing impacts in the global economy. Climate change has the potential to cause disruption in the form of unforeseen, high-impact events (such as extreme weather) as well as a longer term re-assignment of value across countries, industries and corporations.

The Intergovernmental Panel on Climate Change (IPCC) predicts that the consequences of the impacts of climate change could vary from being disruptive to catastrophic.[3] Therefore, it is vital that policymakers, companies and investors have a full understanding of the associated risks and opportunities. According to a HSBC research[4], governments around the world have allocated US $430 billion in fiscal stimulus to key climate change themes. Those providing low carbon solutions are well positioned to benefit from such allocations, while those who ignore the risks gamble on being left behind.

By collating the collective power of the investment community, which is represented in 2009 by more than 475 investors having US$55 trillion worth of assets under management, the CDP motivates more than 2,000 companies globally to report their climate change strategies and GHG emissions. This global system not only provides the market, investors, policymakers and procurement directors with a clear understanding of how companies are positioned as the world move towards a low carbon economy, but it also ensures that the corporations provide full transparency on the issue of climate change.

This year CDP saw a considerable growth in responses from emerging economies such as Russia, China, South Africa and Korea. CDP also expanded its scope in Russia in 2009. The quantity and quality of data available increased significantly. The response from the top 200 Indian companies to CDP is far ahead in the region. The same was the case with the use of the data, which acts as a catalyst for changing business behaviour. The CDP data is increasingly being integrated into mainstream financial analysis, and it is available through the Bloomberg Professional Services. It is being used to provide sector based analysis to the CDP signatory members. A recent report by Mercer supports this view.
Some CDP signatories such as CalSTRS are going a step further by using shareholder resolutions to encourage companies to report to CDP and implement climate change management strategies. CDP is also working with the Principles of Responsible Investment (PRI) to drive awareness and improve climate change reporting. CDP has recently entered into a new partnership with the financial information services company Markit to build a suite of indices based on the Carbon Disclosure Leadership Index, which will be licensed to exchange-traded fund (ETF) and structured product providers.

The CDP now works with more than 55 organisations including Dell, Unilever, Wal-Mart Stores and departments of the British government to measure and assess climate change risk and opportunity throughout the supply chain. More than 800 companies report their climate change strategies through the CDP system to their customers and as a result we have seen a significant increase in the use of CDP data in procurement operations. Now procurement professionals can understand how their supply chains may be impacted and as a result begin to future-proof their systems against the impacts of climate change.

The process of measuring emissions is central to emissions management and reduction. As regulatory frameworks develop to mandate emission reductions, CDP's role will expand. CDP will continue to work with corporations, policymakers and information users to produce practical and robust results that complement the development of mandatory reporting rules.

In order to continue providing the global hub of carbon reporting, CDP is currently undergoing a significant systems upgrade, designed to improve data comparability, facilitate benchmarking services and ultimately deliver data that is appropriate for investment analysis and regulatory submissions. In

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[3] http://unfccc.int/essential_background/feeling_the_heat/items/2905.php

[4] HSBC Global Research: A Climate for Recovery – The colour of stimulus goes green.

Climate change is a global problem, which requires a global solution and by bridging the gaps between national governments and international businesses across the globe, CDP will help to connect the national and international climate change ecosystem.

countries like the US and UK, where mandatory carbon reporting is on the horizon, CDP's systems will help companies prepare for such requirements and will eventually integrate with existing national registries to enable corporations to disclose more detailed and standardized data. Climate change is a global problem, which requires a global solution and by bridging the gaps between national governments and international businesses across the globe, CDP will help to connect the national and international climate change ecosystem.

Highlights in carbon regulation and outlook for Copenhagen

2009 has witnessed significant progress in the country level approaches to climate change. The Obama administration has introduced a new era in climate change policy in the US. A global deal in Copenhagen this December appears more tangible. China, so integral to the success of Copenhagen, is set to meet ambitious renewable energy and energy efficiency targets and it is already a host to some of the world's largest renewable energy companies. Brazil too has a new National Plan on Climate Change and national governments in industrialised countries (including Japan and Australia) are also introducing legislation to reduce emissions.

India developed its National Action Plan on Climate Change in 2008 with a focus on mitigation, adaptation and knowledge sharing. The Prime Minister's Council on Climate Change endorsed in July 2009 an ambitious target of solar power generation of 20 GW by 2020 and in August 2009 a rate of 5% energy efficiency improvement per annum by 2017. A draft bill, likely to be soon tabled in the Parliament, will enable setting up of National Climate Change Mitigation Authority.

Whilst the July G8 meeting agreed to prevent global temperatures rising beyond 2° Celsius (3°-4° Fahrenheit) against pre-industrial levels, and agreed on aims to cut GHG emissions by 50-80% by the mid of this century, it disappointed many by dodging about the issue of medium-term targets.

In Europe, the Energy and Climate Change package was approved in December 2008 which sets out the policy framework and accompanying measures to reduce emissions through the continuation (and expansion) of the EU Emissions Trading Scheme (EU ETS), targets for non-ETS sectors and new ones aimed at the promotion of renewable energy.

In the US, the Obama administration moved early to set out its ambitions of climate change mitigation: "We will harness the sun and the winds and the soil to fuel our cars and run our factories."[3]

The Waxman-Markey Bill was finally put before the House of Representatives in June and passed by a narrow margin. The proposed legislation would commit the US to reduce greenhouse gas emissions by 17% below 2005 levels by 2020 through a cap-and-trade system beginning in 2012. The Bill now goes on to be voted on in the Senate.

In Australia, work has progressed on the proposed Carbon Pollution Reduction Scheme (CPRS) despite political challenges over its possible competitive impacts especially in the face of the economic downturn. The scheme, which would cover around 75% of total Australian emissions, is due to face a key vote later this year.

Given the multinational nature of many companies, the evolution of these policies is likely to have significant implications on strategic direction and operations and many of the world's largest companies want to seize on the early mover advantage.

Of course, the role of the government is crucial in providing the regulatory frameworks. But investors and businesses will also play an essential role by driving the capital flow towards the technologies which will allow economies to flourish and innovate as the world moves towards a low carbon economy.

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[5] Obama inauguration speech, January 2009

The investors and businesses are already being directly affected by climate change. Many companies report to CDP the material impacts of climate change on their operations, by way of increased flooding, water shortage, spread of diseases and changing local weather patterns. Within the public sector, cities reporting through CDP, also explain how they are planning to adapt to changes in weather patterns such as extreme heat and precipitation.

Investors, policymakers, procurement directors and other stakeholders need to build up the necessary comparable datasets in order to monitor and analyse changes. Integral to the success of a deal in Copenhagen will be the availability of this accurately reported data. If businesses don't measure current emissions, it will be impossible for them to manage and reduce them in the future. This is where CDP's role is crucial.

Progress on reporting standards

While the CDP has set the tone on matters of disclosure over the years, for the first time this year, it widened its approach to encompass performance. There are other valuable and complementary initiatives underway to address the requirement of a global carbon measurement and reporting system.

While the financial accounting system has taken several hundred years to develop, carbon accounting is in its infancy. In order to achieve a coherent global system, CDP is leading the work of the Climate Disclosure Standards Board (CDSB), working with Deloitte, Ernst & Young, KPMG and PricewaterhouseCoopers. The CDSB aims to develop robust accounting standards which will enable carbon reporting through annual financial reports. CDP and CDSB will also work with the World Economic Forum to advise the G20 group of nations on climate change accounting in 2010.

The CDP process demonstrates that corporations can lead the way in taking action that can be Measured, Reported and Verified (MRV). It also shows how international companies can reduce their emissions across the entirety of their operations on a global basis, even when subject to a range of different regulatory requirements. As more and more countries introduce climate change regulation, the CDP system supports companies by bridging the gap between international business and national reporting requirements and helps reduce the reporting burden on the companies.

The CDP Global Forum was part of the inaugural Climate Week NYC in September, when business leaders, heads of state and the world's major investors congregated in New York to prepare for negotiations at COP15. An agreement there will be a vital step towards success, but it is just as important to look beyond Copenhagen and to build the global systems required to combat dangerous climate change. CDP remains focused on and dedicated to this work and thanks all of the organisations that work with us to help realise this goal.

CDP India 2009

This report analyses the responses received by CDP from Indian companies, the request for which was sent earlier this year to more than 3,500 companies, including the top 200 India companies based on their market capitalisation. These companies belong to varied sectors and their responses provide an insight into their understanding and strategies adopted towards combating climate change. The structure of the analysis in this report is listed below:

- Climate change - a challenge and opportunity for the Indian industry
- Indian and international policy - responding to climate change
- Overview of the India 20
- Sector analysis
- Response trends

As more and more countries introduce climate change regulation, the CDP system supports companies by bridging the gap between international business and national reporting requirements and helps reduce the reporting burden on the companies.

Table 1: Key trends snapshot[6]

This table outlines some of the key findings from CDP 2009 by geography and industry data-set.[7]

Sample: geography/ number of companies	% of sample answering CDP 2009	% of sample answering CDP6 (2008)[8]	% of responders with Board level responsibility for climate change	% of responders seeing regulatory risks	% of responders seeing regulatory opportunities	% of responders seeing physical risk	% of responders seeing physical opportunities	% of responders disclosing Scope 1 emissions	% of responders disclosing Scope 2 emissions	% of responders externally verifying emissions disclosures	% of responders engaged/considering participation in emissions trading	% of responders with an emissions reduction/energy reduction plan	% of responders engaging with policy makers on climate change
Asia-ex JICK 100[9]	31	[35]	76	55	76	66	55	66	69	31	17	59	62
Australia 200	52	48	80	79	81	82	56	81	83	46	50	67	73
Brazil 80	76	[83]	49	61	73	73	53	61	55	22	25	61	49
Canada 200	49	55	70	57	68	56	46	81	76	27	34	49	61
Central & Eastern Europe 100	8	-	75	50	50	75	25	75	25	75	50	100	50
China 100	10	5	56	67	78	67	44	22	22	22	11	67	44
Europe 300	82	-	85	80	90	75	63	91	85	77	58	89	79
France 120	58	63	77	69	84	66	61	79	77	63	47	81	66
Germany 200	51	55	65	58	70	44	47	63	57	45	33	63	55
Global 500	81	77	80	78	84	78	63	85	80	63	54	80	74
Global Electric Utility 250	49	52	71	79	84	75	62	81	50	61	57	60	77
Global Transport 100	67	58	84	81	84	79	50	79	68	50	43	72	74
India 200*	22	25	73	34	84	81	55	63	63	27	27	68	55
Ireland 40	33	-	71	71	71	64	43	71	50	50	43	57	43
Italy 60	35	[46]	52	67	86	67	48	81	62	71	33	67	57
Japan 500	37	[72]	85	87	83	80	64	77	72	33	90	49	49
Korea 100	50	[32]	61	67	76	69	57	55	55	33	35	63	55
Latin America 50	50	[52]	58	79	79	58	47	79	68	37	26	47	58
Netherlands 50	62	52	97	74	90	65	61	90	90	58	42	81	71
New Zealand 50	52	50	65	69	77	69	65	58	54	35	27	58	54
Nordic 200	65	[58]	77	76	81	63	54	83	77	46	33	78	59
Portugal 20	38	-	75	88	75	88	63	100	88	88	25	63	75
Russia 50	13	-	33	0	33	33	33	33	33	0	33	33	33
South Africa 100	68	58	86	73	86	89	68	83	86	38	33	68	65
Spain 85	41	[71]	80	66	77	63	54	91	83	86	34	80	74
Switzerland 100	56	57	74	44	72	48	48	72	67	35	19	65	43
UK FTSE 100	95	90	83	89	91	83	66	98	95	73	77	88	79
UK FTSE 250	57	58	79	78	76	72	53	81	80	36	43	61	49
US S&P 500	66	64	68	70	77	70	52	77	74	41	31	65	61

6 The numbers in this table are based on the total respondents at 10th July 2009. They may therefore vary from numbers in the rest of the report which are based on the number of companies who responded on time (e.g. 30th June for Global 500).

7 In some cases, the number of responses analyzed is slightly less than the number answering CDP 2009 due to takeovers, mergers and acquisitions.

8 Percentages in square brackets reflect a different sized sample in 2008, e.g.: in 2008 we wrote to 75 companies in Brazil, not 80; and in Japan we wrote to 150 companies in 2008, not 500. A dash (-) shows that sample was not in CDP6 (2008).

9 Asia excluding Japan, India, China and Korea.

* The numbers for India 200 is the final figure as on November 20, 2009.

2

Climate Change: A Challenge and Opportunity for Indian Industry

Climate change is one of the most significant emerging risks facing the world today, presenting huge challenges to the environment and to global and local economies. It is also one of the most difficult risks to mitigate. This chapter introduces some of the key challenges and opportunities related to climate change from an Indian perspective.

Business risks from climate change include:

- **The strong threat of increasingly volatile weather conditions**
- **Resulting impacts on insurance markets, business resources, personnel and corporate preparedness**
- **Increasing legal and regulatory pressures and mounting public and shareholder activism**

While the time horizon for the impacts of climate change is unclear, organisations should be asking themselves a number of questions related to their climate-risk mitigation strategies. These questions are as follows:

- **How prepared is the organisation for climate change and the potential weather and health impacts on its operations?**
- **How prepared is the organisation to handle a changing regulatory environment?**
- **Do the organisation's policies adequately address areas such as loss of production, inability to supply to the customers, employee assistance and gaps in communication?**
- **Has the organisation's insurance coverage been reviewed recently for the potential impacts of climate change?**

Severe weather events and changing climatic patterns, and current or impending regulations impose a cost of carbon reduction, thereby leading to a shift in the competitive paradigm, which will have a significant impact on businesses.

Companies with significant GHG emissions or energy-intensive operations face risks from new state, national and international regulations limiting carbon emissions and imposing a cost on the same.

Companies in carbon-intensive industries such as oil and gas, electric utilities, and automobile manufacturing are already starting to face litigation related to their GHG emissions.

Why Climate Change is a Business Issue

Given the sweeping global nature of climate change, climate risk is being embedded in every business and investment portfolio. Severe weather events and changing climatic patterns, and current or impending regulations impose a cost of carbon reduction, thereby leading to a shift in the competitive paradigm, which will have a significant impact on businesses. Climate change is increasingly being seen as a strategic issue, and leading companies are taking action now to mitigate the risks and take advantage of the opportunities arising from it to ensure a position for themselves in the emerging low-carbon global economy.

The risk that climate change poses to any individual business varies, but nearly every company will face some pressures.

Regulatory risk

Companies with significant GHG emissions or energy-intensive operations face risks from new state, national and international regulations limiting carbon emissions and imposing a cost on the same. While few countries already have mandatory climate change legislation in place, momentum for similar legislations in many countries is growing. California and ten North-eastern states in the US have already taken regulatory action to ensure emission reductions. Japan, China and others have instituted GHG emission reduction targets, fuel emission standards and renewable energy mandates. Meanwhile, the entire EU is pushing to reduce GHG emissions under an ambitious cap-and-trade carbon emissions trading system (EU ETS), which is already valued at over US$30 billion a year. All major companies including oil producers, banks and automakers will be impacted directly or indirectly by the fast-spreading regulations.

Physical risk

Businesses are at risk from the physical impacts of climate change, including the increased intensity and frequency of severe weather events such as prolonged droughts, floods, storms and sea level rise. Climate change may worsen dry seasons and droughts, as well as weaken water retention in the variable monsoon periods. This can have alarming impacts considering the fact that 65% of the Indian agriculture is rain-fed, and one-sixth of the country is already drought-prone. Moreover, floods affect an area of around 7.5 million hectares per year. With climate change impacts becoming more pronounced, an increasingly urbanised population may become vulnerable to new flood risks.

Reputational and competitive risk

Tightly linked to the regulatory risk in the global and domestic market places, climate risk preparedness will be a key driver in a company's ability to compete. General Electric, for example, sees huge growth opportunities from its many new climate-friendly product lines, such as wind turbines, high efficiency gas turbines, IGCC power plants and hybrid diesel-electric locomotives. India is already a production hub of small fuel efficient cars and its potential has increased as most European and American auto manufacturers realise the competitive risk arising out of smaller cars. In addition to revised product portfolios, companies will have to adjust their climate strategy to respond to changing consumer preferences and perceptions in order to safeguard their reputation and long-term market success.

Litigation Risk

Companies in carbon-intensive industries such as oil and gas, electric utilities, and automobile manufacturing are already starting to face litigation related to their GHG emissions. These are mostly seen in countries with some carbon legislation or countries impacted by them. Car manufacturers exporting to the EU are impacted by stringent emission norms applicable in the European market. Similarly, cement manufacturers are now facing the litigation risk for high GHG emissions during the production phase. The potential liability is immense should

the courts find companies guilty in such cases. Even if some of the lawsuits are unsuccessful, the costs of litigation and the damage to reputation incurred by some companies could be detrimental.

Business leaders are increasingly receptive to addressing global warming as it presents opportunities to enhance their bottom line. Companies at the vanguard no longer question how much it will cost to reduce GHG emissions, but how much money they can make from it. Climate change poses risks to the industry, but it also presents opportunities: astute companies are already taking advantage of new products, markets and competitive advantages inherent in the low-carbon economy.

Sensing Climate Opportunities – Examples from India

Many Indian companies are adopting technologies, practices and approaches that will help build a low carbon economy. Many have been adopting carbon mitigation actions to reduce their operational cost, enhance their reputation and achieve a competitive edge. Companies in India have presently sought strategic benefits from voluntary GHG reductions through operational improvement, anticipating and influencing climate change regulations, accessing new sources of capital, improving risk management, augmenting corporate reputation, identifying new market opportunities, and enhancing human resource management.

The Indian private sector is increasingly working in tandem with the global markets because of its clientele and the technological processes used in the production cycles. Improving the efficiency of the supply chain of one's company is no longer a regulatory risk but an informed and strategic tool to be deployed for improving profit margins and public image.

India's biggest business associations have taken the lead in engaging with the Indian industry on climate change issues. One of India's apex industry associations, Confederation of Indian Industry (CII), has established the CII-ITC Centre of Excellence for Sustainable Development and the CII-Sohrabji Godrej Green Business Centre in order to engage with the industry on sustainable development issues. These institutions together with the energy policy division of the CII have undertaken several initiatives, including an indigenous standard for green buildings, and the CII Code for Ecologically Sustainable Business Growth (as of March 2009, 220 industrial units have voluntarily committed to take up the code); through these initiatives these institutes are promoting international cooperation and building linkages for bringing green technologies to India, etc.

India's single largest electricity utility company, NTPC, established the Centre for Power Efficiency and Environmental Protection (CenPEEP) in collaboration with USAID with a mandate to reduce GHG emissions per unit of electricity generated by improving the overall performance of coal-fired power plants. CenPEEP is also assisting various state electricity utilities in India by demonstrating and disseminating knowledge about improved technologies and practices. ITC, one of India's foremost private sector companies, has a carbon committee that looks after the company's strategies to reduce its climate footprint. By greening 80,000 hectares of land through social forestry plantations, ITC has sequestered more carbon dioxide than what it emits. In 2008, the company drew 24.1% of its energy requirements from renewable sources produced internally. Larsen & Toubro (L&T) in India has also undertaken several initiatives to reduce its GHG emissions. The company meets nearly 8% of its electricity requirement through the use of renewable energy sources. L&T uses technology to deliver products that conserve energy and are less resource intensive. Wipro has launched 23 green initiatives in the last couple of years, most of which have resulted in significant savings for the company; for example, all the CFLs in the Bangalore campus of Wipro were replaced with LED lights resulting in 75% saving of electricity consumption.

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The Indian Green Building Council has set the goal of achieving 1 billion square feet of green building space by 2012.

In August 2009, India's Prime Minister unveiled an energy efficiency trading system designed to save 5% of the country's energy consumption, and 100 million tonnes of carbon dioxide annually by 2015.

India has already achieved installation of over 10,000 MW of renewable energy-based capacity, and stands fourth worldwide in terms of wind power installed capacity.

In the green building sector, CII has facilitated certification of several LEED Platinum rated buildings, which are now being built across India. For instance, K Raheja (a real-estate developer) has proposed that all his future projects would be LEED certified. MNCs like HSBC, ABN AMRO, WalMart, Microsoft, Gillette and Carrefour are also opting for green complexes in India. 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 the traditional one. The Indian Green Building Council has set the goal of achieving 1 billion square feet of green building space by 2012.

The Indian industry has also achieved remarkable progress in energy efficiency and renewable energy. Average energy intensity in key sectors such as cement, and iron & steel has been declining consistently. In August 2009, India's Prime Minister unveiled an energy efficiency trading system designed to save 5% of the country's energy consumption, and 100 million tonnes of carbon dioxide annually by 2015. The initiative, which is expected to cover around 700 installations, is to be underpinned by a market in tradable energy efficiency certificates.

Smart grid technologies are at last becoming a reality in India. Smart grid systems allow electricity customers to lower their carbon footprints without having to compromise with their lifestyle or habits, and also create an extremely profitable business opportunity for electric utilities and distribution companies.

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 energy-based capacity, and stands fourth worldwide in terms of wind power installed capacity. It is notable that more than 95% of the total investment in renewable energy in India has come from the private sector. Suzlon, an Indian-owned company, has managed to blend strategies creatively to leapfrog innovation to enter new technology markets. Operating in 20 countries, Suzlon is ranked as the third leading wind turbine maker in the world[10].

The approval of the National Solar Mission has given huge impetus to the solar cell manufacturing companies in the country. Tata BP Solar and Moser Baer India have taken the lead in this sector. In September 2009, Moser Baer India won the contract for a one MW project by Mahagenco, a power generation company owned by the Maharashtra government.

Efforts to mitigate climate change and global warming offer new opportunities for the Indian industry and businesses to leapfrog the energy and resource intensive development process being witnessed by the developed world. It is clear that environmentally conscious investment decisions can allow the country to enter into an era of carbon-efficient advanced technologies. Entrepreneurs adopting environment-friendly measures in their business ventures can now look forward to additional support from the investors while contributing to conservation efforts. Investment of up to US$100 million will be raised for various small and medium green enterprises (SMEs) in the country by 2012 under the 'New Ventures India' scheme launched by the US-based World Resources Institute as part of a USAID programme.

According to a study conducted by WWF-India in 2009, responses from the Indian companies belonging to both the energy intensive and non-energy intensive sectors convey a common understanding that regulations in India, if imposed, will prove to be an opportunity rather than a risk.

[10] http://economictimes.indiatimes.com/markets/stocks/market-news/Suzlon-sells-35-in-Belgian-arm-Hansen/articleshow/5249281.cms

Some of the key opportunities specific to the energy sector include the Clean Development Mechanism (CDM), diversification into renewable energy and GHG accounting, which serves as a driver for development of new products, and services that mitigate GHG emissions from the value chain. ONGC is the leading central PSU in developing CDM projects in India. The company has four registered CDM projects with a potential reduction of 119,655 tonnes of carbon dioxide equivalent emissions annually; it is developing 13 more CDM projects.

For the automobile industry, the most prominent commercial opportunities exist in the form of energy efficient vehicles, cleaner fuels, green transport and mass rapid transit solutions. The Reva Electric Car Company in Bangalore is currently the world's leading electric car manufacturing corporation. REVA offers not just efficient design, but efficient production as well. REVA's new low carbon assembly plant in Bangalore is being built as per the LEED guidelines, harvesting rainwater, using solar energy for heating and lighting, and making optimal use of natural light and ventilation. The first charge in every REVA car is made using solar electricity. A battery 'second life' programme further increases efficiency and reduces waste.

DLF, a major real estate developer, is coming up with the first-ever private metro project in India. There is a big thrust on commissioning energy efficient buses running on clean fuels in New Delhi prior to the Commonwealth Games in 2010. This has emerged as a prominent business opportunity for Indian automobile manufacturers. For instance, according to Tata Motors, *"with climate change there is an increase in demand for fuel efficient vehicles due to their low GHG emissions. This 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 of advanced fuel efficient vehicles, thereby minimising our dependencies on fossil fuels. It is also an opportunity for minimising energy consumption through elimination of energy losses during manufacturing, thereby reducing manufacturing costs and increasing productivity*."

Climate change is creating a demand for outputs from the Materials sector which can serve as green alternatives to carbon and energy intensive resources and products. According to Saint-Gobain, *"A large part of our products represent a solution for climate change. Around 30% of Saint-Gobain's net sales and 40% of its operating profit derive from energy saving solutions"*. Substantial investment is also being poured into product development to improve the resilience of materials and goods to climate change wear and tear.

In the Construction & Engineering sectors there is a rising demand for buildings that are compliant with ECBC/LEED guidelines, which in turn creates a demand for companies that are adequately equipped with the knowledge, skills and abilities required to deliver these solutions. Indian and global companies with a portfolio of products designed to curb emissions and energy intensive practices, are already accounting for sizeable profits associated with these opportunities. Technology solution providers are faced with the opportunity of developing innovative solutions to help society adapt to climate change. For example, Jain Irrigation Systems, the world leader in irrigation systems, has recently bagged an Rs 7.78 million worth of World Bank order to supply and service drip and sprinkler irrigation systems in 25 sub-basins in Tamil Nadu.

This is only the beginning
Climate change tends to be perceived as a business risk in most corporate boardrooms but it gets transferred into an opportunity for those companies that are willing to look out of the box for innovative solutions for low carbon growth. Companies that manage to mitigate their exposure to climate change risks while seeking new opportunities are more likely to have a competitive advantage than their peers that fail to act. Where there is risk, however, there is also an opportunity, and companies are increasingly seeing great business prospects in addressing climate change.

Investment of up to US$100 million will be raised for various small and medium green enterprises (SMEs) in the country by 2012 under the 'New Ventures India' scheme launched by the US-based World Resources Institute as part of a USAID programme.

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3

Indian and International Policy - Responding to Climate Change

There has been an increase in awareness about the need to balance economic growth with climate change mitigation efforts. Over the years climate change has emerged as a global phenomenon entailing serious and long-term strategic implications.

Introduction

It is widely known that inexorable human activities have contributed towards the rapid increase of GHG emissions and has led to an additional warming of the atmosphere, posing an unprecedented threat to the climate. Climate change carries in itself the iniquitous potential of causing global warming, inundation of coastal regions, changes in the precipitation patterns and variability, peril to biodiversity, threats to river hydrology, adverse health impacts and colossal damage to the natural ecosystems. Its ominous impacts would be felt globally; but these impacts would be more blatantly seen in developing nations that are already confronted with compelling pressures from rapid economic development accompanied with technological advancement, population explosion as well as industrialisation.

A country like India is more vulnerable to the impacts of climate change given its tropical nature. Moreover, India is predominantly an agrarian nation with more than 50% of its population dependent on agriculture and its allied activities. Considering this, the impacts of climate change would be most prominently felt in the form of direct changes in the temperature levels, soil erosion, deforestation and mutation of rain and soil patterns. Furthermore, as has been suggested by several studies, India is the fourth largest emitter of GHGs (after US and China) and needs to take up actions to reduce GHG emissions with the overall aim of mitigating climate change. The energy scenario in India is characterised by a growing demand-supply gap, inherent inefficiencies, and distorted price mechanisms. India's development trajectory is dependent on an accelerated growth in energy demand, which will invariably result in increasing emissions of GHGs, compounding the overall problems of pollution as well as climate change.

Identifying impacts and risks

Given the enormous potential of climate change in repositioning the concept of development itself, it is becoming increasingly apparent that the costs of inaction would overwhelmingly outweigh the costs of action. Realising this postulate, India is striving towards mainstreaming climate change measures with the national sustainable development strategies. One of the early initiatives in this regard was the ratification of the United Nations Framework Convention on Climate Change (UNFCCC) by India. The convention is centred on the principle of 'common but differentiated responsibilities' and seeks to stabilise GHG concentrations in the atmosphere at relatively safe levels in order to attenuate human interference with the climate system. In its attempts aimed at addressing the serious threats posed by global climate change, the Indian government is also making efforts to ensure that various educational institutions, climate experts and other important stakeholders have the relevant information so that their effective engagement is ensured and that they are provided with a public platform wherein their voices/concerns could be heard and addressed. An example of such kind of a consultative and deliberative process is the National Communication (NATCOM)[11] to the UNFCCC. As a part of the ongoing second round of NATCOM, various research studies indicate adverse impacts of climate change on India and provide meaningful solutions to the farmers. The research studies came up with the following observations:

- Food production may fall by up to 20-40%
- There may be a possible increase in the daily temperatures by around 1-6%
- The intensity of storms would increase
- The phenomenon of flash monsoons would increase, though the number of rainy days would be less
- The intensity of rainfall would be extremely severe

With the growing realisation of the discernible impacts of human activities on the global climate system, the urgency of introducing legally binding stabilisation targets was increasingly echoed from all parts of the world. Enshrining the said objective, the Kyoto Protocol assimilates in itself several pliable mechanisms such as Emissions Trading, Clean Development Mechanisms, and Joint Implementation, with the overall aim of combating GHG emissions.

An alarming revelation came from the 2007 report of the Inter-Governmental Panel on Climate Change (IPCC), which projected an increase in glacial melt in the Himalayan region, which would result

[11] The 2nd NATCOM is focused around:
- Identification and inventorying of greenhouse gases
- Information Dissemination on the steps that have been taken or are envisaged to implement the Convention
- Information on any other information that my be relevant in the achievement of the objectives of the Convention

Shyam Saran, India's special envoy to the Prime Minister for climate change, described the NAPCC as a strategy "to stabilise the GHG emissions at a lower and more sustainable level and eventually reduce them significantly".

in greater floods, rock avalanches, lack of freshwater availability, endemic morbidity and mortality. It also projected that climate change would heavily impinge on sustainable development as it compounds pressures on natural resources and the environment. In the light of this report, it is important to remember that while India continues to negotiate on issues related to climate change at the international platform, it is essential to have a national strategy to adapt and also mitigate the changing climes and bolster ecological sustainability of the country's development trajectory.

Framework for National Action

The Government of India has declared that despite its rigorous socio-economic developmental agenda, it would not exceed its per capita GHG emissions beyond those of the developed countries. The significance of this position lies in the fact that despite the developmental imperatives being huge, India is determined to meet them with a sense of ecological responsibility. As explained under the National Action Plan on Climate Change (NAPCC), India's vision is "to create a prosperous economy that is self-sustaining in terms of its ability to unleash the creative energies of the people and is mindful of responsibilities to both present and future generations". Shyam Saran, India's special envoy to the Prime Minister for climate change, described the plan as a strategy "to stabilise the GHG emissions at a lower and more sustainable level and eventually reduce them significantly". NAPCC emphasises upon the use and development of new technologies in order to ensure optimal benefits in terms of climate change, mitigation and adaptation, energy efficiency and natural resource conservation. It elaborates upon eight missions:

- Solar energy
- Energy efficiency
- Sustainable habitat
- Water
- Sustaining the Himalayan ecosystem
- Green India
- Sustainable agriculture
- Strategic knowledge for climate change

Two of the missions (Solar Mission and Energy Efficiency Mission) have been recently approved by the Prime Minister's Council on Climate Change. The National Mission on Strategic Knowledge, which aims at promoting indigenous research and development, has also been approved in principle. The Mission on the Himalayan ecosystem is also approved.

The NAPCC is likely to have decisive impacts on businesses through institutional mechanisms such as subsidy restructuring, lucrative opportunities in clean technologies and renewable energy, energy efficiency benchmarks and certificates, cap-and-trade schemes, etc. The government is also trying to introduce a policy on comprehensive and transparent data sharing, which would facilitate greater coordination between various divisions and departments working on climate change.

A related scheme is that of the Accelerated Power Development and Reform Programme which was undertaken so as to restore upon the commercial viability of several distribution units such as the State Electricity Boards. It tries to address loss reduction through the dual assistance in the form of investments and incentives. It also tries to look at the role of information technology in improving the performance of state power utilities.

Outside the NAPCC box, India is also emphasising on imposing the efficiency of coal power generation through shift to super-critical and ultra-super critical technologies.

The government has also launched certain specific initiatives and mechanisms intended at the abatement of GHG emissions. These can be elucidated as under:

Labelling Programme for Appliances: In 2006, India launched a comprehensive energy labelling programme for appliances under the framework of the Energy Conservation Act of 2001. The programme covers refrigerators, fluorescent tube lamps, air conditioners and distribution

transformers. The programme follows a five point rating scale, with one star implying low energy efficiency while a five star rating representing highest energy efficiency. Consumer education drives have been also planned in order to build awareness on the labels. The government has also introduced several financial measures to ensure the promotion of clean technologies.

Energy Conservation Building Code: The programme is based on actual performance of commercial buildings in optimising energy demand based on their locations under five climatic zones: warm and humid, composite, hot and dry, moderate, and cold. Compliance of the provisions of the Energy Conservation Building Code would invariably result in voluminous energy savings. With a view of building the technical capacity for implementation of the code, the Bureau of Energy Efficiency (BEE) has instituted a panel of experts as well as professionals.

Changes in mass transport systems: The National Urban Transport Policy aims at ensuring safe, affordable, quick, comfortable and sustainable transport and public mobility systems. The metro rail is an example of the envisaged transport systems. Another related component is the use and development of cleaner technologies so as to effectively deal with the problem of vehicular pollution. In this regard the introduction of Compressed Natural Gas or CNG is a good example.

Some other notable initiatives include energy audits of large companies, promotion of energy saving devices such as Compact Fluorescent Lamps (CFL), and promotion of biofuels. These have also been accompanied with large-scale afforestation and conservation drives, promotion of clean coal technologies, reduction of gas flaring, crop improvement and environment management in all the sectors.

Another significant area that offers a tremendous potential for growth is that of renewable energy. India is the only country in the world with a Ministry of New and Renewable Energy. The New and Renewable Energy Policy aims at promoting the utilisation of sustainable renewable energy sources and their accelerated deployment. Nine percent of India's installed power capacity consists of renewable sources excluding hydropower, which accounts for another 25% of the renewable energy mix.

India has adopted a market-based scheme for trading energy efficiency certificates that are worth an estimated US$15 billion as part of the National Energy Efficiency Mission. The mission also sets energy efficiency standards for home appliances and buildings, puts in place fuel economy standards for automobiles, and aims for the world's largest installed solar photovoltaic capacity at 20 gigawatts by 2022. India is also the world's fifth largest installer of wind energy capacity, and Indian company Suzlon is one of the world's leading wind energy companies. The government is also in process of enacting national renewable electricity targets through renewable energy performance standards and renewable certificates, and most of Indian states have already set their own requirements ranging from 0.5 to 10% of the total energy portfolio.

The government has been strongly advocating CDM as an exponential propeller for adopting clean and renewable forms of energy. As a result of this impetus India today has almost one third of all the CDM projects registered worldwide and has significant volumes of Certified Emissions Reductions (CERs).

Becoming a Part of the Solution

It should be remembered that India is still in its nascent stage of developing its energy and industrial infrastructure and despite this it has plunged itself into a coherent action to combat the global challenge of climate change. Its conviction has given India the confidence to raise its opinions in unequivocal terms at all public platforms, national as well as international. India is also carefully looking at the 15th Conference of

India stands to lose a great deal if global warming continues. Strong domestic actions, along with constructive participation in global negotiations, are necessary because we need to mitigate climate change out of self-interest.

Parties in Copenhagen in December 2009. The majority of the developing nations are hoping that the outcome will be based on the principles of fairness and equity and would be supportive of various efforts to deal with the challenges of climate change.

India too is willing to negotiate and has committed itself to not being a 'deal-breaker'. However Mr Jairam Ramesh, India's Environment Minister, has categorically stated that the country's demand for an international accord remains unchanged. India wants developed nations to agree to substantially reduce emissions by atleast 40% by 2020 below their 1990 levels and to also provide technical and financial assistance to developing nations. The role of the US in signing any international agreement would be of crucial importance as it happens to be the largest emitter of GHGs along with being the greatest source of innovation in technology. For India this factor is of special importance as it is trying to negotiate an Indo-US Energy Dialogue for several clean energy projects. India is also a member to the Asia Pacific Partnership initiated by US to tackle climate change and achieve energy efficiency. On the other end of the spectrum, India is trying to work out several trade agreements which are in many ways dependent upon the way climate change is addressed. For instance, the India-EU Free Trade Agreement has been on a slow track on account of increasing demands from the EU for greater transparency on India's part with regards to the steps that it has undertaken to mitigate the impact of global climate change and to alleviate the status of marginalised groups.

Domestic action independent of global negotiations

India stands to lose a great deal if global warming continues. Strong domestic actions, along with constructive participation in global negotiations, are necessary because we need to mitigate climate change out of self-interest.

The path to a low-carbon economy lies in highlighting the potential economic opportunity, as well as making clear the importance of developed countries doing their share to provide resources that will facilitate clean development in emerging and less developed countries. India's recent initiatives reflect its growing understanding of the potential that energy transformation can bring to its economy.

4

Sustained economic growth is interlinked with the risks posed by climate change to the business community. Risks of climate change were recognised globally when they started affecting economies and were reflected in the GDP forecasts. The assumed losses on account of global warming by an average of 4°C are in the range of 1%-5% of the GDP worldwide. The economies of developing country are much more vulnerable.

Overview of the India 200

How Indian companies see climate change risks and opportunities to their business?

1. Introduction

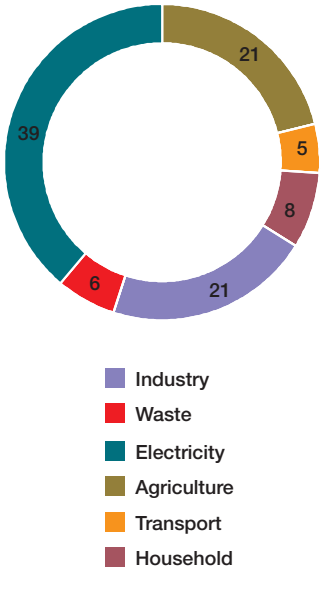
India spends 2.6% of its GDP on adaptation to climate change variability. Early global action to tackle GHG emissions can limit mitigation expenditure to around 1% of the GDP every year. However, any failure to do so can result in escalated costs of at least 5% of the GDP every year and can go up to as much as 20% if a wider range of risks are taken into consideration.

The phrase 'climate change' is not new to the business community, at least in developed economies. However, it is still a novelty in the business boardrooms of most developing countries. India is the fourth largest economy in the world and its contribution to the GHG emissions is rapidly going up. According to *Environmental and Energy Sustainability: an Approach for India,* a study conducted by McKinsey and Co, the GHG emissions of India could increase from roughly 1.6 billion tonnes of carbon dioxide equivalent (CO_2-e) in 2005 to 5-6.5 billion tonnes CO_2-e in 2030 to meet its requirements. Three other studies conducted on behalf of the Government of India by different organisations estimate that total annual GHG emissions will amount tot 4-4.9 billion tonnes CO_2-e by 2030. Although India's per capita emissions are much lower than that of the US, Europe or China, it is fast becoming a major contributor. A major chunk of India's GHG emissions is caused by the industrial sector and electricity and heating (*see Figure 2*).

Rising GHG emissions have led to an escalated regulatory scrutiny and physical and financial burden on the businesses. With awareness spreading about the impacts of climate change on economic and business activities, it has become a grave concern for all companies to assess whether they belong to the energy or non-energy intensive sectors. This is now recognised as a significant factor affecting costs and operational productivity.

This chapter summarises the responses received from the top 200 Indian companies,[10] which reported on identified risks and opportunities, GHG emissions, reduction targets, and management responses to climate change from a business perspective. The chapter also compares response trends among Indian businesses in the current and past CDP iterations.

Figure 2: India's GHG Emissions by Sector



Early global action to tackle GHG emissions can limit mitigation expenditure to around 1% of the GDP every year.

CIL
Current development to succeed the Kyoto protocol in 2013 signals the intent of the UNFCCC to regulate GHG emissions. However, the uncertainty of these measures means the financial impact on project designs cannot be accurately measured at this time.

HPCL
HPCL sees the environmental impact of energy as one of the key drivers for the future energy mix, especially with the tightening of standards to address concerns about pollution and climate change.

TATA Motors
Automobile industry all over the world including India is exposed to various regulations for controlling the emissions contributing to climate change.

Bharat Forge
Stricter climate and environmental norms in the developed world may require us to relook at our energy usage pattern as well as emission levels.

2. Risks and Opportunities: The Indian Scenario

As is the case for any other developing or developed country, climate change poses both risks as well as opportunities for India. The CDP responses received from the participating 200 Indian companies from both energy intensive and non-energy intensive sectors reflect this trend. An analysis of the CDP responses on the risks and opportunities arising from climate change suggests the "Climate Change Trapezium", which reflects the Indian business attitude towards climate change (*see Figure 3*). For example, the trapezium illustrates the perceived relation between risks and opportunities in connection with climate change regulation. In the absence of climate change related regulations, the Indian companies seem to be more visionary towards regulatory opportunities.

2.1 Climate Change Risks for Indian Companies

Climate change has severe implications for the Indian companies. These risks may be regulatory or physical and may be faced by themselves or indirectly through their business partners, clients, suppliers and customers and areas of operation elsewhere. Under the CDP, the Indian companies assessed the risks posed by climate change and their responses in meeting this challenge.

Comparing the Indian companies' responses to CDP over the past three years it is clear that there is an increasing awareness towards prevailing and perceived risks emerging from climate change. This trend indicates the growing understanding of Indian businesses of how climate change will shape their future business profile.

After comparing the Indian companies' responses to CDP over the past three years it is clear that there is an increasing awareness towards prevailing and perceived risks emerging from climate change. This trend indicates the growing understanding of Indian businesses of how climate change will shape their future business profile. *(see Figure 4).*

The CDP 2009 responses show that climate change is perceived as less of a risk this year than in 2008. Only 34% (13) of the responding companies consider themselves exposed to regulatory risk (as was the case in CDP5 (2007); in CDP6 (2008) it was 37%). At the same time, the number of companies which perceive physical and other risks due to climate change is high: 82% (31) of the responding companies consider physical risks a serious challenge; this result is almost the same as that of 2008 (81%).

Figure 3: The Climate Change Trapezium

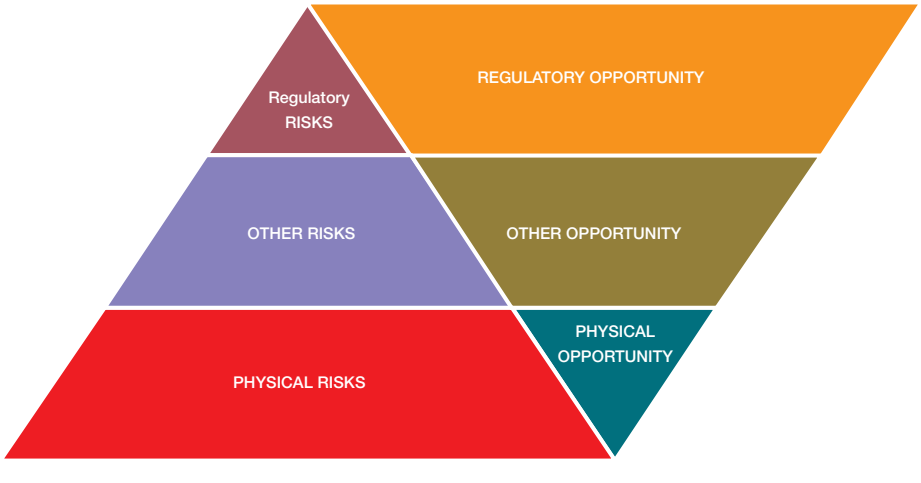
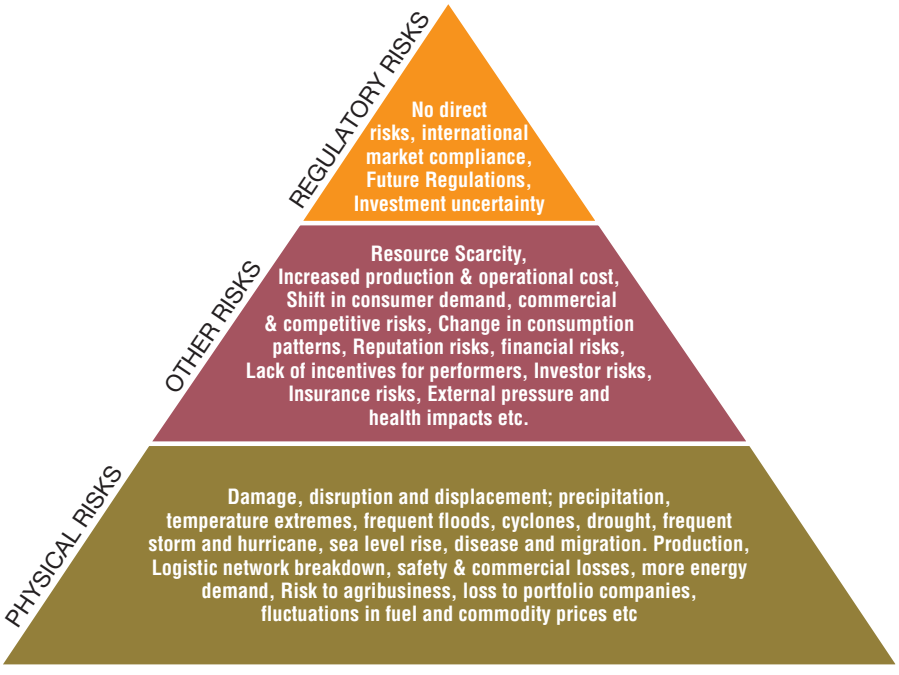


Figure 4: Climate Change Risk Pyramid



Similarly, 71% (27) of the companies consider other risks as significant compared to 50% in 2007 and 69% in 2008 (*see Figure 5*). The following section analyses the qualitative responses received from both energy and non-energy intensive sectors on present and potential climate change risks.

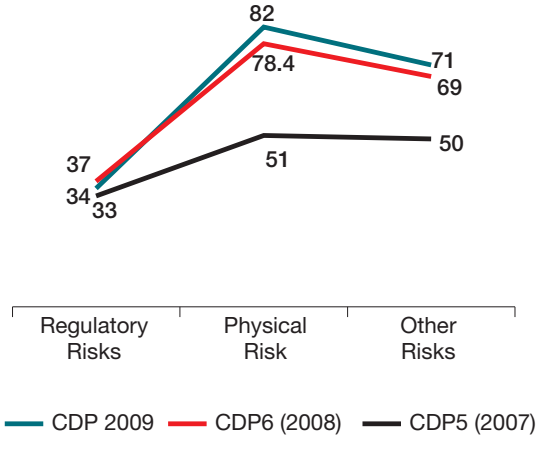
i. Regulatory Risks

Climate related regulatory risks generally arise from current and/or expected national, global and multilateral policies agreed by the governments.

Indian companies acknowledge the enormity of the climate change problem and also the fact that there are regulatory risks involved irrespective of geographical boundaries. However, as India is a non-Annex 1 country under the Kyoto Protocol, the majority of the responding companies see no direct regulatory risks involved at present.

With the formulation of Prime Minister's National Action Plan for Climate Change, Indian companies recognise that government is serious about addressing climate change. This could mean that regulatory

Figure 5: Risks Trends due to Climate Change (%)



IFCI

IFCI is not directly exposed to any immediate regulatory risks. However, its operations are indirectly exposed through its borrowers to whom IFCI has extended financial assistance, particularly the high carbon intensity industries.

HDFC Bank

Once the energy efficiency targets in buildings under the purview of the ECBC are made mandatory, the implementation and reporting requirements of the same could increase the operating expenses.

IDFC

We are accelerating our efforts to assess a broad range of environmental risks related to climate change which may give rise to long-term regulatory changes related to our markets.

Wipro

Extreme weather conditions like high levels of flooding or severe drought could have impact on Wipro's business as well as on the mobility of its employees, thereby also affecting Wipro's revenues and profitability.

HDFC
Since 70% of the agriculture is still dependent on rain-fed irrigation, rapid change in the monsoon patterns could negatively impact the rural landscape in India thus affecting the bank's profitability in those regions.

Sterlite Industries
Rising sea level may create problems in port operations, which will directly affect movement of raw material.

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 agri lending portfolio.

pressure is going to mount in the near future. Already, emission norms are in the pipeline for key energy intensive sectors. Energy efficiency standards are being formulated for key sectors, and standards for the use of renewable energy, fuel efficiency of vehicles and a code for green buildings are being developed. Clearly, these regulatory requirements could pose a risk as was recognised by some companies. For instance, the infrastructure sector may face new regulatory specifications on account of the energy conservation building code, which aims to promote sustainability within this sector through energy efficient buildings and the integration of environmentally neutral construction materials.

The responding companies anticipate considerable investments to be necessary to remain compliant with the proposed norms. Already companies have started investing in research and development as well as adaptation measures to ensure compliance with future regulations. Many companies have adopted a multi-dimensional approach to deal with future and current regulation.

Besides national regulations, many companies see regulatory risks emerging from the international marketplace. Indian companies with global presence feel that international taxes and duties applicable to the import of carbon-heavy goods, and the conditions imposed by their international clients are indirect regulatory risks. They also anticipate greater pressure from clients to reduce emissions and an increased demand for low-carbon products in the future.

The non-energy intensive sectors' direct exposure to risks from regulatory pressures is limited. They, however, acknowledge that indirectly current or future regulations may significantly affect their business profile. These companies identify an increase in compliance cost in the future as one of the concerns.

Financial institutions, including Insurance firms and Banks, predict an increase in credit risk as the government changes its climate change policies and tightens regulations. For energy intensive sectors, for example, regulation will lead to rising costs related to controlling GHG emissions. Regulatory policy changes may penalise companies with high GHG emissions, and in the extreme force their closure or relocation to give way to more carbon-efficient companies. Many Banks such as HDFC have started quantifying the risk of investments in high impact sectors as identified under the National Action Plan on Climate Change (NAPCC).

Among the non-energy intensive sectors there are companies which are extremely proactive and have put systems in place to monitor and minimise any impacts in future despite the current lack of regulatory pressures. At the same time, there are also companies which do not perceive any direct or indirect impacts due to climate change and have no vision or long-term strategy for emissions reductions.

ii. Physical Risks

Damage, disruption and displacement resulting on account of unpredictable extreme weather events directly lead to physical risks. These risks as identified by the Indian responding companies include numerous factors like changes in temperature and precipitation, shifts in species distribution, droughts, floods, increased storm and hurricane activity, rising sea levels and the spread of diseases.

Any physical risk in the form of natural calamities such as earthquakes, floods, and tsunamis, will not only affect the people of the country but also impact the economy and both energy intensive and non-energy intensive sectors. The results of CDP 2009 show that companies with widespread operations consider themselves subjected to unforeseeable and extreme weather events which are influenced by climate change. Companies expect these extreme weather conditions to become more frequent in the future. Such events may jeopardise for example construction sites, make production facilities vulnerable, threaten the health and safety of staff,

or affect the logistical networks. This will not only result in production and financial losses but will also challenge the reliability of distribution networks and supply chains.

Companies with facilities in the coastal areas either offshore or onshore are more vulnerable to extreme weather events in terms of workers safety as well as commercial losses. Seashore based businesses, which cater to the export market, are more vulnerable to high tides and floods. Furthermore, economic costs associated with insurance premiums for both human resources and assets are also a major concern for the industry.

Non-energy intensive companies are not only concerned about the direct impact on their assets but also about the indirect effects on portfolio companies or customers, which could lead to the disruption of their normal business. One of the sectors that are expected to be strongly impacted by the physical effects of climate change is agriculture. Financial institutions and the insurance sector will have to cater to the altered needs and demands of agricultural businesses as climate change may directly impact crop production and the farmers' income.

Non-energy intensive companies also recognise physical risks which could range from excessive precipitation, diseases and migration arising due to climatic variations. These conditions pose risks to operating sites as well as supply and delivery chain, which could subsequently interrupt business operations. Some of the companies are addressing this issue by preparing and putting in place disaster management plans.

For energy intensive companies, similar risks exist both for their operations as well as to their supply and value chains. Some of the energy intensive companies are of the opinion that the potential impacts of climate change have to be taken into account while designing, developing and operating assets. Furthermore, some are looking into risk and disaster management plans for all their operational sites to mitigate these risks and to minimise the negative impacts.

Concerns have been shared by water-intensive companies where any abrupt variations in rainfall patterns would have a direct bearing on availability of water for their operations. For example, declining water levels could have severe repercussions on the power industry. Variations in the climate can also increase resource consumption and thereby costs. For example, increased ambient temperature would increase air-conditioning related energy consumption in buildings, offices and factories, which would add to the operational cost.

Some companies have already started investing in activities to secure their own facilities or operations. But there are some companies that are way ahead in their approach, and have for example initiated restoration and rehabilitation activities for local communities vulnerable to such events.

iii. Other Risks

Other risks associated with climate change are those which arise due to energy and/or resource scarcity or changes in consumer demand. Examples include price changes prompted by scarcity, reputational risks, or the disruption of production and supply chain processes.

Indian companies listed a variety of responses of what they considered as other risks arising from climate change. For the energy intensive sector, these include scarcity of resources, increased production and operational cost, shifts in consumer demand, commercial and competitive risks, changes in consumption patterns, and reputational risks. Whereas for the non-energy intensive sector, other risks include lack of incentives for the early performers, investment risks, insurance risks, external pressure from civil society and impacts on the health of the employees.

Extreme weather events may result in scarcity of resources, which can lead to commercial and competitive risks. Resource scarcity generally results in increased product costs which can make previously successful products uncompetitive, while opening the

IFCI
The physical risk can impair the production process thereby impacting the business or the implementation of the project consequently leading to increase in the cost of the project which in turn can affect the' viability of the project

TCS
We are having Business Continuity Planning (BCP) exercise, which is an ongoing process of risk assessment and putting in place the preparedness and mitigation measures.

Tata Motors
Design and development of fuel efficient and alternative renewable energy vehicles have become a priority in the background of fossil fuels scarcity and their escalating prices and growing awareness about energy efficiency amongst customers.

HDFC
The increased chances of severe climate events may reduce insurance coverage for climate events and can increase the risks of capital erosion and collapse.

Larsen & Tourbo
Commercial and competitive risk due to loss and delay in production and sale, scarcity of resources, change in consumption patterns and disruptions in supply chain operations can drive up costs.

Mahindra & Mahindra
Rising oil and fuel prices may lead to scarce energy security and increase production cost.

market for alternative products. For example, the rising fuel price has led to intensive research for alternatives, and given rise to the biofuels market.

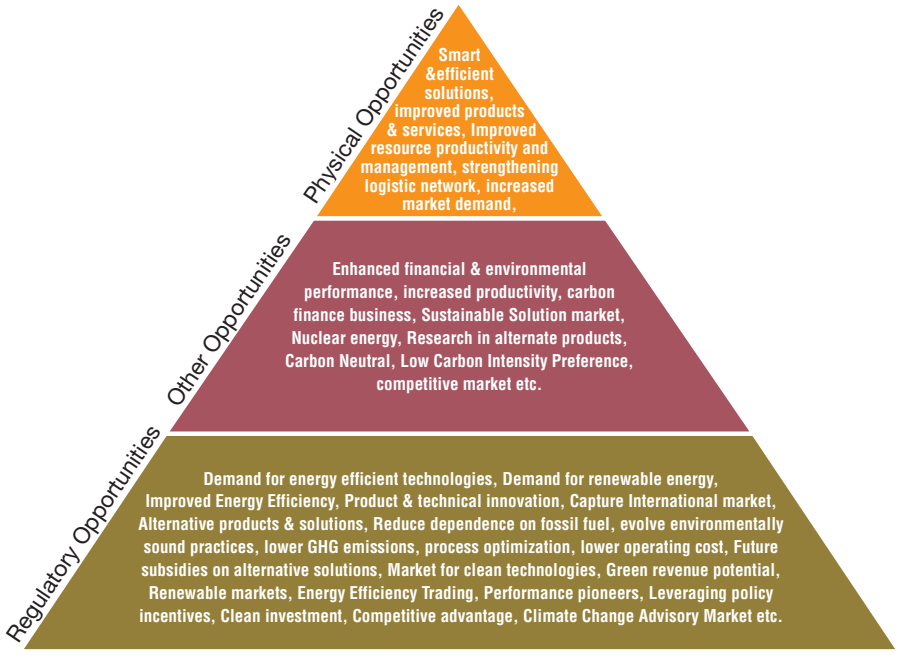
Climate change impacts may include the outbreak of epidemics which would directly impact employee health and indirectly affect businesses and the economy as a whole. To curb these risks, some Indian companies are putting mechanisms in place to counter or mitigate any health impacts.

Some companies stated that despite the lack of incentives from the government, they have still invested to improve their carbon performance and governance. Poor environmental and social standards of a company result in negative publicity, public pressure and can be a reputational risk. After understanding reputational risks along with regulatory and financial risks, some institutional investors have started paying attention not only to their investment portfolio, but also carefully analysing their actions aimed at disclosing information on GHG emissions, and their policies and management plans to tackle climate change. For example, the lending portfolio of financial institutions for the agriculture sector is changing because extreme weather conditions can affect agricultural productions. Moreover, international climate change negotiations have prompted some investors to evolve sustainable framework for their lending and investment decisions.

International market pressure to disclose information on GHG emissions and reduce a product's carbon footprint is also a risk. This is affecting the procurement decisions of the companies, thereby forcing them to work on their supply chain. For example, Bharat Forge faces investor risk on account of increased pressure from shareholders to have investments in companies which have a smaller carbon footprint or which are continuously working towards reducing their carbon footprint.

A strong opinion is building up in a section of business which believes that a response to climate change is an absolute must and disclosure on GHG emissions and environment performance will be a reputational incentive and the demand of the market. According to L&T, "there would be adverse effect on brand value and reputation of companies that show inadequate information on GHG emissions or lax treatment about it."

Figure 6: Climate Change Opportunity Pyramid



2.2 Climate Change – Opportunities

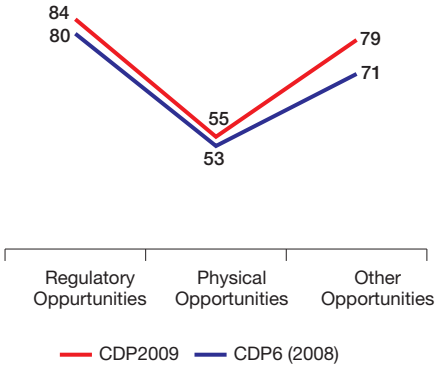
While climate change poses several risks, it also presents opportunities for the business community. The inverse relationship between risks and opportunities is reflected in the submissions of both energy intensive and non-energy intensive respondents to CDP 2009.

While the responding companies considered regulatory requirements to have the least risk-impact on their businesses, regulations were perceived as the key driver for opportunities arising from climate change. Therefore, regulatory opportunities are at the base of the opportunity pyramid, followed by other opportunities and physical opp-ortunities respectively *(see Figure 6).*

The number of responding companies which consider current or

future regulation as an opportunity has increased from 80% in 2008 to 84% (32) in CDP 2009. Similarly, the number of companies that perceive other opportunities arising out of climate change has gone up from 71% in 2008 to 79% (30) in CDP 2009. However, the number of companies considering physical opportunities from climate change has remained more or less constant with a marginal increase from 53% in 2008 to 55% (21) for CDP 2009 (*see Figure 7*). This simply means that domestic and international regulations are expected to be met by a positive response from companies, enhancing business activities in India rather than obstructing them.

Figure 7: Opportunity trends due to Climate Change



i. Regulatory Opportunities

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 for new and carbon-efficient products.

The responses of the Indian companies from energy intensive and non-energy intensive sectors underline the fact that domestic climate change related regulations if imposed will be seen as an opportunity rather than a threat. An example of regulatory opportunity is the increased demand for energy-efficient products due to energy efficiency labelling norms for electronic items. In today's market, consumers prefer energy-efficient products even if they are more expensive. Similarly, future regulatory requirement for compulsory fuel efficiency standards will shepherd in more fuel efficient vehicles in the market. According to Mahindra & Mahindra, adherence to stringent fuel efficiency norms like EURO IV will provide opportunities for research and development and technical upgradation to meet the needs of the market and regulatory bodies, both nationally and globally.

International regulatory requirements of low carbon dioxide emission norms have also prompted companies to explore export opportunities. Some companies have already started investing in research and development keeping in perspective international standards and norms. This will increase their competitiveness in the international market as well as prepare them for future regulations within the country. Some proactive companies have already positioned themselves to bring in sectoral reforms both at national and international forums. Tata Motors is a classic example, as it is participating in several international forums such as National Hydrogen Energy Board, and the United Nations Economic Commission for Europe. Some Indian companies are way ahead in incorporating sustainable solutions and meeting global standards without any obligation or regulatory pressures from the government. These companies will have a first mover advantage, while companies that stay behind are likely to struggle in the medium to long run when carbon and energy-efficiency become important.

Most of the responding financial institutions felt that the formulation of the National Action Plan on Climate Change and specifically the National Mission for Enhanced Energy Efficiency by the government opened up several investment opportunities for them in the Energy sector, and particularly in the field of renewable power, energy efficient operations, cogeneration, modernisation of power plants and green buildings.

YES Bank
Developments in the international policy arena mark the beginning of a more rigorous future global climate policy regime. This definitely has implications for banks in their important role as loan providers, equity investors and project financiers.

HDFC
Globally, foreign institutional investors are deeply concerned about the investment portfolio of banks and their proactiveness in disclosing their carbon footprints and climate change risks. The formation of the CDP, Investor Network on Climate Risk (INCR) and CERES is a clear indication of this increasing awareness.

BPCL
BPCL is into development of alternate fuels, as both the industry and domestic sectors are substituting conventional liquid fuel/electrical power.

Bharat Forge
If we better the industry level specific energy consumption target given under the National Mission on Enhanced Energy Efficiency, we could benefit from the proposed energy saving certificate trading under this mission.

HPCL
Reducing the GHG emissions through energy-efficient operations and tapping renewable energy resources are the key opportunities offered by climate change both in the present and future scenarios.

ITC
Most of our businesses benefit from the "Green" reputation. We have derived and will continue to derive significant financial benefits from energy conservation and CDM projects.

Infosys
We are closely tracking the progress of global regulation on climate change and its impact on business which is providing the opportunity to align our processes and systems accordingly.

Indian companies across different sectors believe that the present and future climate change regulations will drive resource efficiency, which will have a positive impact on the bottom line of companies. Stringent regulations will also force companies to be environmentally responsible, which will reduce their liability and reputational risks arising from non-compliance.

Regulatory requirements will drive clean investment and open potential markets for carbon and energy-efficient products and solutions. Spurred by demand for new products, companies are not only investing in process and product optimisation, but are also exploring alternatives to their conventional business models. This has led to innovations which, together with energy conservation measures, are prompting the business community to explore and reap "green revenue" and "green reputation" from the CDM market. After China, Indian is the biggest recipient of funds under the CDM programme.

Regulatory opportunities are recognised not only by energy intensive sectors but also by the non-energy intensive sectors such as the service industry. Several service companies are tracking changes in regulations and are reducing their carbon footprint through improved energy efficiency, the use of green products, the procurement of or investment in renewable energy, and through complying with green building codes. The Indian financial and IT sectors have also been proactive in assessing opportunities arising out of the global climate change negotiations and have begun to transform their products and services accordingly.

ii. Physical climate change - opportunities

Physical opportunities arise from the physical affects of climate change, such as changing weather patterns. Examples for physical opportunities include increased demand for particular products and services, or improved conditions for production and other business activities.

Companies are witnessing a shift in market demand for smarter and more efficient solutions. For example, extreme weather conditions have prompted Asian Paints to increase its effort in research and development for developing paints which can withstand adverse weather conditions. This will result in new paint products with a competitive edge.

Extreme weather patterns induce the need and demand for insurance products across the Health, Agriculture and Infrastructure sectors. There is an opportunity for the Financial and Insurance sector. IDFC, for example, perceives significant opportunities within specialist funding teams that focus on infrastructure and destruction due to extreme weather conditions.

Resource scarcity arising due to climate change is driving companies to improve their resource management. Several automobile companies such as Mahindra & Mahindra are considering this an opportunity to develop fuel efficient vehicles. Some Indian companies have already taken a lead in addressing these issues which will minimise their carbon footprint, and follow international trends.

Extreme physical weather conditions are known to damage infrastructure and lead to losses. For example, Cyclone Aila in West Bengal caused damage amounting to Rs 130 million with 6.7 million people affected and nearly nine lakh houses destroyed. Such scenarios have grave human and social implications. Yet, they also create new demand to replace or repair destroyed or lost assets. For example, they may create a need for infrastructure which can withstand extreme weather conditions. They also create a demand for insurance policies.

iii. Other opportunities

Climate change can shift the mindset of consumers in favour of eco-friendly products and services. Such new consumer awareness is triggering more investments in clean technologies, renewable energy projects, and carbon funds. It is also

leading to more research and development to investigate alternative products. Some of the responding companies that identified commercial opportunities associated with climate change mentioned how they diversified their businesses to provide climate change related products and services. For example, TCS plans to start “Green Business Ventures ”. Similarly, Bharat Forge has diversified into providing components and parts for the wind energy industry.

Other opportunities which were identified by the responding companies include GHG emissions accounting, energy trading and carbon trading. However, some of the Indian companies also expressed their concern about the uncertainty related to the energy and carbon trading markets.

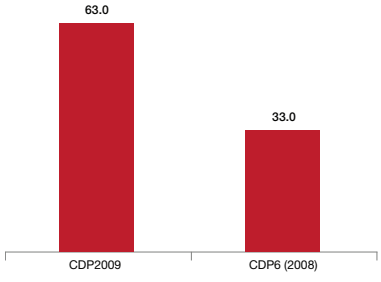
Banks and diversified financials can play an important role in ushering in low carbon products by funding/financing emerging renewable energy products, and alternate and energy efficient market solutions. Financial institutions realise that there can be significant opportunities in investing in climate change related sectors. Almost all the financial institution participating in CDP 2009 recognised this. Some have already initiated action on this front. For example, HDFC Bank has already tied up with leading climate change mitigation firms like EVI (Emergent Ventures India) and intends to work closely with them in this area.

Other opportunities include optimisation of operational processes to help realise better resource efficiency and overall productivity. Companies note that this has led to significant cost benefits. Companies engaged in the material sector are also looking into the emission intensity performance and future market potential of their products. To achieve low carbon growth, the industry needs technological and consultative solutions.

3. GHG Emissions Reported in CDP 2009

The growing awareness of Indian companies regarding the relevance of climate change issues is evident from the increased and improved reporting of GHG emissions in CDP 2009. It is noteworthy that not only the energy intensive sectors but even the non-energy intensive sectors have begun to put in place systems for GHG mapping and strategies for implementing low-carbon practises. The percentage of responding companies reporting their GHG emissions stands at 63% (24) this year. This is a vast improvement since 2008 when the number was only 33% (17) *(see Figure 8).*

Figure 8: Percentage of Companies Reporting GHG Emissions



The respondents are not only looking at the methodology for reporting the GHG emissions but also the accuracy and reliability of the data. Some of these companies are even following global benchmarks while some have gone a step further and obtained carbon dioxide emission factors from the Indian ministry of power for more accurate calculations. Companies like TCS also ensure accuracy and reliability of the data through internal process improvements. Around 38% (14) of the responding companies do not yet account for their GHG emissions. However, quite a number of companies are working towards setting up systems in place to account for their GHG emissions. For example, ONGC has begun accounting for GHGs at nine of its facilities since April 2009, and this will be subsequently rolled out across all its facilities. The entire GHG accounting report of the company will be ready in 2012.

IFCI
IFCI Venture Capital Funds Ltd has launched the 'Green India Venture Fund' (GIV), which has the objective to invest only in clean technology oriented industries. In our view, in future the emphasis would be on energy-efficient and green technologies.

Infosys
Our products and services contribute in developing smart and efficient solutions, thereby helping in improving resource productivity and reducing GHG emissions. Physical changes resulting from climate change creates demand for such products and services.

WIPRO
We view regulations and public policies around climate change as positive steps that can act as catalysts for 'low carbon' growth for India's economy.

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.

ICICI Bank
If carbon finance/trading business gets a significant boost due to an inclusive post-Kyoto regime, this can be a business opportunity where we would encourage the industry to promote energy efficiency, reduce pollution and contribute towards a cleaner and sustainable environment and at the same time earn/trade carbon credits.

3.1 Methodology – GHG Emissions Accounting

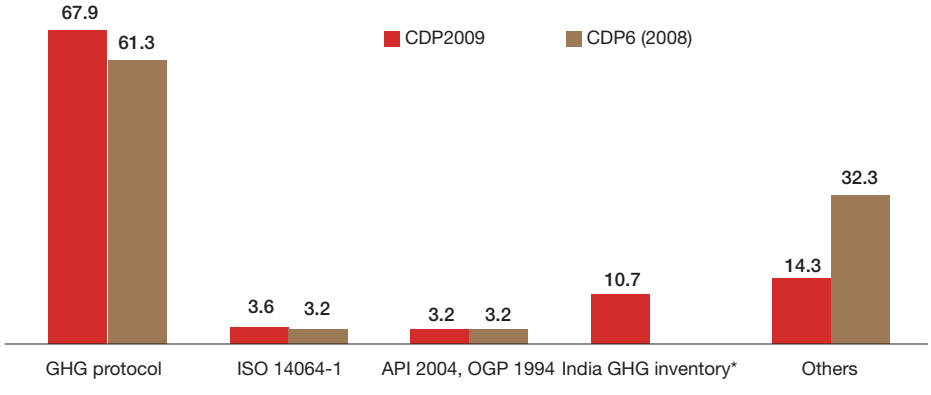
Reporting boundaries for GHG emissions accounting have been divided into three major categories companies over which financial control is exercised; companies over which operational control is exercised; and companies in which an equity share is held. Majority of the respondents in CDP 2009 have set their reporting boundary as companies on which it has either operational or financial control (32% each). This is a slight deviation from CDP 2008 wherein 38% of the companies had set the boundary over which its financial control was exercised and 13% were using boundary of operation control. There are 18% companies in CDP 2009 that have used different reporting boundary and in most cases these are companies which have reported for only some of their operations. For example, Bharat Forge Limited has considered only its Mundhwa plant for reporting its GHG emissions. Only one company, Asian Paint, has set a boundary over which it has equity share. Ambuja Cements is the only company that has the boundary for all three categories.

In comparison with 2007 and 2008, this year there was a significant shift in the methodologies that were used by the companies to calculate their GHG emissions. The number of companies which adopted 'other methodologies' for GHG reporting decreased significantly for CDP 2009, with more and more responding companies now using the new "India GHG inventory". Though there were no companies using this methodology for CDP6 (2008), almost 11 % of the responding companies used it for CDP 2009 (see *Figure 9: Methodologies selected for GHG accounting*). The number of companies which used the GHG Protocol for reporting their GHG emissions increased further over the last year. The GHG Protocol remains the most frequently used accounting system among the Indian responding companies, with almost 68% (19) using it.

3.2 GHG Disclosure Variance – Scope 1, Scope 2 and Scope 3

Although most of the respondents are mapping their GHG emissions, not all of them were able to provide a breakdown of their emissions by Scope[12] (Scope 1, Scope 2 and Scope 3). However, there was a major improvement as compared to CDP6 (2008). The percentage of companies reporting direct Scope 1 emissions has almost doubled from 33% (17) in 2008 to 62% (24) for

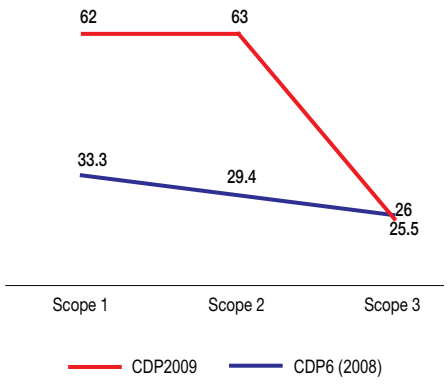
Fig. 9: Methodologies Selected for GHG Accounting (%)



*India GHG Inventory – Recently introduced methodology in India

[12] The definition of Scope 1, 2 and 3 emissions appears in "The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard" (GHG Protocol). World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), March 2004.

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



CDP 2009 (*see Figure 10: Proportion of disclosed GHG emissions*). A similar trend can be observed for indirect Scope 2 emissions with significant improvements in reporting since 2008. This is a positive development as it shows that the companies' understanding of their indirect and direct GHG emissions is growing. However, there is no change in the percentage of companies reporting different types of indirect Scope 3 emissions, such as extraction and production of purchased materials, employee transportation in vehicles not owned by the company, or the use of sold products and services. Only one-fourth of the responding companies disclosed Scope 3 emissions in their CDP submission. Most of the companies which are measuring Scope 3 emissions are from IT sector including Wipro, Infosys, TCS, etc.

It should be noted that there are cases where electricity requirement at the production units is met through captive power generation and therefore no electricity is sourced from the grid. In such cases, indirect and generally electricity-related Scope 2 emissions are not applicable and therefore not accounted for.

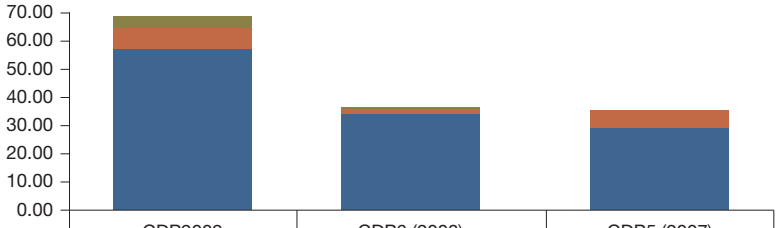
The total GHG emissions reported by the respondents of CDP 2009 stand at 68.9 million tonnes (MT). This is almost double the GHG emissions reported for CDP6 (2008) and CDP5 (2007), which ranged at 36.3 MT and 35.4 MT respectively (*see Figure 11: Reported GHG emissions*). The GHG emissions reported in CDP5 (2007) and CDP6 (2008) did not vary much, and showed just a marginal difference. The high GHG emissions reported in CDP 2009 reflects improved capacity among Indian companies to monitor and report their GHG emissions.

Another improvement in the reporting for CDP 2009 is the inclusion of Scope 3 emissions. There was no reporting on Scope 3 emissions for CDP5 (2007), and only 0.4 MT were reported for CDP6 (2008) (*see Figure 11: Reported GHG emissions*). This has increased by ten times to 4 MT in CDP 2009, as the reporting of Scope 3 emissions has improved over the years.

Of the total GHG emissions reported in CDP 2009, as expected, Scope 1 emissions accounted for a major

Tata Motors
There is also an opportunity for minimising energy consumption through elimination of energy losses during manufacturing, thereby reducing the manufacturing costs and increasing the productivity.

Figure 11: Reported GHG emissions (in million tonnes)



	CDP2009	CDP6 (2008)	CDP5 (2007)
Scope 3	4.12008004	0.4	
Scope 2	7.614412	1.7	6.228527
Scope 1	57.213119	34.16	29.133906

Fig. 12: Proportion of Total CO_2-e Emissions Reported (%)

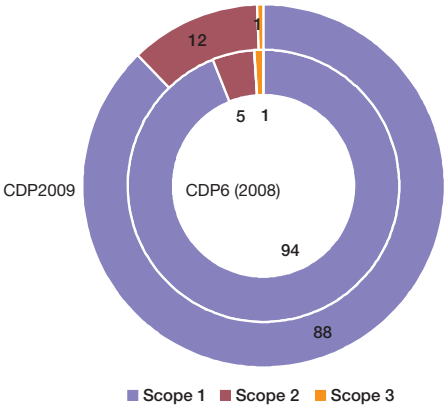
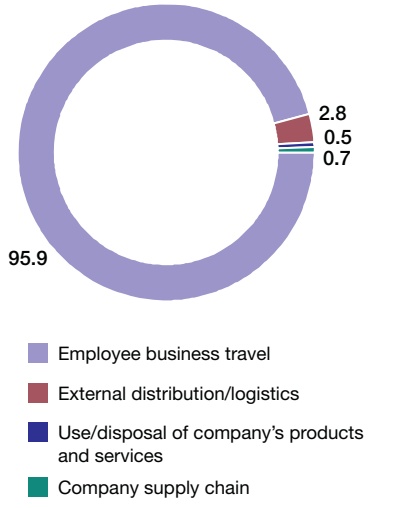


Fig. 13: Mapping Scope 3 Emissions (%)



chunk 88%, followed by 11% and Scope 2 emissions and 1% of Scope 3 emissions (*see Figure 12: Proportion of total CO_2-e emissions reported by Scope*). The percentage contribution of various types of emissions in CDP 2008 was similar, with the major share of Scope 1 emissions.

The companies mapping Scope 3 emissions have indicated employees/business travel as a major source for these emissions. Of the total Scope 3 GHG emissions reported by the responding companies, as much as 96% are business travel related (*see Figure 13: Mapping Scope 3 emissions*). Other Scope 3 emissions arise from external distribution (2.8%) and companies' supply chains (0.7%). None of the companies reported measuring Scope 3 emissions from the disposal of its products and services. Clearly while on one hand there is an improvement in reportage of Scope 3 emissions, companies are still mainly focussed on their internal operations. Priority on mapping GHG emissions from supply chains or use/disposal of products or services is still very low at present.

4. GHG emissions intensity

While "total" emissions are the actual amount of GHGs emitted by an organisation, emissions intensity means the ratio of emitted GHGs in relation to another measure, e.g. a financial measure or a measure of activity. That means it is the ratio of GHG emissions (tonnes of CO_2-e) to an economic or a physical output. There is no standard definition of GHG emissions intensity and therefore different companies have varied interpretations. While some of them define it in terms of per unit product some do so in terms of financial performance.

In CDP 2009, the majority of the respondents (60%) reported financial emissions intensity figures such as GHG emissions per million dollar turnover (*see Figure 14: Reported emissions intensity*). About 20%

Fig. 14: Reported Emissions Intensity (%)

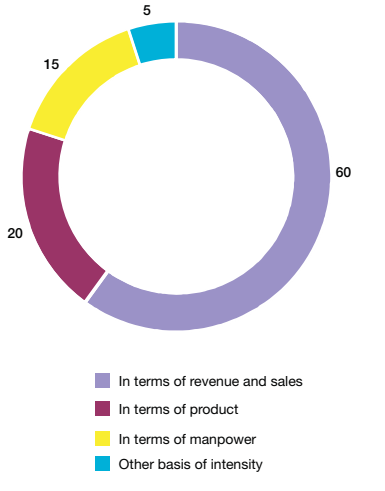


Table 2: Emissions intensity* of some companies from different sectors

Company	Sector	Unit	Intensity Figure
Mahindra & Mahindra	Automobiles and Components	Metric tonnes CO_2-e per million USD	65,566
HDFC Bank	Banks & Diversified Financials	Metric tonnes CO_2-e per million USD	59.9
YES Bank	Banks & Diversified Financials	Metric tonnes CO_2-e per million turnover(USD) Metric tonnes CO_2-e per employee	56.96 3.9
Larsen & Toubro	Capital Goods	Metric tonnes CO_2-e / billion rupees Gross sales	1383.3
Sterlite Industries	Materials	Metric tonnes CO_2-e per million Indian rupee of turn over Metric tonnes CO_2-e / ton of copper cathode	4.31 1.5
Indian Hotels	Retailing	Metric tonnes CO_2-e per million Indian Rupee of turnover Metric tonnes CO_2-eCO_2-e per guest night	8.6 0.37
Infosys Technologies Ltd	Software and Services	Metric tonnes CO_2-e Per billion Rupees (INR) of Annual Income Metric tonnes CO_2-e per employee	1,328.5 3.34
ABB	Technology Hardware and Equipment	Metric tonnes of CO_2-e per million US$ of turnover	44.9
Cairn India	Energy	Metric tonnes CO_2-e per thousand tonnes of hydrocarbon production	40.8
Asian Paints	Materials	Metric tonnes CO_2-e per Kilo Litres of paint production	0.125
TCS	Software and Services	Metric tonnes CO_2 per employee per annum	3.89
Ambuja Cements	Materials	Metric tonnes of CO_2-e per US $ of turnover Metric tonnes of CO_2-e per Metric tonne of Cement	0.086 0.68
WIPRO	Software and Services	Metric tonnes of CO_2-e per million USD turnover Metric tonnes of CO_2-e per employee	58.65 3.1

*Note: Information provided only for companies which submitted a public response.

reported their emissions intensity based on per unit product manufactured, and 15% of the respondents reported it in terms of manpower employed. Those reporting it in terms of manpower are mostly companies in the IT sector. Just one company, Bharat Petroleum Limited, monitored the total GHG emissions and not its intensity. *(see Table 2)*

5. Emissions reduction targets and standards

In order to continuously improve their performance, 68% (26) of the responding companies in CDP 2009 have reduction plans in place for cutting either their energy consumption or GHG emissions. This is a slight improvement over last year when 60% of the respondents were setting targets or standards for themselves.

The targets reported by companies in CDP 2009 are mostly quantitative, and in a few cases they have a broader scope; for example, ONGC aims to become carbon neutral. While most companies are targeting to reduce their emissions or energy intensity, some have also set targets to reduce their absolute GHG emissions (*see table 3: Targets set by Indian companies towards low carbon growth*). These plans include a combination of measures such as reduction of energy through energy efficiency measures, implementation of conservation measures and use of renewable energy, setting monitoring and evaluation plans in place, engaging stakeholders, and increasing awareness of consumers and people. For example, Infosys has adopted a multi-strategy approach to meets it targets.

ONGC

Public sector companies are not behind in taking certain measures to mitigate climate change impacts. ONGC has declared to become carbon neutral and to accomplish the same it has developed a phase-wise programme.

Table 3: Reported Performance Targets

Company	Sector	Target	Target	Type	Intensity Denominator	Baseline	Timeline
Mahindra & Mahindra	Automobiles & Components	CO_2-e	Plan to reduce GHG emissions by 5%	Absolute		2008-09	2013-14
		Energy Consumption	Plan to reduce energy consumption by 5%	Absolute		2008-09	2013-14
Larson & Tourbo	Capital Goods	Energy Consumption	Reduction by 10% of the total energy consumed	Absolute		2008-09	Not mentioned
ONGC	Energy	CO_2-e	Short-term: Reduce GHG emissions by 15% by 2014; Mid-term: Reduce emissions by 40% by 2019; Long-term: Carbon Neutral	Absolute			2019
Sterlite Industries	Materials	CO_2-e	GHG emission reduction target of 1.4 ton of CO_2/ tonne of copper cathode produced	Intensity	Production Unit	2006-07	Not mentioned
		Energy Consumption	Energy reduction target is 10.92 GJ/ton of copper cathode produced.	Intensity	Production Unit	2006-07	Not mentioned
Infosys Technologies Ltd	Software & Services	CO_2-e	5 % reduction in per capita emissions per year	Intensity	Per Capita	2007-08	Not mentioned
		Energy Consumption	5 % reduction in per capita energy consumption	Intensity	Per Capita	2007-08	Not mentioned
ABB	Technology Hardware & Equipment	Energy Consumption	Decrease energy use by 5% per output unit over two years (rolling target).	Intensity	Production Unit	2007	Not mentioned
Tata Consultancy Services	Software & Services	CO_2-e	2% overall reduction in CO_2 emissions per employee each year for the next 10 years	Intensity	Per Employee	2007-08	Not mentioned
Ambuja Cements	Materials	CO_2-e	20% reduction in net specific CO_2 year 2010	Absolute		1990	2012
Sesa Goa	Materials	Energy Consumption	3 % reduction	Absolute		2008-09	2010
WIPRO	Software & Services	CO_2-e	4,8 tonnes to 2.5 tonnes	Intensity	Per Employee	2008-09	2015

Indian Hotels
We have adopted the Green Globe Benchmarking process for calculating carbon dioxide emissions.

6. Performance Benefits

35% (13) of the responding companies have also shared information on the benefits they derived from energy/emissions reduction plans and targets, including financial gains. For example, Sterlite Industries saved Rs 351 million as a result of its energy reduction programs from 2001 and 2009. Similarly, introduction of fuel additives in furnace oil to improve the combustion efficiency at Tata Motors, Jamshedpur, during 2006-07 resulted in savings of 101 lakh kWh of electrical energy and 1430 KL of fuel oil amounting to Rs 662 lakhs (*see Table 4: Benefits derived from low carbon growth*).

7. GHG emission performance mapping

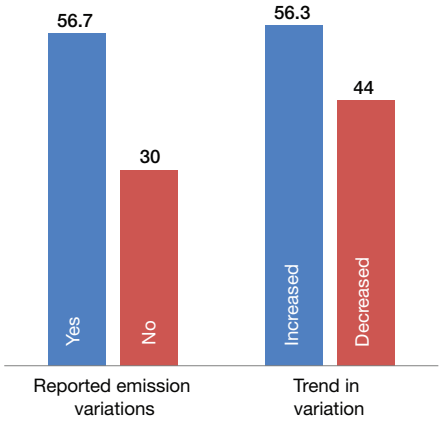
Indian companies also map their own GHG emissions. Around 57% (17) of the companies reported some variations, both in terms of an increase and decrease in emissions (*see Figure 15: Emission performance*). 30% of the companies see no change while the remaining 13% of the respondents have started the process of GHG mapping during the last one year. The percentage of variations reported by the companies in CDP 2009 ranged between as low as 2% up to 39%, with the average hovering around 14%

Table 4: Reported Performance Benefits

Company	Sector	Emissions reductions, energy savings and associated cost savings achieved*
Larson & Tourbo	Capital Goods	Energy savings: (1) Efficient Lighting arrangement – 5,227 GJ (2) Air conditioning improvements – 740 GJ (3) Process Modifications – 8,299 GJ (4) Use of natural energy – 687 GJ (5) Green Building – 6,697 GJ
ONGC	Energy	120000 tons of CO2 e emission reduction has been actually reported through CDM project. Apart from that reportable mitigation of 218,000 tons of CO_2-e are being targeted to be achieved through registration of another 4 CDM projects.
Sterlite Industries	Materials	Total savings of INR million 351.3 through energy conservation programs from 2001 till 2009
Infosys Technologies Ltd	Software & Services	Reduction in per capita emissions by 13.04% in 2008-09 over 2007-08
		Reduction in per capita energy consumption by 10% in 2008-09 over 2007-08.
ABB	Technology Hardware & Equipment	CO_2 equivalents per employee has decreased by approximately 8 % during 2008
Tata Motors	Automobiles & Components	3.5% reduction in energy consumption, year on year from 1989-90 till 2008-09 (Commercial Unit, Pune)
Yes Bank	Banks & Diversified Financials	Electricity savings save almost 710.73 metric tons CO_2e.
		Courier rationalization: potential savings would be approx. 668.423 metric tons CO_2e.
Tata Consultancy Services	Software & Services	20% reduction in CO_2 emissions per employee per annum

*Note: Information provided only for companies that submitted a public response.

Figure 15: Emission performance (%)



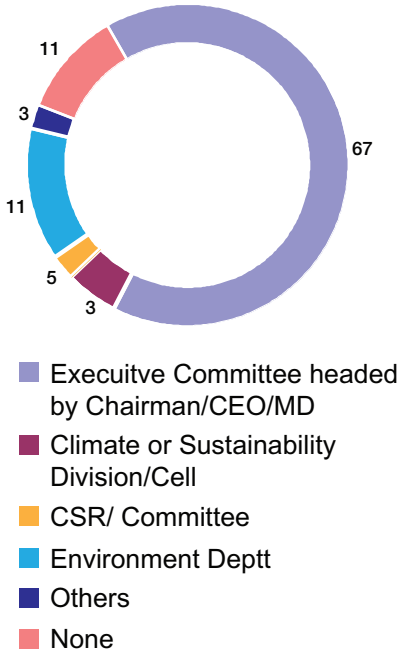
Of the companies that reported variations, 44% have reported a decline in the level of emissions (or an improvement in comparison to last year performance). On the other hand, 56% of the respondents have reported an increase in their emissions levels.

Cairn India reported a reduction of 2.13% in its total emissions of CO_2-e in 2008 as compared to 2007. Asian Paints reported an increase (in absolute terms) from 42,462 metric tonnes of CO_2 to 43,224 metric tonnes, but emissions per kiloliters of paint production reduced from 0.137 to 0.125 (8.8% reduction), from 2007-08 to 2008-09. Sterlite Industries, on the other hand, reported reduction in absolute volume of GHG emissions by generating more power from waste heat recovery from copper smelter waste gas. Infosys also reported a reduction in its per capita emissions by 13% in 2008-2009 from the 2007-08 level.

HDFC
We are sponsoring a US$200 million South Asia Clean Energy Fund (SACEF) in collaboration with the Global Environment Fund, the US. SACEF is a dedicated fund targeting investments in clean energy, clean technology and energy efficiency across India, Sri Lanka, Nepal and Bangladesh.

Tata Motors
There is also an opportunity for minimising energy consumption through elimination of energy losses during manufacturing, thereby reducing the manufacturing costs and increasing the productivity.

Fig. 16: Overall Responsibility for Climate Change



8. Management systems

Over the last couple of years, the response to climate change has become more structured and gained additional importance. For an increasing number of companies, climate change is moving on to become an agenda of the top management. In CDP5 (2007), only 39% of the responding companies had a climate change committee headed by the chairman/CEO/MD. This figure improved to 62% (32) and 67% (25) respectively in CDP6 (2008) and CDP 2009. This clearly highlights the seriousness with which top management is viewing this issue.

In 2009, almost 67% of the respondent companies indicated that top management (comprising of the Board of Members, CEO, MD, and executive body) reviewed the company's progress and status on climate change (*see Figure 16: Overall responsibility for climate change*). In only 11% of the companies climate change was found to be the responsibility of the environment department. This means that the topic is moving from being a mere compliance matter to a subject of strategic important.

i. Communication and reporting

Following the international trend, many of the responding companies are becoming more transparent by sharing their environmental or sustainability performance with their stakeholders. Around 51% (19) of the respondent companies communicated the risks and opportunities posed by climate change, including the details of emissions and mitigation plans. This is a marginal improvement from the 45% in CDP6 (2008). In addition to their CDP disclosures, a significant number of these companies (50%) use voluntary communications, such as the Corporate Social Responsibility reporting, to share their strategies and performance with regards to climate change. Companies like Sesa Goa, Ambuja Cements, ITC, and Mahindra & Mahindra publish their own sustainability reports or environmental reports. Sterlite Industries is not publishing any environmental report as of now, but it has a system in place to communicate with its stakeholders. It consults its stakeholders such as the local panchayat heads, NGOs, TNPCB, TNEB and equipment suppliers through consultation meets

for all its CDM projects. It also publishes quarterly magazines for employees and other stakeholders called Copper Tones, QUEST, and CDM@Sterlite, which cover the subject of climate change.

ii. Engagement with policymakers

The Indian companies are also increasingly engaging with policymakers on the climate change issue. 55% (21) of the companies participating in CDP 2009 are having a dialogue with the policymakers on the possible responses to climate change, including taxation, regulation and carbon trading. This is an increase over the number of companies doing so in CDP6 (2008). A company like Tata Motors is participating vigorously in the activities of national committees, which are working on formulating policies and regulations to protect the environment, including GHG emissions reductions throughout the country. Another example is of Infosys, which along with the Centre for Study of Science, Technology and Policy (CSTEP), has prepared a report for the Ministry of Power on the potential of emerging digital technologies to address the challenges and opportunities in India's power distribution sector. The recommendations of this report will be used to usher in the use of information technology for the power grid system.

iii. Investments

Despite a high priority placed on climate change issue in terms of involvement of top management, the Indian industry has still not considered climate change in its investment decisions. Not one of the responding company factors the cost of future emissions into its capital expenditure or its investment decision.

5

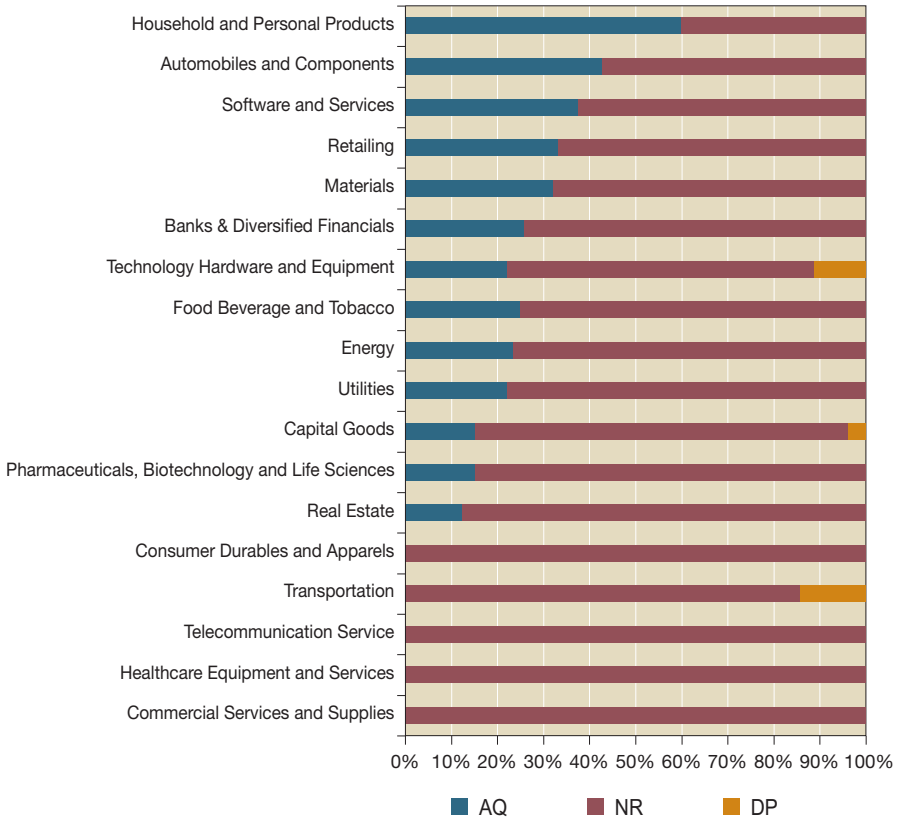
Sector Analysis

This section of the CDP report presents sector-wide trends in responses received. Identification of similarities and discrepancies within specific industry groups has helped highlight variations in sectoral sensitivity to climate change. The sectoral analysis also distinguishes sectors with solution for a sustainable future.

The following section outlines the sectoral trends observed in the responses of the 44 companies assessed during CDP 2009. The top 200 companies approached during CDP 2009 were from 18 sectors, but responses were received from only 13 sectors.

For the sectoral analysis, the methodology employed focuses on sectoral perspectives regarding climate change risks and opportunities. It also takes into consideration the various innovations and strategies that are being deployed to mitigate GHG emissions and improve the energy efficiency of companies. Sectoral analysis is then carried out from the point of view of governance, where sectoral engagement in public policy is examined. The response rate of these companies is based on the denominator of the total companies approached under each sector *(see Figure 17).*

Fig. 17: Sector Response rate (%)



AUTOMOBILES AND COMPONENTS

The Automobile & Components sector is comprised of Automobiles & Automobile Components sub-sectors. Out of the seven companies approached, three responded - Cummins India, Mahindra & Mahindra and Tata Motors.

Risks

Tabulation and analysis of the responses from the Automobile and Components sector reveal certain common threads in the risk perceptions of all three respondents. There is a general consensus that current and future policy measures will compel manufacturers to comply with fuel efficiency standards, renewable energy targets and a stricter regulatory regime.

Participants from this sector have established strategies to address these risks as they are expected to have some bearing on the automobile industry. These risk management strategies involve full compliance with all existing regulations and a proactive approach on improving energy efficiency and reducing the fossil fuel dependency of products and operations. Companies also consider on-road emissions to be one of the most significant technological, financial and business challenges.

Companies like Mahindra & Mahindra and Tata Motors rely on expansive global supply chains to sustain their international presence. However, India's vast coastline and tropical climate makes these companies vulnerable to the physical impacts of climate change. Climate

Tata Motors

We have recognised physical risks such as breakdown of transport systems due to storms and floods, disrupting product development, manufacturing and expansion activities, both with us and with our partners. We also have a huge supply chain network spread over across the globe, which will be disrupted due to climate change consequences.

Tata Motors
Looking at the current export related regulatory requirements of low carbon dioxide emission norms, Tata Motors has an opportunity to develop the next level of fuel efficient diesel powered vehicles.

Tata Motors – case study on energy efficiency

Tata Motors Ltd considers energy conservation to be critical to the operation of its plant. Apart from reducing operational costs, the energy saved implies environmental protection by way of avoiding pollution and GHG emissions during the power generation processes.

The company is conserving energy in the following manner:

1. Introducing Fibre Reinforced Plastic (FRP) blades for man-coolers
2. Installing variable speed drive for flow control and energy saving
3. Introduction of fuel additives in furnace oil to improve the combustion efficiency of the fuel
4. Soft-start energy savers for hydraulic press motors
5. Sheds designed for efficient natural lighting
6. Use of CFL sodium vapour lamps to minimise energy consumption
7. Installation of portable compressors for isolated running to save compressed air
8. Installation of a heat recovery system for pre-treatment heating requirement of paint shop
9. Installation of high energy efficiency exhaust blowers

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 bio-diesel vehicles.

change related flooding, drought or depletion of key resources (such as oil) can translate into mounting losses for the automobile companies due to the supply-demand imbalances.

Consumers are increasingly becoming sensitive towards greener and more resource efficient modes of transport, and companies are addressing these market changes by simultaneously developing and launching clean transport solutions. Often, the cost of revamping product portfolio to include alternative or hybrid fuel vehicles is transferred to consumers, which can have negative demand implications for such products.

Opportunities

While there are no emission caps in place, respondents from the Indian automobile and component sector are keeping pace with stringent fuel efficiency norms like EURO IV, and are subsequently adhering to the international regulations. This provides companies with an opportunity for technical and product upgrading and a chance to compete in the domestic and global markets. Exploration of the market for cleaner transport solutions has allowed Indian companies to tap into the growing low-carbon phenomenon both within India and abroad. Fleet modernisation with respect to improved engine efficiency and integration of LPG, CNG, and bio-diesel are some of the popular solutions being explored by Tata Motors and Mahindra & Mahindra.

Future regulatory requirements will demand enhanced fuel efficiency from all automobile segments, elimination of hazardous materials in production, and more stringent waste management, among other things. Complying with these upcoming regulations will allow companies to not only improve energy efficiency and brand reputation, but also

increase the scope and influence of their innovative thinking. Tata Motors is also partaking in the CDM mechanism and has accrued a total benefit of Rs 14,450 crores through auctioning of CERs.

Shifts in consumer priorities and growing awareness of greener modes of transport have led to changes in the demand for automobiles. This has resulted in the creation of new markets within the automobile sector for electric, hybrid and clean-fuel vehicles. Companies investing in these technologies have reported capital gains resulting from enhanced resource productivity, operating efficiency and a better understanding of customers' requirements.

GHG Reduction Plans and Governance

The Automobile industries' responses showcase exemplary steps that have been undertaken to reduce the GHG footprint of both their manufacturing activities and products. Mahindra & Mahindra has adopted a multi-faceted strategy that involves revamping or replacing obsolete technology with more energy-efficient measures and increasing the usage of cleaner fuels and renewable energy in its operations. Tata Motors has shown its dedication to the climate change cause through a comprehensive product portfolio which enables it to meet its GHG emission reduction commitment. The key themes include an emphasis on diesel, public transportation, alternate fuels (blending and hybridisation) and customising vehicles according to the Indian operating conditions. Mahindra & Mahindra's GHG emission performance is continually tracked by its Sustainability Council, whereas the Tata Group has recently set-up a Steering Committee on Climate Change to map and reduce its carbon footprint.

Apart from working towards GHG emissions reductions, Tata Motors and Mahindra & Mahindra are also actively involved in advocacy and policy engagement. Tata Motors participates in various national committees which are working on formulating India's policies and regulations for improvement of the environment including GHG emissions reduction. Tata Motors is also collaborating with committees working on the Auto Fuel Policy, Automotive Mission Plan and CO2 emissions norms for shipping, road transport and highways. Similarly, as part of the Business Council for Sustainable Development, Mahindra & Mahindra is involved in the formulation of the National Action Plan for Climate Change.

BANKS AND DIVERSIFIED FINANCIALS

This year, CDP approached 31 companies from the Banks and Diversified Financials sectors. Eight responses were received – Centurion Bank of Punjab, HDFC Bank, ICICI Bank, IDFC, IFCI, Reliance Capital* State Bank of India and Yes Bank.

Risks

Climate change policies and regulatory mechanisms have little or no direct impact on the operations of Banks and Diversified Financials. The sector is designated as low energy intensive, as it is primarily engaged in the provision of financial services and has a negligible carbon footprint in comparison to carbon-intensive industries. Thus, it is unlikely that financial institutions will be directly exposed to any energy efficiency guidelines or emission caps in the near future. Out of all the CDP disclosures, only HDFC and Yes Bank noted potential direct regulatory risks in the form of increased compliance costs. For instance, if ECBC (Energy Conservation Building Code) energy efficiency targets are made mandatory, the implementation and reporting requirements of the same could increase the operating expenses of the banks. A majority of the respondents perceived indirect regulatory risks as being more significant considering their role as financiers. Banks invest in and provide loans to all types of businesses, including those with significant carbon and energy footprints. Future regulations targeted at these firms will pose credit risks to these companies, thereby affecting the quality of the banks' asset

Mahindra & Mahindra
Numerous activities are taking place to reduce GHG emissions; energy conservation awareness, extensive energy efficiency measures, conversion of energy sources to less harmful sources, and use of renewable energy in our operations.

Yes Bank
Yes Bank intends to assess the risks involved due to climate change before project financing. But in order to move beyond compliance, banks would incur costs related to monitoring and reducing the emission levels.

IDFC
In the long-term, the physical risks from climate change could be significant, resulting in severe floods, prolonged droughts, water shortages, crop failures, large-scale migration and rising sea levels. All of these outcomes could have a huge adverse impact on the economy in general, on IDFC and on its portfolio companies.

*Not Public Disclosure

HDFC Bank
In their reporting system these investor groups also seek the GHG management plan of companies, which is a factor affecting their final investment decisions.

IFCI
IFCI is aware of the potential risks climate change poses; failure to respond effectively to these risks may damage our reputation and indirectly impact operations.

IDFC
There are likely to be significant policy incentives (and therefore associated IDFC funding opportunities) for clean power generation plants, renewables and hydro-electric power.

IFCI
Our subsidiary, IFCI Venture Capital Funds, has launched 'Green India Venture Fund' in June 2008, having the objective to invest only in clean technology-oriented industries. Already the venture has sanctioned investment of Rs 310 million in various clean technology and renewable energy businesses.

portfolios. Carbon caps, emissions reduction targets and energy efficiency requirements may create new costs for carbon-intensive companies, and thereby influence their liquidity and medium-term solvency. IFCI, SBI and Yes Bank's approach to these threats involves an assessment of climate change risks prior to actual project financing so as to guarantee the environmental clearance of the project and ensure their financial viability.

Banks reported a high vulnerability to physical risks. These risks are manifested directly, through impacts on banks' properties and indirectly, through disruptions in their customers' business. Climate change related damage to banking outlets and telecommunication infrastructure could lead to a disruption in normal banking affairs, thereby resulting in financial losses. These losses become even more significant when extreme weather events affect banking clientele. Destruction of assets, shortage of resources and breakdown of the supply chain are some of the adverse physical consequences of climate change that contribute towards rising bad debts and defaulted payments.

Growing consumer awareness of climate change has a direct impact on the lending and management practices of financial institutions. Banks like HDFC and Yes Bank are partaking more frequently in sustainable lending practices in order to avoid the reputation and market risks arising from heightened customer sensitivity. Trends indicate that a substantial amount of capital is being invested by financial institutions into clean technology, renewable energy solutions, carbon funds and other eco-friendly products and services. Banks are also under pressure from foreign institutional investors to be transparent about their green lending practices, carbon footprint and mitigation plans.

Opportunities

The establishment of the National Action Plan on Climate Change is heralded by many as a potential signal for future carbon regulations in India. CDP responses indicate that hard and fast rules for energy efficiency, and GHG emissions and renewable energy targets will present lucrative opportunities for the financial sector. For example, IDFC perceived financial opportunities arising from policy action that promotes renewable energy and clean fuels, and also the retrofitting of existing energy infrastructure. An increased focus on developing these areas will offer banks a financial opportunity, as it creates a demand for monetary assistance.

Yes Bank's Sustainable Investment Bank and IFCI's Green India Venture Fund are two examples of banks promoting investment in areas mostly untouched by venture capital and private equity investors. Not only will carbon financing add to the financial sectors' profit margins, but it will also encourage the industry to promote energy security, reduce pollution and contribute towards a cleaner and sustainable environment.

Further to this, almost all respondents cited financing of CDM projects and trading CERs as important regulatory opportunities arising from the Kyoto Protocol.

Few respondents anticipated opportunities arising out of the physical affects of climate change. According to Yes Bank, anticipating physical changes resulting from climate change will help them explore the opportunity to create customised products and services for the market. Some of the sectors are particularly sensitive to sudden fluctuations in temperature and climate, and they would try to reduce their susceptibility through insurance, thereby creating a business opportunity for the diversified financials sub-sectors. Similarly, IFCI mentioned the merit of exploring opportunities in weather-related financial products, such as catastrophe bonds and insurance products among other things.

GHG reduction plans and policy

In spite of being a service oriented and low carbon sector, Banks and Diversified Financials are mapping and implementing measures to curb their GHG emissions. Some of the

highlighted activities include various measures to control electricity, water and paper wastage, and a focus on reducing employee travel and energy audits. Banks are also encouraging their portfolio companies to reduce their GHG footprints. They do so by financing opportunities in climate change related sectors and assisting initiatives that help mitigate carbon emissions and energy wastage.

Three of the respondents are also engaging with policymakers on the subject of climate change. Dialogue takes place around climate changes issues related to taxation, regulation, infrastructure development and carbon credits.

CAPITAL GOODS

The Capital Goods sector includes companies and industrial conglomerates engaged in the business of Cement, Construction & Engineering, Diversified Industrials, Industrial Machinery, and Industrial Products & Services and Renewables. Four of the 25 contacted companies responded – Bharat Forge, Larsen & Toubro, Praj Industries* and Voltas*.

Risks

The Capital Goods sector includes a wide range of businesses and this may explain the divergence in the disclosed regulatory risk assessments. Respondents perceived risks in the form of policies and regulations introduced by the ECBC, Pollution Control Boards, and the Montreal Protocol. This is a clear indication of the impacts of existing regulation that affects this sector. Larsen & Toubro is actively engaged in the Construction and Engineering sub-sector, and therefore acknowledged the concept of green buildings and the possibility of ECBC guidelines being enforced in the near future. This sector may face new regulatory specifications designed to promote sustainability by optimising the energy efficiency of structures and integration of environmentally neutral construction materials. The Manufacturing sub-sector noted that emissions regulations could influence their local operations, import businesses as well as their client base.

The risks presented by the physical consequences of climate change caused concern amongst all respondents. However, climate exposure depends on a number of variables and respondents perceived risks accordingly. Disclosures indicate that companies expect major financial losses to arise in the event of climate-related damage to company owned assets and disruption of logistical or operational functions. Another important risk highlighted by respondents pertains to the depletion of natural resources. Exhaustion of conventional fossil fuels contributes to rising energy costs. These increased overheads may lead to the suspension of activities at production level and contribute to rising electricity bills at offices and worksites.

Opportunities

All respondents consider regulatory policy surrounding climate change to offer unique cost-cutting and profit-making opportunities. At more immediate levels, companies see the enforcement of climate change regulations as a chance to reduce overheads and improve energy efficiency by optimising processes and products and switching over to renewable energy. More significant, however, is the development of new market opportunities and product segments due to changes in the regulatory environment. Each disclosure highlighted lucrative business prospects, which exemplify a healthy attitude towards balancing sustainability with growth.

This is crucial as the Capital Goods sector is one of the largest consumers of energy in India and has a sizeable carbon footprint. Within this sector, companies identified different market opportunities specific to their trade. Larsen & Toubro, an industrial conglomerate, has taken active interest in clean technologies and offers solutions ranging from waste heat recovery to cogeneration and combined cycle power plants. Bharat Forge, on the other hand, is

HDFC Bank
We are looking at the possibilities of reducing emissions by Green Power Procurement or Generation at sites, incorporating Energy Efficiency Measures in branches, introducing green products such as LED based signage, better resource management, Green IT and IT based measures, and procurement policy with energy efficiency.

State Bank of India
The bank is actively involved in the deliberations of the Climate Change Task Force set-up by FICCI. The Bank also provided Indian Chartered Accountants Association of India with its views for formulating accounting standards regarding carbon credits.

Larsen & Toubro
Taxes/duty applicable internationally for import of carbon heavy goods will directly affect the business done by L&T's manufacturing division. Regulations not applicable to L&T, but imposed on client base could decrease the quantum of business conducted.

*Not Public Disclosure

Bharat Forge
On a strategic level we invest in clean energy technologies and advanced technologies in processes and products. And on a tactical level we focus on improvements and investments in energy efficiency and conservation.

Bharat Petroleum Corporation Limited
As we understand, as per the Kyoto Protocol, presently India does not have emission reduction targets. Therefore, we do not anticipate any regulatory risk on account of climate change. However, if any new rules/regulations are advised/imposed by the government or any of its regulatory authorities, the same will be complied with.

Hindustan Petroleum Corporation Limited
Normally investments are planned taking into account modest changes in the climate but enhanced risk due to climatic change might result in restoring to engineering solutions with consequent increase in construction and abandonment cost.

investing heavily in wind energy and energy-efficient devises. It states that climate change presents a very good business opportunity in terms of developing different green businesses.

GHG emission reduction

As an energy and carbon-intensive sector, it is expected that current and future regulations will compel the Capital Goods sector to reduce its ecological footprint. Disclosures reveal that CDP participants from this sector have taken anticipatory steps to reduce both their own and third-party emissions. Some of the other GHG mitigation strategies observed within the sector involve the integration of renewable energy into production, installation of energy-efficient devices and active monitoring and mapping of the carbon footprint.

ENERGY

The Energy sector is made up of Oil & Gas Exploration, Oil & Gas Production and Refining & Distribution firms. CDP received four responses from the 25 sector representatives in 2009 – Bharat Petroleum Corporation Limited, Cairn India, Hindustan Petroleum Corporation Limited and Oil & Natural Gas Corporation Limited.

Risks

None of the Energy sector companies perceived regulatory risks given India's non Annex-1 status under the Kyoto Protocol. According to their responses, the extent of current restrictions is limited, and therefore financial and strategic impacts are insignificant. The Indian Energy sector identified regulatory forces, such as the Environment Protection Act, Environment Protection Rules and the National Environmental Policy, as being significant. None of these legislatures enforce any climate specific guidelines or regulations on the sector yet. Companies like Bharat Petroleum Corporation Limited and Hindustan Petroleum Corporation Limited expressed the need for voluntary compliance with all laid down norms in the country.

Companies did not ignore the likely possibility of future regulations. Cairn India recognises that its activities of exploration and production of Oil and Gas are carbon-intensive, and as a result, could be subject to future mandatory emissions caps. Hindustan Petroleum Corporation Limited sees the environmental impact of energy as one of the key drivers of the future energy mix, especially with the tightening of standards to address concerns about pollution and climate change. Thus, the energy sector has taken a precautionary approach to managing climate change risks by actively monitoring policy development at national and global levels.

Responses indicate that physical risks pose a significant threat to the Energy sector. Situations such as rising sea levels, hurricanes and storms could lead to serious financial implications if operations are suspended or interrupted. Losses will be incurred in the event of any damage to oil exploration and production infrastructure located offshore. Problematic demand-supply gaps may develop in the event of closure of offshore drilling sites, dry out of hinterland supplies and breakdown in logistical networks (roads and pipelines). Thus, one of the key prerogatives of the energy sector concerns the sustenance of its supply chain. Hence, as part of their physical risk management strategy, the energy companies are starting to account for the potential impacts of climate change whilst designing, developing and operating assets.

The potential threat to corporate reputation has been described as a risk which is extended to the whole of the Oil and Gas sector given its carbon-intensive nature. Consumer awareness about the industry's carbon footprint is growing, as is the knowledge and utilisation of alternative fuels. However, it is interesting to observe that none of the Energy sector respondents perceived the growing share of alternative fuels as a market risk. More so, they viewed it as a potential opportunity to diversify their product portfolios and reach new markets.

Opportunities

Energy companies anticipate significant opportunities within the CDM Market. For example, ONGC has established a 'carbon management group' to assess, develop, and manage CDM projects and undertake the trading of CERs. Bharat Petroleum Corporation and Cairn India also consider the Kyoto Protocol to offer regulatory opportunities under the CDM mechanism. According to the respondents, there is potential for CDM projects in India, which allows companies to tap financial incentives by reducing GHG emissions. Thus, new revenue streams are being born out of regulatory mandates like the Kyoto Protocol.

Further to this, the increased usage of alternate/renewable fuels for transport, industry and domestic sectors in place of conventional liquid fuel and thermal power also offers market opportunities. This presents two benefits for the Energy sector. Firstly, it allows Energy companies to avail energy efficiency, thereby reducing costs and overheads. Secondly, it also provides access to a new and growing market of unconventional fuels. Stakeholders' pressure to improve the environmental sustainability of the Energy sector has allowed companies to reap monetary gains from operational efficiency. Overheads are being reduced through steps such as the increased usage of the common cross-country pipelines and by phasing out tank lorry/tank wagon logistical networks. This allows companies to mitigate fugitive emissions from their supply chains and retain financial proficiency.

All the responding companies from the Energy sector acknowledged the business potential of renewables, and have either begun or are planning their foray into the same. Companies expect that this opportunity may be augmented through future policy action to promote renewable energy and alternative fuels. Furthermore, the constrained nature of oil and gas reserves is driving the need for a heightened state of energy security in India and thus there is a need to promote renewable/alternative energy. Energy companies including Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited and ONGC are positively contributing towards sustainability by developing renewable energy sources and carrying out research and development for alternate fuels. Two

ONGC – case study

Anticipated opportunity: CDM project development and generating green revenue.

Process for identification, assessment and management: All large scale projects of ONGC shall be assessed for CDM potential as per the management directive.

ONGC has a dedicated group, called the carbon management group, to assess the potential, and then develop and validate the projects, monitor the registered projects, get the projects verified, develop trading policy and undertake trading of CERs.

Time scale: An ongoing process since 2005.

Implications: Positive implications in terms of green revenue, peer positioning in India, preparedness for any regulatory mandate in the future.

Hindustan Petroleum Corporation Limited
Reducing GHG emissions through energy efficient operations and tapping renewable energy resources are the key opportunities offered by climate change both in the present and future. Further, we seek to carry out our activities in such a manner that there is nil or minimal damage to the environment.

Bharat Petroleum Corporation Limited
Bharat Petroleum Corporation Limited perceived opportunities arising out of the physical consequences of climate change. These include the development of renewable energy sources, strengthening energy security and R&D for alternate fuels such as bio-diesel and hydrogen cells.

Cairn India Limited
It is important to recognise that the global demand for fossil fuels is predicted to increase by over 50% by 2025. Therefore, Cairn does not consider the growth of alternative energy as a significant risk to its oil and gas exploration and production business in the short-term.

Hindustan Petroleum Corporation Limited
In the past and from the year 2000 onwards, we have been able to bring down a reduction of approximately 4 lakh tonnes of CO2 emissions by way of reduction in fuel consumption.

ITC
For our raw materials in various businesses, which are agri based, we are keeping a close watch on various developments, government efforts/studies, and have directed part of company's R&D efforts to focus on "derisking" from climate change implications.

ITC
Most of our businesses benefit from the "green" reputation. We have derived and will continue to derive financial benefits from energy conservation and CDM projects.

of the respondents also found opportunities for growth in setting up infrastructure for renewable and alternate fuels. Examples cited include LPG/CNG fuel terminals and cross country pipelines for the same.

GHG reduction

It is encouraging to see that respondents from the Energy sector are disclosing their carbon emissions. Except for one company, all respondents disclosed their CO2 emission data this year. Not only are companies actively tracking their emissions, but they have also implemented measures to improve their footprint. The approaches are diverse and show that there is no single solution to climate change externalities. The measures disclosed by the responding generally utilise existing and emerging technology to address inefficiencies in production, infrastructure and energy use associated with the exploration and production of oil and gas.

FOOD, BEVERAGE AND TOBACCO

Only two responses were received from the Food, Beverage & Tobacco sector: A direct response from ITC and an indirect response from Nestle India (via the parent company Nestle). Eight companies were requested to respond to CDP 2009.

Risks

ITC is a diversified industrial conglomerate which relies on a delicate supply chain to sustain its multi-faceted business operations in the areas of paper, hotels, food, beverage and tobacco. This exposes the company to a larger set of risks and threats. While ITC perceived no regulatory risks given India's non Annex-1 status, it stated that its business and operations could be subject to the physical consequences of climate change identified in IPCC's Fourth Assessment Report. ITC's manufacturing units, hotels and other infrastructure located in coastal and low-lying regions have been explicitly identified as being vulnerable.

Amongst other things, the Food, Beverage & Tobacco sector relies on a steady supply of agricultural inputs to sustain its businesses. Climatic changes resulting in fluctuations in rainfall and increased prevalence of drought could affect the availability of agricultural raw materials, thereby affecting ITC's profitability. As part of its strategy to reduce risks, ITC is keeping a close watch on various developments and studies in the area, and is engaging in research and development to help mitigate this physical threat.

Opportunities

Responding to stakeholder pressures to make business green can allow companies to enjoy significant competitive advantages. These opportunities are being pursued at ITC through an increased focus on efficiency as well as the capitalisation of green business demand. ITC is the pioneer of 'elemental chlorine free paper and paperboards' in India, and is the only Indian company using the ozone bleaching technology. Its paperboards unit in Bhadrachalam is one of the world's most energy and water efficient plants in the world. ITC Hotels have received numerous awards for being the "greenest" hotels in India, and enjoy the reputation benefits associated with this.

Additionally, ITC has branched into Green IT through its info-tech subsidiary partner, I3L. ITC is also running a sustainable forestry programme to support raw material sustainability and its businesses continue to reduce energy and water consumption. This not only brings down production expenses but also gives ITC the opportunity to reduce CO2 emissions and increase the number of CDM projects.

GHG performance

Though this sector is not particularly carbon-intensive, it contributes to CO2 emissions through its manufacturing and supply chain activities. All of ITC's subsidiaries globally benchmark their energy consumption on a continuing basis. This, coupled with regular energy audits and CDM opportunities, provides a basis for new targets for energy conservation, fuel switching, and the use of renewable energy and

GHG emissions reductions. In its commitment to reducing GHG emissions, ITC has created 90,000 hectares of farm and social forestry, which sequester more than double the CO2 emitted in connection with the company's operations. In addition to offsetting its own carbon footprint, ITC is therefore also having a net positive impact on the atmosphere. ITC's emissions reduction projects and forestry initiatives are registered under the CDM mechanism.

MATERIALS

The Materials sector is extremely diverse and comprises Aluminium, Cement, Chemicals & Diversified Chemicals, Metals & Mining, and Steel as sub-sectors. Nine out of the 28 companies contacted responded for CDP 2009. These included Asian Paints, Ambuja Cements Ltd, Godrej Industries*, Hindustan Zinc*, JSW Steel, Sesa Goa, Sterlite Industries, Tata Chemicals* and Tata Steel*.

Risks

The Material sector includes some of the most carbon-intensive companies. But since they operate in a non-Annex 1 country, some of them did not consider any current regulatory restrictions as per the Kyoto Protocol. However, they noted the possibility of future, indirect and multi-jurisdictional regulatory risks. Given the sector's significant ecological footprint, respondents felt that any future guidelines, rules or binding targets for CO2 emissions could present challenges to the industry. Regulations would essentially incentivise low carbon emitters and provide disincentives to others, leaving them with a competitive disadvantage. Other regulatory risks highlighted in the disclosures pertained to the indirect influence of regulations on supply chain inputs and GHG restrictions surrounding exports.

The rise of sea levels was perceived to be a significant physical threat by the Materials sector companies, with a lot of their infrastructure located in coastal areas. This risk may lead to degradation of company-owned assets, interruption of the supply chain as well as social costs associated with the displacement of people. Water security for Mining and Cement operations also presents a physical risk to the companies. Water is a critical input for the Metal, Mining & Cement sub-sectors and companies require uninterrupted access in order to sustain operations. The most frequently cited side-effect of dangerous climate change is the rising of average temperatures, which could lead to delays in rainfall as well as prolonged periods of drought that may affect water supplies for the sector. Water is central to the production processes and the depletion of water resources could affect the market for raw materials and by-products of the sector.

Opportunities

There have been some interesting observations with regard to the Kyoto Protocol within the Materials sector. Not only are companies like Sesa Goa patenting clean technology and developing CDM projects, but they are also selling this technology commercially in the international market. This is allowing companies to enjoy carbon credits issued under the CDM mechanism, as well as the royalties generated through commercial transactions in the market. In this unique instance, the respondents are able to enjoy the symbiotic benefits arising from both regulatory and market opportunities. At the same time, these companies are experiencing a marked improvement in their carbon footprint and overall environmental performance through sensible energy use.

Several respondents also identified opportunities arising from the physical impacts of climate change. These companies stated that changes in weather patterns may create demand within the Materials sector for new or higher-quality products that can withstand adverse weather conditions. This will bestow forward thinking companies with a competitive edge in terms of product quality. Extreme weather events could also lead to the destruction of property, which in turn would scale up opportunities

ITC
ITC is the only company of its size in the world, which is 'Carbon Positive' for the last 4 years, 'Water Positive" for the last 7 years and "Waste Recycling Positive" for the last 2 years. It recycles about 99% of the waste and uses large quantities of external wastes as raw materials.

Sesa Goa Limited
It has risks associated with supply of iron ore due to regulatory restrictions imposed in mining. It's coke division faces risks in the import of coking coal from Australia, Russia, and China due to regulatory restrictions in the respective countries.

Sterlite Industries
We have witnessed cases of both drought and heavy rains in last few years. Since we require huge quantity of water for production, any abrupt variation in rain pattern will have direct bearing on the availability of water for us. Rising sea level may create problems in port operations, which will directly affect movement of raw material.

*Not Public Disclosure

Ambuja Cements Limited
Based on our operating experience of cement plants, operations leading to lesser generation of GHG emissions bring in better thermal efficiency and hence reduced variable cost and better profits.

Asian Paints
Extreme weather conditions will call for increased effort in research and development for improved design of paints to withstand adverse conditions. This will result in new products with technological edge over competitors, although the cost of product may increase.

Wipro
Increased pressure from customers will translate into the need for more extensive and detailed disclosures from suppliers about their ecological footprint and their plans for mitigating the same.

for reconstruction both for infrastructure developers and cement suppliers.

Energy efficiency is one of the major mantras for resolving climate change. According to Sterlite Industries, this mantra generates a host of opportunities for the Materials sector. For instance, companies that have heavily invested in metals may experience a growing demand for electricity conductors. Metals such as copper are regarded to be amongst the most effective conductors of electricity and can help solve teething problems such as transmission losses. Market opportunities may also arise when climate change legalisation renders existing infrastructure obsolete, or extreme weather events result in the destruction of assets.

GHG Reduction

All the respondents report established targets for direct reductions in their GHG emissions, or for specific power and fuel consumption. Innovative technical and knowledge solutions have been deployed in production processes and logistical functions to help companies achieve these targets. One of the most prevalent emissions reduction activities within the Materials sector is waste heat recovery, which helps to reduce energy consumption.

RETAILING

The Indian Hotels Company associates regulatory risks with energy usage. According to its disclosure, its electricity is purchased from the national grid, over which it exercises no control. It has no say in the sourcing or generative phases of energy production, and therefore perceives no regulatory risks. The company acknowledged that the Hotels sub-sector is exposed to physical risks, and more are expected to arise in the future. The sub-sector is heavily reliant on the uninterrupted availability of electricity and the company is progressively going in for renewable sources of energy to counter the risk of non-availability of fossil fuels.

Depletion of conventional fuels can translate into higher pricing regimes and ensuring energy security is therefore a must to sustain operations. As a representative of an industry intertwined with Travel and Tourism, the Hotel sub-sector respondent noted that climatic fluctuations could lead to a loss in the amount of business carried out. Other physical risks identified included the possibility of flood damage to properties located near rivers and coasts, as well as the unavailability or increase in cost of raw material/natural resources due to changes in weather patterns.

The Indian Hotels Company has implemented several measures across its properties to help reduce GHG emissions. These include use of battery operated vehicles, energy-efficient lighting, biogas plants, biodegradable plastic, use of solar energy, and eco-friendly cleaning agents.

SOFTWARE AND SERVICES

Three out of eight Software & Services companies contacted during CDP 2009 responded. These included Infosys Technologies Limited, Tata Consultancy Services and Wipro.

Risks

As a non carbon-intensive sector, most respondents did not identify any existing regulatory threats. Both Infosys and Tata Consultancy Services noted India's non-annex 1 status and emphasised the voluntary measures taken up by them to mitigate dangerous climate change. Their measures have helped equip the organisations with a sense of preparedness for what they consider to be an 'uncertain' regulatory future. At Infosys any future regulatory risks will be monitored and captured by the Enterprise Risk Management Team, under the 'regulation and compliance' category. Similarly, Tata Consultancy Services' climate change mitigation measures are encompassed within its

Environmental Management System. As a multinational company, Tata's operations based outside India are subject to existing regulations. However, the level of risk is considered to be rather low due to Tata's philosophy of ensuring strict compliance to the law of the land.

Wipro's response showed greater organisational susceptibility to regulatory risks. It stated that even if India does not take on emission caps, the government has clearly demonstrated its commitment to pursue a 'low carbon' path of economic development. While this stand presents opportunities for IT companies, Wipro noted that it also poses risks to the organisation. It envisages a future scenario in India where carbon taxation or energy efficiency standards for products and equipment could translate into financial, operational and image-related risks.

Physical risks pose a more significant threat to the Software and Services sector. Broadly speaking, two kinds of physical risks have been acknowledged – damage to infrastructure and disruption of operations. The most frequently cited causes of these risks include floods, droughts, rising sea levels and excessive precipitation. The sector recognises that business continuity could be an issue if any of these risks materialise. Infosys added that the global scientific community's understanding of these physical climate change risks is still at a nascent stage and will develop better visibility on the magnitude of its impacts as the understanding on the subject grows. Currently Software companies are well aware of the existing discrepancies in geographic and climatic stability and account for these risks through their development strategies.

As a service oriented industry, IT companies consider human resources to be a source of competitive advantage. Therefore, Tata Consultancy Services and Wipro consider the health related impacts of climate change to be a significant risk. Tata Consultancy Services' workforce of 130,000 employees located worldwide could be exposed to varying degrees and types of harmful health impacts due to changes in natural cycles – precipitation, temperature and seasons. Another risk disclosed concerns energy, which is one of the primary inputs for the Software & Services sector. Scarcity can result in severe financial implications in terms of increasing cost overheads. Growing consumer sensitivity to corporate ecological impacts was also identified as a critical variable that could influence profit margins.

Opportunities

The Software & Services providers perceive two kinds of regulatory opportunities: internal and external. Internally, anticipated regulatory requirements are driving operational efficiency by encouraging energy saving and eradicating unnecessary resource wastage in the value chain. This helps promote emissions reductions and cost cuttings within the companies. Given that the Software & Services sector has a negligible carbon footprint, most of the action taken by the companies towards environmental sustainability is purely voluntary. However, this may hold them in good stead in the event of regulation in the future.

Externally, the Software & Services sector offers cross-boundary solutions that can be diffused throughout various emissions and energy intensive sectors. These solutions can facilitate emissions and energy reductions that not only cater to external pressures, but also make good business sense. Infosys is actively exploiting the new market opportunities presented by green business and offers a range of products and services that contribute towards ecological sustainability. Tata Consultancy Services plans to launch a 'green business practice' to help other organisations mitigate their climate risks and benefit from related opportunities. Wipro has a detailed strategy in place to address emerging opportunities, some of which have already been initiated on the ground. For example, Wipro EcoEnergy addresses the need for renewable and clean energy space, whereas its Green IT programme tries to use the power of ICT for sustainability.

Tata Consultancy Services

We are keeping track of any new regulations and shall take necessary measures to ensure compliance. We are voluntarily driving a host of environmental initiatives which include carbon footprint mapping and emission reduction measures. These are expected to stand us in good stead to meet any regulatory obligations that may come up in future.

Infosys Technologies Limited

Extreme weather conditions and rising sea levels might pose risks to some of our operating sites and/or to our supply and delivery chain (components, logistics, electricity, etc.) in the form of interruptions to our business operations.

Wipro

Increased pressure from customers will translate into the need for more extensive and detailed disclosures from suppliers about their ecological footprint and their plans for mitigating the same.

Tata Consultancy Services

Regulatory requirements are also expected to be instrumental in driving resource and emission efficiencies, resulting in cost savings for the organisation. Technological innovations, and newer products and services are among the other opportunities that could arise out of any regulatory requirements.

Physical impacts resulting from climate change have created a demand for products and solutions that help save energy and reduce carbon emissions. This has allowed the Software & Services sector to tap into new markets for smart solutions. Furthermore, physical risks have driven companies to develop comprehensive organisational strategies that are relevant to the needs of the future, which are ecological sustainability and climate change. Companies also noted that the physical impacts of climate change encourage them to be proactive in their approach to infrastructure planning.

GHG reduction

As noted earlier, participants from the Software & Services sector have a negligible carbon footprint. However, this has not deterred the sector representatives from disclosing their GHG emissions and implementing comprehensive reduction plans within their organisations and supply chains. It is encouraging to see that all participants are partaking in GHG accounting and have provided detailed descriptions of their emissions reduction strategies in their CDP responses. These GHG reduction strategies are available to stakeholders also through annual sustainability reports. The Software & Services sector also plays an important role in reducing emissions from other energy-intensive sectors. For example, under its Customer Stewardship Programme, Wipro designs and implements products, solutions and services that help reduce GHG emissions of their customers. It follows a four-pronged emissions reduction strategy that includes measures for energy efficiency, renewable energy generation, renewable energy purchase and offsets.

Infosys Technologies Limited – case study

Some of the innovative solutions at Infosys that take advantage of regulatory requirements are:

1. **Infosys Sustainability Solution:** Infosys Sustainability Solution helps organisations in developing a sustainability reporting framework
2. **LogO:** LogO, the logistics optimisation solution, helps companies reduce the carbon footprint created through their logistics operations
3. **InGreen:** Infosys has launched a patent pending carbon footprint calculator called InGreen
4. **India Business Unit:** Enables customers based out of India, especially those belonging to state-owned utilities, to create a technology roadmap
5. It provides solutions to reduce Aggregate Technical and Commercial (AT&C) losses, and move towards smart grid technology and green IT
6. **Climate change advisory services:** The company has a business practice which is actively providing climate change and sustainability advisory services to the clients

TECHNOLOGY, HARDWARE AND EQUIPMENT

The Technology, Hardware & Equipment sector is comprised of Electronic Equipment & Instruments manufacturers. Two responses were received from the eight companies contacted during CDP 2009; the two companies are ABB and Crompton Greaves.

Risks

The two respondents from the Technology, Hardware and Equipment sector differed significantly in their risk perceptions. ABB perceived no regulatory, physical or market-related climate change threats, whereas Crompton Greaves acknowledged the existence of all three risks. According to ABB, 85% of its GHG emissions are indirect emissions at utilities, incurred from the use of electricity and district heat (Scope 2). Furthermore, its product portfolio is not carbon-heavy and the company, therefore, considers itself to be free from regulatory risk. Crompton Greaves on the other hand is sensitive to changes in policies for climate change mitigation and adaptation, such as levying of carbon taxes.

ABB's manufacturing sites and operations are located in areas not particularly sensitive to inundation, whereas Crompton Greaves found that it could be affected to some extent by extreme weather conditions like floods and rise in sea levels. It also stated that an increase in awareness about climate change could alter consumers' attitude and demand, and therefore presents market risks to the company's operations. Here too ABB differed, stating that their products and services help customers combat climate change and lower their environmental impact.

Opportunities

Both respondents perceived various opportunities arising from climate change. Perhaps the most lucrative opportunity for this sector lies in developing solutions for saving energy and reducing carbon emissions, which are the two central themes comprising climate change policy at present. Amongst other products, ABB offers advanced industrial information technology for the control and optimisation of integrated systems, electrical power grids, buildings and industrial processes, thereby resulting in less energy consumption and a reduction in emissions at their clients' sites. Crompton Greaves focuses on LED lighting and transformers for wind energy. The company believes that capitalising on these opportunities will allow it to expand its customer base and outperform competitors.

ABB

We consider that current or anticipated regulatory requirements offer opportunities because ABB has a large portfolio of products and services that help our customers in the utility and industry sectors save energy and reduce GHG emissions. Enhanced regulations would increase the demand for our products and services even further.

Table 5: Sector Metrics

This table outlines some of the key findings from the CDP 2009 responses of the participating top 200 Indian companies by sector.

	% of companies answering to CDP2009	% of responders with board level responsibility for climate change	% of responders seeing regulatory risks	% of responders seeing regulatory opportunities	% of responders seeing physical risks	% of responders seeing physical opportunities	% of responders seeing other risks	% of responders seeing other opportunities	% of responders disclosing Scope 1 emissions	% of responders disclosing Scope 2 emissions	% of responders with an emissions reduction/ energy reduction plan	% of responders engaging with policy makers on climate change
Automobiles and Components	43	29	29	29	29	29	29	29	29	29	29	29
Banks & Diversified Financials	26	13	16	19	23	10	19	23	6	10	6	13
Capital Goods	20	12	8	16	12	8	16	16	8	12	8	12
Energy	24	24	0	24	24	12	18	18	12	6	18	12
Food Beverage and Tobacco	25	13	0	13	13	0	0	0	13	13	13	13
Household and Personal Products	60	20	0	0	20	20	20	20	20	20	20	0
Materials	30	25	7	25	11	14	25	22	25	25	29	14
Pharmaceuticals, Biotechnology and Life Sciences	15	0	0	0	8	8	8	8	8	8	8	0
Real Estate	13	13	0	13	0	13	13	0	0	0	0	0
Retailing	33	0	0	33	33	0	33	0	0	0	0	0
Software and Services	38	38	13	38	38	38	38	38	38	38	38	38
Technology Hardware and Equipment	25	25	13	25	13	13	13	25	13	13	25	25
Utilities	22	0	0	11	11	11	11	11	11	11	11	0
Average Response	25	16	7	19	18	13	19	16	14	14	16	12

*The above figures have been calculated based on the total number of companies approached from each sector.

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The company disclosures indicate growing levels of climate change awareness and a proactive approach among some leading Indian companies. The respondents show their commitment to addressing the challenges of climate change as well as a willingness to share information voluntarily with share- and stakeholders.

Conclusion

The results from the third CDP India project (2009) demonstrate that there is a clearly identifiable group of Indian companies that are showing leadership in measuring, reporting and managing GHG emissions. CDP 2009 is a positive continuation of the results from the first and second CDP India iteration.

The most significant advance since last year was the marked improvement in the quality of information shared by the companies, bringing out more in-depth assessments of risks they perceive, opportunities they identify 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 focused on risks and opportunities, implications of climate change on financial performance and business, performance targets, governance and reporting.

It is hoped that the experience of this year continues into the next CDP cycle in 2010, which promises to be a tumultuous and highly significant year for businesses worldwide with respect to climate change issues regardless of the outcome of the negotiations at COP 15 in Copenhagen. Some of the missions of the National Action Plan on Climate Change have been approved by the Prime Minister of India, including the Solar Mission and mission on Enhanced Energy Efficiency. The implementation of these missions have considerable ramifications for the Indian industry and is expected to give a major boost to the solar cell manufacturing sector in the country as well as incentive to companies to enhance energy efficiency through performances and trade. However, given that 156 of the companies contacted did not answer the CDP 2009 questionnaire, it is clear that there is still an enormous amount of work to be done by both Indian companies and CDP to raise awareness among the companies about the importance of climate change and the connection with their GHG emissions.

Another concern relates to the “decline to participate” decision made by some of the 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 as this number has gone down compared to last year. Moreover, a large number of companies have shown interest and willingness to participate in the process, but could not do so because they are yet to estimate their GHG emissions as well as validate them before making disclosures.

The findings of the CDP 2009 report covers companies from diverse sectors and sends a strong message that several leading Indian companies are well aware of and appreciate the associated risks as well as the commercial potential of the carbon markets.

There are reflections of a growing awareness within the Financial sector regarding the enduring impacts of carbon emissions through conscious investments in cleaner technologies, renewable energy and carbon offset mechanisms. The responses of the Financial Institutions are critical as this sector has a crucial role to play in encouraging and incentivising 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 a large number of financial institutions that are yet to integrate climate change risk assessment into their project appraisals and investment decisions.

The responding companies also agree that tackling GHG emissions presents business opportunities such as those for clean energy, energy efficient products, and emissions trading; and they have made 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, none of the responding Indian companies have factored the cost of future emissions into their capital expenditures or their investment decisions.

The CDP 2009 respondents consider existing as well as anticipated regulatory requirements as an opportunity for triggering long-term investment in energy efficient technologies, and research and development to prepare them for

future compliance. Opportunities have also been identified in terms of new product solutions and internal measures such as efficient utilisation of resources to enhance the market reputation of companies and fuel innovations in operations and supply chain management.

Clearly, a large number of Indian companies who responded to CDP 2009 acknowledge the fact that climate change is a serious issue that is likely to impact their businesses, financial performance, markets and customers in the near future. Some proactive companies have already started incorporating policy changes in their organisations to enable them to reduce their carbon emissions.

There are also challenges associated with the accounting of GHG emissions. Even though there is an increasing trend of disclosure among the responding companies, many companies are still not sharing the information. However, it is heartening to note that more of the responding companies have quantitative targets and clear emissions reduction plans as compared to CDP5 (2007) and CDP6 (2008).

The findings of CDP 2009 further reiterate the need for awareness building and training for climate change awareness and GHG accounting among Indian companies, in order to make sure India is not left behind in the global trend towards the low carbon economy. While there is strong emergence of innovative Indian companies that are providing climate solutions to the world, these companies could also look at global companies to benefit from their experiences and begin to measure and reduce their own GHG emissions.

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Appendix 1

Response trends CDP 2009, CDP6 (2008) & CDP5 (2007)

Response indicator

AQ*	Online Answered Questionnaire
AQ	Answered Questionnaire
IN	Provided some information (but did not answered the CDP questionnaire)
DP	Declined to Participate
NR	No Response

Company Responses to CDP 2009, CDP6 (2008) & CDP5 (2007)

Company Name	Sector	*CDP 2009*	*CDP6 (2008)*	*CDP5 (2007)*	*Permission Status*
Aban Offshore	Energy	NR	NR		N/A
ABB	Technology Hardware and Equipment	AQ *	AQ *	AQ *	Public
ACC	Materials	NR	NR	NR	N/A
Adani Enterprises	Transportation	NR	NR	NR	N/A
Aditya Birla Nuvo	Materials	NR	NR	NR	N/A
Akruti City	Real Estate	NR	NR		N/A
Allahabad Bank	Banks	NR	AQ *		N/A
Ambuja Cements	Capital Goods	AQ *	AQ *	NR	Public
Anant Raj Industries	Capital Goods	AQ *	NR		Public
Andhra Bank	Banks	NR	NR		N/A
Areva T&D India (see Areva CI)	Utilities	AQ *	SA		Public
Ashok Leyland	Transportation	NR	NR	NR	N/A
Asian Paints	Materials	AQ *	AQ *	NR	Public
Axis Bank	Banks	NR	NR	IN	N/A
Bajaj Auto	Capital Goods	NR	NR	NR	N/A
Bajaj Finserv	Commercial Services and Supplies	NR			N/A
Bajaj Holdings & Invst. (BHIL)	Diversified Financials	NR			N/A
Bank of Baroda	Banks	IN *	NR	NR	Not public
Bank of India	Banks	NR	NR	NR	N/A
BEML	Capital Goods	NR	NR		N/A
BF Utilities	Utilities	NR	NR	NR	N/A
Bharat Electronics	Capital Goods	NR	NR	NR	N/A
Bharat Forge	Automobiles and Components	AQ *	NR	NR	Public
Bharat Heavy Electricals	Commercial Services and Supplies	NR	NR	AQ *	N/A
Bharat Petroleum Corporation	Energy	AQ *	AQ *	AQ *	Public
Bharti Airtel	Telecommunication Service	NR	NR	AQ *	N/A
Bhushan Steel	Materials	NR			N/A
Biocon	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
Bluestar	Capital Goods	NR			N/A
Bosch	Capital Goods	NR			N/A
Britannia Industries	Food Beverage and Tobacco	NR	NR		N/A
Cadila Healthcare	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
Cairn India	Energy	AQ *	AQ *		Public
Cals Refineries	Energy	NR			N/A
Canara Bank	Banks	NR	AQ *	AQ *	N/A
Castrol India	Capital Goods	NR	DP		N/A
Centurion Bank of Punjab (see HDFC Bank)	Banks	AQ *	SA		Public
Century Textiles & Industries	Materials	NR	NR	NR	N/A
CESC Ltd	Utilities	NR	AQ *	AQ *	N/A
Chennai Petroleum Corporation	Energy	NR	NR		N/A
Cipla	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR	NR	N/A
Colgate Palmolive India (see Colgate Palmolive Company)	Household and Personal Products	AQ *	SA		Public
Container Corporation of India	Transportation	DP	NR	NR	Not public
Corporation Bank	Banks	NR	NR		N/A
Crompton Greaves	Technology Hardware and Equipment	AQ *	NR	NR	Public
Cummins India (See Cummins Inc.)	Automobiles and Components	AQ *	SA	NR	Public
Dabur India	Food and Staples Retailing	NR	NR	NR	N/A
Divi's Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
DLF	Real Estate	NR	NR	AQ *	N/A
Dr. Reddy's Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	AQ *	AQ *	AQ *	Not public
Edelweiss Capital	Commercial Services and Supplies	NR			N/A
Educomp Solutions	Commercial Services and Supplies	NR	NR		N/A
EIH	Retailing	NR	NR		N/A
Engineers INDIA	Capital Goods	NR			N/A
Essar Oil	Energy	NR	NR	AQ *	N/A
Essar Shipping Ports & Logistics	Transportation	NR			N/A

continued…

Company Name	Sector	*CDP 2009*	*CDP6 (2008)*	*CDP5 (2007)*	*Permission Status*
Exide Industries	Capital Goods	DP	NR		Not public
Federal Bank	Banks	NR			N/A
Financial Technologies (INDIA)	Commercial Services and Supplies	NR	NR	NR	N/A
GAIL	Energy	NR	AQ *	NR	N/A
GlaxoSmithKline Pharmaceuticals (see GlaxoSmithKline)	Pharmaceuticals, Biotechnology and Life Sciences	AQ *	SA	SA	Public
Glenmark Pharmaceuticals	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR	NR	N/A
GMR Infrastructure Limited	Capital Goods	NR	DP	NR	N/A
Godrej Consumer Products	Household and Personal Products	AQ *	AQ *		Not public
Godrej Industries	Materials	AQ *	AQ *		Not public
Grasim Industries	Materials	NR	DP	NR	N/A
Great Eastern Shipping Co.	Transportation	NR	AQ *		N/A
GTL Infrastructure	Telecommunication Service	NR			N/A
Gujarat Mineral Devp. Corpn.	Materials	NR			N/A
Gujarat N R E Coke	Materials	NR			N/A
Gujarat State Petronet	Energy	NR	NR		N/A
GVK Power & Infrastructure	Capital Goods	NR			N/A
HCL Technologies	Software and Services	NR	DP	NR	N/A
HDFC Bank	Banks	AQ *	AQ *	AQ *	Public
Hero Honda Motors	Automobiles and Components	NR	NR	AQ *	N/A
Hindalco Industries	Materials	NR	NR	AQ *	N/A
Hindustan Copper	Materials	NR	AQ *	NR	N/A
Hindustan Petroleum Corporation	Energy	AQ *	AQ *	NR	Public
Hindustan Unilever (see Unilever)	Household and Personal Products	AQ *	SA	SA	Public
Hindustan Zinc	Materials	AQ *	AQ *	NR	Not public
HMT	Capital Goods	NR	AQ *		N/A
Housing Development & Infrastructure	Real Estate	NR	NR		N/A
Housing Development Finance Corporation	Consumer Services	NR	NR	AQ *	N/A
ICICI Bank	Banks	AQ *	AQ *	AQ *	Public
Idea Cellular	Telecommunication Service	NR	NR		N/A
IFCI	Commercial Services and Supplies	AQ *			Public
India Cements	Capital Goods	NR	NR		N/A
India Infoline	Commercial Services and Supplies	NR	NR		N/A
Indiabulls Financial Services	Commercial Services and Supplies	NR	NR	NR	N/A
Indiabulls Real Estate Ltd	Real Estate	NR	NR		N/A
Indian Bank	Banks	NR	NR		N/A
Indian Hotels Co.	Real Estate	AQ *	AQ *	NR	Public
Indian Oil Corporation	Energy	NR	NR	NR	N/A
Indian Overseas Bank	Banks	NR	NR	DP	N/A
Infosys Technologies Ltd	Software and Services	AQ *	AQ *	AQ *	Public
Infrastructure Development Finance Company	Diversified Financials	AQ *	AQ *	NR	Public
IRB Infrastructure Developers	Transportation	NR			N/A
Ispat Industries	Materials	NR			N/A
ITC	Capital Goods	AQ *	AQ *	AQ *	Public
IVRCL Infrastructures & Projects	Capital Goods	NR	NR		N/A
Jai Corporation	Consumer Services	NR	NR		N/A
Jain Irrigation Systems	Consumer Services	DP	NR		Not public
Jaiprakash Associates	Capital Goods	NR	NR	NR	N/A
Jaybharat Textiles & Real Estate	Consumer Durables and Apparels	NR	NR		N/A
Jet Airways	Transportation	NR	NR		N/A
Jindal Steel & Power	Materials	NR	NR	NR	N/A
JM Financial	Commercial Services and Supplies	NR	NR		N/A
JSW Steel	Materials	AQ	AQ *	AQ *	Not public
Jubilant Organosys	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
Kotak Mahindra Bank	Banks	NR	NR	AQ *	N/A
KSK Energy Ventures	Utilities	NR			N/A

Company Name	Sector	*CDP 2009*	*CDP6 (2008)*	*CDP5 (2007)*	*Permission Status*
Lanco Infratech	Real Estate	NR	NR		N/A
Larsen & Toubro	Capital Goods	AQ *	NR	NR	Public
Lupin	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
Madras Cements	Capital Goods	NR	NR		N/A
Mahanagar Telephone Nigam	Telecommunication Service	NR	NR	NR	N/A
Mahindra & Mahindra	Automobiles and Components	AQ *	AQ *	NR	Public
Mangalore Refinery and Petrochemicals	Transportation	NR	NR	NR	N/A
Marico	Household and Personal Products	NR	NR		N/A
Maruti Suzuki India	Automobiles and Components	NR	NR	AQ *	N/A
Max India	Healthcare Equipment and Services	NR	NR		N/A
MMTC	Materials	NR	NR		N/A
MphasiS	Commercial Services and Supplies	NR	NR		N/A
Mundra Port & Special Economic Zone	Transportation	NR	NR		N/A
Nagarjuna Construction Co.	Capital Goods	NR	NR		N/A
National Aluminium Co.	Materials	NR	NR	NR	N/A
National Thermal Power (NTPC)	Utilities	NR	NR	AQ *	N/A
Nestle India (see Nestle)	Food Beverage and Tobacco	AQ *	SA	AQ	Public
Neyveli Lignite Corporation	Materials	NR	NR	NR	N/A
NMDC	Materials	NR			N/A
Oil & Natural Gas	Energy	AQ *	AQ *	AQ *	Public
Onmobile Global	Telecommunication Service	NR			N/A
Oracle Financial Services Software	Software and Services	NR			N/A
Oriental Bank of Commerce	Banks	NR	NR	NR	N/A
Pantaloon Retail	Retailing	NR	NR	NR	N/A
Parsvnath Developers	Real Estate	NR	NR		N/A
Patni Computer Systems	Commercial Services and Supplies	NR	NR	NR	N/A
Petronet LNG	Energy	NR	NR		N/A
Pidilite Industries	Materials	NR	NR		N/A
Piramal Healthcare	Pharmaceuticals, Biotechnology and Life Sciences	NR	AQ *	NR	N/A
Power Finance Corporation	Commercial Services and Supplies	NR	NR		N/A
Power Grid Corpn. of India	Utilities	NR			N/A
Praj Industries	Capital Goods	AQ *	NR		Not public
Punj Lloyd	Energy	NR	NR		N/A
Punjab National Bank	Banks	NR	AQ	NR	N/A
Puravankara Projects	Real Estate	NR			N/A
Ranbaxy Laboratories	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR	NR	N/A
Rashtriya Chemicals & Fertilizers	Materials	NR			N/A
Rei Agro	Food Beverage and Tobacco	NR			N/A
Reliance Capital	Commercial Services and Supplies	AQ *	AQ *	AQ *	Not public
Reliance Communications	Telecommunication Service	NR	NR		N/A
Reliance Industries	Energy	NR	NR	NR	N/A
Reliance Infrastructure		NR	DP	NR	N/A
Reliance Natural Resources	Energy	NR	DP		N/A
Reliance Petroleum	Energy	NR	NR	NR	N/A
Reliance Power	Utilities	NR			N/A
Rolta India	Commercial Services and Supplies	NR	NR		N/A
Rural Electrification Corpn.	Commercial Services and Supplies	NR			N/A
Satyam Computer Services	Commercial Services and Supplies	NR	NR	NR	N/A
Sesa Goa	Materials	AQ *	AQ *	AQ *	Public
Shipping Corporation of India	Transportation	NR	NR		N/A
Shree Global Tradefin	Commercial Services and Supplies	NR			N/A
Shree Renuka Sugars	Capital Goods	NR			N/A
Shriram Transport Finance Co.	Commercial Services and Supplies	NR			N/A
Siemens India	Technology Hardware and Equipment	NR	NR	NR	N/A
Sintex Industries	Capital Goods	NR			N/A
Spice Communications	Retailing	NR	NR		N/A

Company Name	Sector	*CDP 2009*	*CDP6 (2008)*	*CDP5 (2007)*	*Permission Status*
State Bank of India	Banks	AQ	AQ *	NR	Public
Steel Authority of India	Materials	NR	NR	NR	N/A
Sterling Biotech	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR		N/A
Sterling International Enterprises		NR			N/A
Sterlite Industries	Materials	AQ *	AQ *	NR	Public
Sun Pharmaceutical Industries	Pharmaceuticals, Biotechnology and Life Sciences	NR	NR	NR	N/A
Sun TV Network	Telecommunication Service	NR	NR	NR	N/A
Suzlon Energy	Energy	NR	NR	NR	N/A
Syndicate Bank	Banks	NR	NR		N/A
Tata Chemicals	Materials	AQ *	NR		Not public
Tata Communications		NR	NR	NR	N/A
Tata Consultancy Services	Software and Services	AQ *	AQ *	NR	Public
Tata Motors	Automobiles and Components	AQ *	AQ *	NR	Public
Tata Power Co	Utilities	AQ *	AQ	NR	Not public
Tata Steel	Materials	AQ *	AQ *	AQ *	Not public
Tata Tea	Food Beverage and Tobacco	NR	NR		N/A
Tata Teleservices (Maharashtra)	Telecommunication Service	NR	NR		N/A
Tech Mahindra	Telecommunication Service	NR	NR	NR	N/A
Thermax	Capital Goods	NR	IN *		N/A
Titan Industries	Household and Personal Products	NR	NR		N/A
Torrent Power	Utilities	NR	NR		N/A
Ultratech Cement	Capital Goods	IN	DP	NR	Not public
Union Bank of India	Banks	NR	NR	DP	N/A
Unitech	Real Estate	NR	NR		N/A
United Breweries	Food Beverage and Tobacco	NR	NR		N/A
United Phosphorus	Materials	NR	NR	NR	N/A
United Spirits	Food Beverage and Tobacco	NR	NR	NR	N/A
Videocon Industries	Technology Hardware and Equipment	NR	NR		N/A
Voltas	Capital Goods	AQ *	NR		Not public
Welspun-Gujarat Stahl Rohren	Materials	NR	NR		N/A
Wipro	Commercial Services and Supplies	AQ *	AQ *	AQ *	Public
YES Bank	Banks	AQ *	AQ *		Public
Zee Entertainment Enterprises	Telecommunication Service	NR	AQ *	NR	N/A

Appendix 2

CDP 2009 Questionnaire

Risks and Opportunities

1. Regulatory Risks: (CDP6 1(a)(i))

1.1. Is your company exposed to regulatory risks related to climate change?

2. Physical Risks: (CDP6 1(a)(ii))

2.1. Is your company exposed to physical risks from climate change?

3. Other Risks: (CDP6 1(a)(iii))

3.1. Is your company exposed to other risks as a result of climate change?

4. Regulatory Opportunities: (CDP6 1(b)(i))

4.1. Do regulatory requirements on climate change present opportunities for your company?

5. Physical Opportunities: (CDP6 1(b)(ii))

5.1. Do physical changes resulting from climate change present opportunities for your company?

6. Other Opportunities: (CDP6 1(b)(iii))

6.1. Does climate change present other opportunities for your company?

Where the answer to any of the questions in the risks and opportunities section (see left hand column) is yes, please provide the following information if relevant:

- *Describe the company's process for identifying risks/opportunities and assessing the degree to which they could affect the business, including the financial implications.*
- *Describe current and/or anticipated risks/opportunities.*
- *Explain the way in which the risks/opportunities could affect your business and your value chain, including the financial implications.*
- *What geographical areas are affected by the risks/opportunities you have identified.*
- *Outline the timescales over which the risks/opportunities are expected to materialise.*
- *Explain any actions the company has taken or plans to take to manage, adapt to and/or exploit the risks/opportunities that have been identified including the financial implications of those actions.*
- *Comment on whether your views on risks/opportunities have changed in the past twelve months.*

Where the answer to any of the questions is no, please:

- *Explain why you do not consider your company to be exposed to risks/presented with opportunities.*
- *Explain the company process for identifying risks/opportunities and assessing the degree to which they could affect the business.*
- *Comment on whether your views have changed in the past twelve months.*

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

Information about how to respond to this section may be found in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" developed by the World Resources Institute and the World Business Council for Sustainable Development ("the GHG Protocol"), see **www.ghgprotocol.org**. *ISO 14064-1 is compatible with the GHG Protocol as are a number of regional/national programme protocols. For more information see* **www.ghgprotocol.org** *and the CDP 2009 Reporting Guidance.*

7. Reporting Year: (CDP6 Q2(a)(ii))

Please also provide CDP with responses to questions 7, 8, 9, 10.1, 10.2, 11.1 and 11.2 for the three years prior to the current reporting year if you have not done so before or if this is the first time you have answered a CDP information request.

7.1. Please state the start date and end date of the year for which you are reporting GHG emissions.

8. Reporting Boundary: (CDP6 Q2(a)(i))

8.1. Please indicate the category that describes the company, entities, or group for which Scope 1 and Scope 2 GHG emissions are reported.
- Companies over which financial control is exercised – per consolidated audited financial statements;
- Companies over which operational control is exercised;
- Companies in which equity share is held;
- Other (please provide details).

8.2. Please state whether any parts of your business or sources of GHG emissions are excluded from your reporting boundary.

9. Methodology: (CDP6 Q2(a)(iii))

9.1. Please describe the process used by your company to calculate Scope 1 and Scope 2 GHG emissions including the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 GHG emissions.
Please also provide:

9.2. Details of any assumptions made.

9.3. The names of and links to any calculation tools used.

9.4. The global warming potentials you have applied and their origin.

9.5. The emission factors you have applied and their origin.

Note about questions 10, 11 and 13

When providing answers to questions 10, 11 and 13, please do not deduct offset credits, Renewable Energy Certificates etc, or net off any estimated avoided emissions from the export of renewable energy, carbon sequestration (including enhanced oil recovery) or from the use of goods and services. Opportunities to provide details of activities that reduce or avoid emissions are provided elsewhere in the information request.

Carbon dioxide emissions from biologically sequestered carbon e.g. carbon dioxide from burning biomass/biofuels should be reported separately from emissions Scopes 1, 2 and 3. If relevant, please report these emissions in question 15. However, please do include any nitrous oxide or methane emissions from biomass/biofuel combustion in your emissions under the three scopes.

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

10. Scope 1 Direct GHG Emissions: (CDP6 Q2(b)(i))

Electric utilities should report emissions by country/region using the table in question EU3.

Please provide:

10.1. Total gross global Scope 1 GHG emissions in metric tonnes of CO_2-e

Please break down your total gross global Scope 1 emissions by:

10.2. Country or region

Where it will facilitate a better understanding of your business, please also break down your total global Scope 1 emissions by:

10.3. Business division

and/or

10.4. Facility

10.5. Please break down your total global Scope 1 GHG emissions in metric tonnes of the gas and metric tonnes of CO_2-e by GHG type.

10.6. If you have not provided any information about Scope 1 emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 1 GHG emissions information in future.

11. Scope 2 Indirect GHG Emissions: (CDP6 Q2(b)(i))

Important note about emission factors where zero or low carbon electricity is purchased:
The emissions factor you should use for calculating Scope 2 emissions depends upon whether the electricity you purchase is counted in calculating the grid average emissions factor or not – see below. You can find this out from your supplier.

Electricity that IS counted in calculating the grid average emissions factor:
Where electricity is sourced from the grid and that electricity has been counted in calculating the grid average emissions factor, Scope 2 emissions must be calculated using the grid average emissions factor, even if your company purchases electricity under a zero or low carbon electricity tariff.

Electricity that is NOT counted in calculating the grid average emissions factor:
Where zero or low carbon electricity is sourced from the grid or otherwise transmitted to the company and that electricity is not counted in calculating the grid average, the emissions factor specific to that method of generation can be used, provided that any certificates quantifying GHG-related environmental benefits claimed for the electricity are not sold or passed on separately from the electricity purchased.

Please provide:

11.1. Total gross global Scope 2 GHG emissions in metric tonnes of CO_2-e

Please break down your total gross global Scope 2 emissions by:

11.2. Country or region

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

Where it will facilitate a better understanding of your business, please also break down your total global Scope 2 emissions by:

11.3. Business division

and/or

11.4. Facility

11.5. If you have not provided any information about Scope 2 emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 2 GHG emissions information in future.

12. Contractual Arrangements Supporting Particular Types of Electricity Generation: (CDP6 Q2(b)(i) – Guidance)

12.1. If you consider that the grid average factor used to report Scope 2 emissions in question 11 above does not reflect the contractual arrangements you have with electricity suppliers, (for example, because you purchase electricity using a zero or low carbon electricity tariff), you may calculate and report a contractual Scope 2 figure in response to this question, showing the origin of the alternative emission factors and information about the tariff.

12.2. If you retire any certificates (eg: Renewable Energy Certificates) associated with zero or low carbon electricity, please provide details.

13. Scope 3 Other Indirect GHG Emissions: (CDP6 Q2(c))

For each of the following categories, please:

- Describe the main sources of emissions,
- Report emissions in metric tonnes of CO_2-e,
- State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

13.1. Employee business travel

13.2. External distribution/logistics

13.3. Use/disposal of company's products and services

For auto manufacture and auto component companies – please refer to the additional questions for these sectors before completing question 13.3.

13.4. Company supply chain

13.5. Other

13.6. If you have not provided information about one or more of the categories of Scope 3 GHG emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 3 indirect emissions information in future.

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

14. Emissions Avoided Through use of Goods and Services: (New for CDP 2009)

14.1. If your goods and/or services enable GHG emissions to be avoided by a third party, please provide details including the estimated avoided emissions, the anticipated timescale over which the emissions are avoided and the methodology, assumptions, emission factors (including sources), and global warming potentials (including sources) used for your estimations.

15. Carbon Dioxide Emissions from Biologically Sequestered Carbon: (New for CDP 2009)

An example would be carbon dioxide from burning biomass/biofuels.

15.1. Please provide the total global carbon dioxide emissions in metric tonnes CO_2 from biologically sequestered carbon.

16. Emissions Intensity: (CDP6 Q3(b))

16.1. Please supply a financial emissions intensity measurement for the reporting year for your combined Scope 1 and 2 emissions, including a description of the measurement,

16.1.1. The units, and

16.1.2. The resulting figure.

16.2. Please supply an activity related intensity measurement for the reporting year for your combined Scope 1 and 2 emissions, including a description of the measurement,

16.2.1. The units, and

16.2.2. The resulting figure.

17. Emissions History: (CDP6 Q2(f))

17.1. Do emissions for the reporting year vary significantly compared to previous years?

If so, please explain why, and:

17.1.1. Estimate the percentage by which emissions vary compared with the previous reporting year.

18. External Verification/Assurance: (CDP6 Q2(d))

18.1. Has any of the information reported in response to questions 10 – 15 been externally verified/assured in whole or in part?

If so, please:

18.2. State the scope/boundary of emissions included within the verification/assurance exercise.

18.3. State what level of assurance, (eg: reasonable or limited) has been given.

18.4. Provide a copy of the verification/assurance statement.

18.5. Specify the standard against which the information has been verified/assured.

18.6. If not, please state whether you have plans for GHG emissions accounting information to be externally verified/assured in future.

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

19. Data Accuracy: (CDP6 Q2(e) – New wording for CDP 2009)

19.1. What are the main sources of uncertainty in your data gathering, handling and calculations e.g.: data gaps, assumptions, extrapolation, metering/measurement inaccuracies etc?

19.2. How do these uncertainties affect the accuracy of the reported data in percentage terms or an estimated standard deviation?

19.3. Does your company report GHG emissions under any mandatory or voluntary scheme (other than CDP) that requires an accuracy assessment?

If so, please provide:

19.3.1. The name of the scheme.

19.3.2. The accuracy assessment for GHG emissions reported under that scheme for the last report delivered.

20. Energy and Fuel Requirements and Costs: (New for CDP 2009)

Please provide the following information for the reporting year:

Cost of purchased energy

20.1. The total cost of electricity, heat, steam and cooling purchased by your company.

20.1.1. Please break down the costs by individual energy type.

Cost of purchased fuel

20.2. The total cost of fuel purchased by your company for mobile and stationary combustion.

20.2.1. Please break down the costs by individual fuel type.

Energy and fuel inputs

The following questions are designed to establish your company's requirements for energy and fuel (inputs). Please note that MWh is our preferred unit for answers as this helps with comparability and analysis. Although it is usually associated with electricity, it can equally be used to represent the energy content of fuels (see CDP 2009 Reporting Guidance for further information on conversions to MWh).

Purchased energy input

20.3. Your company's total consumption of purchased energy in MWh.

Purchased and self produced fuel input

20.4. Your company's total consumption in MWh of fuels for stationary combustion only. This includes purchased fuels, as well as biomass and self-produced fuels where relevant.

20.4.1. Please break down the total consumption of fuels reported in answer to question 20.4 by individual fuel type in MWh.

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

Energy output

In this question we ask for information about the energy in MWh generated by your company from the fuel that it uses. Comparing the energy contained in the fuel before combustion (question 20.4) with the energy available for use after combustion will give an indication of the efficiency of your combustion processes, taking your industry sector into account.

20.5. What is the total amount of energy generated in MWh from the fuels reported in question 20.4?

20.6. What is the total amount in MWh of renewable energy, excluding biomass, that is self-generated by your company?

Energy exports

This question is for companies that export energy that is surplus to their requirements. For example, a company may use electricity from a combined heat and power plant but export the heat to another organisation.

20.7. What percentage of the energy reported in response to question 20.5 is exported/sold by your company to the grid or to third parties?

20.8. What percentage of the renewable energy reported in response to question 20.6 is exported/sold by your company to the grid or to third parties?

21. EU Emissions Trading Scheme: (CDP6 Q2(g)(i) – New wording for CDP 2009)

Electric utilities should report allowances and emissions using the table in question EU5.

21.1. Does your company operate or have ownership of facilities covered by the EU Emissions Trading Scheme (EU ETS)?

If not, please proceed to question 22.
If yes, please give details of:

21.2. The allowances allocated for free for each year of Phase II for facilities which you operate or own. (Even if you do not wholly own facilities, please give the full number of allowances.)

21.3. The total allowances purchased through national auctioning processes for the period 1 January 2008 to 31 December 2008 for facilities that you operate or own. (Even if you do not wholly own facilities, please give the total allowances purchased through auctions by the facilities for this period.)

21.4. The total CO_2 emissions for 1 January 2008 to 31 December 2008 for facilities which you operate or own. (Even if you do not wholly own facilities, please give the total emissions for this period.)

22. Emissions Trading: (CDP6 Q2(g)(ii) – New wording for CDP 2009)

Electric utilities should read EU6 before answering these questions.

22.1. Please provide details of any emissions trading schemes, other than the EU ETS, in which your company already participates or is likely to participate within the next two years.

22.2. What is your overall strategy for complying with any schemes in which you are required or have elected to participate, including the EU ETS?

Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

22.3. Have you purchased any project-based carbon credits?

If so, please indicate whether the credits are to meet one or more of the following commitments:

- Primarily for compliance purposes,
- Primarily for voluntary offsetting of your own emissions,
- Other (please describe).

Please also:

22.4. Provide details including the type of unit, volume and vintage purchased and the standard/scheme against which the credits have been verified, issued and retired (where applicable).

22.5. Have you been involved in the origination of project-based carbon credits?

If so:

22.6. Please provide details including:

- Your role in the project(s),
- The locations and technologies involved,
- The standard/scheme under which the projects are being/have been developed,
- Whether emissions reductions have been validated or verified,
- The annual volumes of generated/projected carbon credits,
- Retirement method if used for own compliance or offsetting.

22.7. Are you involved in the trading of allowances under the EU ETS and/or project-based carbon credits as a separate business activity, or in direct support of a business activity such as investment fund management or the provision of offsetting services?

If so:

22.8. Please provide details of the role performed.

Performance

23. Reduction Plans: (CDP6 Q3(a))

23.1. Does your company have a GHG emissions and/or energy reduction plan in place?

If not:

23.2. Please explain why and answer question 23.8 if possible.

If your company does have a plan, please provide the following information:

Goal setting

23.3. Do you have an emissions and/or energy reduction target(s)?

23.4. What is the baseline year for the target(s)?

23.5. What is the emissions and/or energy reduction target(s)?

23.6. What are the sources or activities to which the target(s) applies?

23.7. Over what period/timescale does the target(s) extend?

GHG emissions and energy reduction activities

23.8. What activities are you undertaking or planning to undertake to reduce your emissions/energy use?

Goal evaluation

23.9. What benchmarks or key performance indicators do you use to assess progress against the emissions/energy reduction goals you have set?

Goal achievement

23.10. What emissions reductions, energy savings and associated cost savings have been achieved to date as a result of the plan and/or the activities described above? Please state the methodology and data sources you have used for calculating these reductions and savings.

23.11. What investment has been required to achieve the emissions reductions and energy savings targets or to carry out the activities listed in response to question 23.8 above and over what period was that investment made?

Performance

Goal planning and investment

Electric utilities should read the table in question EU3 for giving details of forecasted emissions.

23.12. What investment will be required to achieve the future targets set out in your reduction plan or to carry out the activities listed in response to question 23.8 above and over what period do you expect payback of that investment?

23.13. Please estimate your company's future Scope 1 and Scope 2 emissions for the next five years for each of the main territories or regions in which you operate or provide a qualitative explanation for expected changes that could impact future GHG emissions.

23.14. Please estimate your company's future energy use for the next five years for each of the main territories or regions in which you operate or provide a qualitative explanation for expected changes that could impact future GHG emissions.

23.15. Please explain the methodology used for your estimations and any assumptions made.

24. Planning: (CDP6 Q3(c))

24.1. How do you factor the cost of future emissions into capital expenditures and what impact have those estimated costs had on your investment decisions?

Governance

25. Responsibility: (CDP6 Q4(a))

25.1. Does a Board Committee or other executive body have overall responsibility for climate change?

If not:

25.2. Please state how overall responsibility for climate change is managed and indicate the highest level within your company with responsibility for climate change.

If so, please provide the following information:

25.3. Which Board Committee or executive body has overall responsibility for climate change?

25.4. What is the mechanism by which the Board or other executive body reviews the company's progress and status regarding climate change?

26. Individual Performance: (CDP6 Q4(b))

26.1. Do you provide incentives for individual management of climate change issues including attainment of GHG targets?

If so:

26.2. Are those incentives linked to monetary rewards?

26.3. Who is entitled to benefit from those incentives?

27. Communications: (CDP6 Q4(c))

27.1. Do you publish information about the risks and opportunities presented to your company by climate change, details of your emissions and plans to reduce emissions?

If so, please indicate which of the following apply and provide details and/or a link to the documents or a copy of the relevant excerpt:

27.2. The company's Annual Report or other mainstream filings.

27.3. Voluntary communications (other than to CDP) such as Corporate Social Responsibility reporting.

28. Public Policy: (CDP6 Q4(d))

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

Appendix 3

Glossary of Key Terms

Glossary of Key Terms

BS	Bharat Stage Emission Norms
CDP	Carbon Disclosure Project
CDM	Clean Development Mechanism
CDSB	Climate Disclosure Standards Board
CER	Certified Emissions Reduction
CNG	Compressed Natural Gas

CFL	Compact Fluorescent Lamps
CO_2-e	Carbon Dioxide Equivalent
COP 15	United Nations Climate Change Conference 2009 in Copenhagen (15th Conference of Parties)
CPRS	Carbon Pollution Reduction Scheme
ECBC	Energy Conservation and Building Codes
ETF	Exchange Traded Fund
EU-ETS	EU Emissions Trading Scheme
FRP	Fibre Reinforced Plastic
GHG	Greenhouse Gases
GOI	Government of India
ISO	International Organisation for Standardization
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Initiative
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design – US Construction Standards
LPG	Liquefied Petroleum Gas
NAPCC	National Action Plan for Climate Change
MNC	Multinational Company
MoP	Ministry of Power
MT	Metric Tonnes
SBU	Small Business Unit
UNFCC	United Nations Framework Convention on Climate Change

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