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Carbon Disclosures: Comparability, the Carbon Disclosure Project and the Greenhouse Gas Protocol

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Abstract
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Keywords
Carbon regulation, climate change, carbon accounting, carbon disclosures

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Carbon Disclosures: Comparability, the Carbon Disclosure Project and the Greenhouse Gas Protocol

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Abstract

Corporate carbon disclosures have become increasingly commonplace and are often presented as a useful voluntary mechanism for internal and external decision making. The production of the data is said to assist corporations position themselves strategically in terms of the carbon risks and opportunities they may face. External to the firm, carbon disclosures hold the promise of assisting capital allocation decisions that are 'carbon responsible'. It is claimed that the process of disclosure can sensitise the market to global environmental problems such as climate change. In order to consider these claims, the broad purpose of this paper is to question whether the voluntary information that is produced can live up to its expectations and provide a meaningful basis for climate change related decision making. To that end, this exploratory study examines the carbon disclosures of Australasian mining companies over three years in compliance with a voluntary carbon disclosure regime – the Carbon Disclosure Project (CDP) – and assesses those disclosures with respect to comparability, an important criterion for information usefulness.

Keywords: Carbon regulation, climate change, carbon accounting, carbon disclosures

JEL Classification: M40

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Introduction

> Climate change is an issue that affects a wide range of firms around the world, and which has implications beyond the ‘‘pure’’ environmental dimensions, being linked to energy security and efficiency, and the fate of the planet more broadly. It has become a topic of societal, regulatory and corporate attention in recent years, and has been brought to the fore as an ‘‘inconvenient truth’’ that requires a concerted policy approach (Kolk & Pinske 2008, p.1374).

Researchers have been slow to examine the relationship between climate disclosures, the stated motivations and desired outcomes of these disclosures, and the potential for climate change abatement (see Kolk, Levy & Pinske, 2008 for a notable exception) In part, this is because these kinds of disclosures are relatively new and studying climate disclosures has been made difficult because firms have adopted a number of different approaches.

Although some form of mandatory regulation is inevitable, corporations have been voluntarily disclosing information about their carbon emissions for some time et al.2008; Pfeifer & Sullivan 2008). The practices that have been adopted assume that carbon disclosures will assist resource and capital allocation decisions enabling the ‘reformed’ market to continue to operate with a new sensitivity to climate. Although a market oriented approach to climate change has dominated public discussion, and significantly underpins the production of climate disclosures, this has not been entirely uncontroversial (Andrew & Cortese 2008, 2009; Lohmann 2008, 2009). Ranganathan (1998), for example, conducted a review of over 50 market-based sustainability measurement initiatives on behalf of the World Resources Institute. She documented the difficulty of developing agreed upon corporate sustainability indicators, and questioned the effectiveness of the indicators in driving any real change unless they could be clearly tied to business and financial goals (Ranganathan 1998).

There is mounting pressure to resolve the climate crisis through global initiatives such as the Kyoto Protocol and COP15 (United Nations Climate Change Conference Copenhagen 2009; United Nations Framework Convention on Climate Change 1997). It is hoped that these initiatives can be designed to distribute the risks and opportunities associated with a global shift towards forms of economic and social organisation that produce less greenhouse gases. Given the complexity of climate science and the impact this has on global welfare, the public policy challenge presented by global warming is enormous and policies around carbon minimisation have been slow to emerge across the globe (Pfeifer & Sullivan 2008).

In 2009, the UN’s Climate Change Conference held in Copenhagen (COP15) was attended by thousands of delegates, journalists, campaigners, and celebrities to discuss future commitments to carbon minimisation and climate change abatement. Unfortunately, the conference could only produce weak commitments to climate targets and mandatory paths to the management of carbon are still uncertain. Whilst these high profile international deals are being brokered, many corporations have taken actions into their own hands and have been building significant reporting coalitions and participating in many voluntary carbon related programs (Kolk et al. 2008).

Given the enormous amount of climate change related information within the public domain, we have narrowed our investigation to offer some preliminary insights in carbon disclosure practices. This study examines the carbon related data produced by Australasian mining companies in compliance with the Information Request sent to them by the CDP over a three year period. The paper focuses on the underlying methods adopted by these firms to produce their carbon disclosures and the comparability of these disclosures as a basis for meaningful decision making. A number of challenges to the decision usefulness of the information derived from the application of these methods have been identified. In particular, the underlying method used to account for greenhouse gas emissions varies considerably

between companies making the information difficult to interpret, understand and compare. This paper begins with a discussion of the CDP.

The Carbon Disclosure Project

> We further (our) mission by harnessing the collective power of corporations, investors and political leaders to accelerate unified action on climate change (Carbon Disclosure Project 2010).

In 2000, the CDP was launched in Britain with a mission to gather as much climate related data from firms and place it in the public domain to enable climate related investor decisions and to encourage climate related management decisions within the responding firms (CDP 2010). The CDP gathers this data on behalf of institutional investors and promotes itself as an "independent not-for-profit organisation holding the largest database of primary corporate climate change information in the world" (CDP 2010). The CDP receives 30 percent of its funding from corporate sponsorship, with the remainder of its funding coming from special project resources (29 percent), grants and donations (18 percent), international partnerships (15 percent), memberships and other sources (8 percent) (CDP 2010). The details of these funding arrangements have been explored elsewhere (Andrew & Cortese 2008) with similar organisations being active in the funding and constitution of this and other voluntary disclosure regimes that relate to carbon. For instance, the CDP is closely aligned with the Climate Disclosure Standards Board, which is a consortium of business and environmental organisations that are working to develop a global framework that can be used by corporations to disclose climate-related information (CDP 2010; CDSB 2009).

To gather information to contribute to the CDP database and further the mission of the Climate Disclosure Standards Board, the CDP sends out an annual Information Request to companies across the globe asking for information about greenhouse gas emissions, emission reduction targets, climate change risk and management strategies, and opportunities for improvements (CDP 2008). The first information request was distributed by the CDP in 2003 to 500 organisations. By 2009, that number had grown to 2,500 organisations across 60 countries. The institutional investors that rely on the CDP to collect climate-related data to supplement their research has increased from 35 to over 500 and their total assets under management now exceed US$64 trillion (CDP 2010). Over the last 12 months the CDP began to make requests on behalf of procurers to ascertain the carbon impact of their supply chain and to encourage awareness of carbon related sensitivities in this process.

According to the CDP, the response process benefits both reporting firms and users of the information. The CDP claim that reporters benefit because it provides a means through which companies can analyse greenhouse gas emissions and internal energy policies. It is also promoted as an opportunity for identifying strategies for the management and reduction of emissions. The data should then benefit investors by providing information about company practices and initiatives in relation to climate change. As a result, the CDP has the capacity to influence emerging mandatory regulatory regimes and whilst raising the profile of climate change within corporations. In this context, it is claimed that the repository is a source of significant information that can be used by policymakers, educators, academics, investors and creditors. In support of this approach, Fagatto and Graham (2008) have argued that

> a carefully constructed transparency system would mobilize the power of public opinion, inform choice, and help markets work better now...the collective effect of new information and changed choices would create incentives for managers to take feasible steps toward reducing greenhouse gas emission sooner rather than later. (Fagatto & Graham 2008, p75)

However, the relationship between disclosure and decision making from the point of view of an investor, NGO or policy adviser may not be so straight forward. It is based on a series of assumptions about the role of disclosure, the nature of the disclosures and the literacy of the users. Because the CDP is a voluntary program, companies can respond as they see fit. They can provide all or some of the requested information, or they can decline to participate. So although the CDP has been commended for the scale of its operation, the detail is somewhat patchier (Kolk et al. 2008). As Kolk et al. (2008) point out

> (t)hese chains of causation may not materialise however; reducing carbon emissions may not generate demonstrable financial gains, investors might find the information difficult to interpret and NGOs might not find disclosure reports particularly useful in their climate change strategies. (Kolk et al. 2008, p.727)

Certainly the scale of CDP data cannot be disputed, but its impact is still not clear. However, it is still the only organisation that collects carbon related data from firms across the globe directly from the companies themselves and it is the largest repository of greenhouse gas data, making it internationally significant and influential. It is clear from these figures that the project has grown enormously and the volume of investors requesting carbon related data is a strong indication of the significance the information is seen to play in the capital allocation process. If we accept for the purposes of this paper that the information being made available through the CDP has the capacity to influence decisions, decision makers need to feel confident the data can be relied on and is sufficiently robust to enable good decisions (Kolk & Pinske 2008).

To improve the quality of the responses and standardise reporting to facilitate comparison of data across and within sectors, CDP5 (the fifth round of data collection, published in 2007), asked companies to disclose the methodologies used to produce data within their responses (CDP 2008). Up until this time, reporting entities did not need to disclose the reporting method they had adopted so the information could not be compared or evaluated with any rigour because the basis of reporting was not transparent. The CDP5 questionnaire, however, recommended the use of the Greenhouse Gas Protocol to report greenhouse gas emissions (CDP 2008), but this was not a compulsory requirement. The Greenhouse Gas Protocol is an international accounting tool to assist with understanding, quantifying, and managing greenhouse gas emissions. As such, it fits neatly with the disclosure mission of the Climate Disclosure Standards Board (Andrew & Cortese 2008) and the data gathering mission of the CDP (Andrew & Cortese 2009). In addition to this, all reporting firms were asked to disclose the underlying methodology used to report carbon so that users had a better understanding of the underlying processes. In order to further this exploration, it is important to consider these underlying reporting methodologies.

CDP Disclosures - Greenhouse Gas Methodologies

> The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions (GHG Protocol 2010).

For the purposes of this study, we have chosen to look at the data collected by CDP5, CDP6, and CDP7, with CDP5 being the first year that greenhouse gas measurement methodologies were required to be disclosed. The information requests, distributed in the form of questionnaires, were completed by companies and submitted to the CDP and, if companies elected to make the information publicly available, the information was placed online for users to access. The completed questionnaires were typically between 15 and 30 pages long

and, although they followed the same format, there was no simple way of grasping the volumes of information contained in the reports. The CDP produces annual reports which summarise responses according to various categories, such as the Global 500 report, the Europe report, and various country and industry reports including Australia and New Zealand Report and the Energy Sector Report. However, these reports are highly aggregated and do not provide detailed analysis at an industry specific level. The CDP developed a software package, CORE, to address this problem. CORE is a database-style querying tool which helps to narrow search criterion and facilitate data collation. We used the CORE software to manage and analyse the CDP data.

The authors chose to look at the data produced by the metals and mining sub-sector as the disclosure practices and strategies will vary amongst industries and it is notoriously difficult to compare investments across sectors let alone greenhouse gas efficiencies. In order to further delimit the boundaries of the sample, we considered firms within only the Australasian geographic region. The CORE analysis tool sub-divided data into continents, one of which was Australasia, and the countries classified within this region that also had a presence in the metals and mining industry sub-sector were Australia, India, Japan, Taiwan, Papua New Guinea, China, and Indonesia. It is recognised that greenhouse gas regulations and practices are likely to vary across national jurisdictions, and with this in mind the researchers could have selected Australia as the country for analysis. However, the CDP promotes itself as a "global climate change reporting system" that "harmonises climate change data for organisations around the world (to) develop international carbon reporting standards" (CDP 2010). In keeping with the global focus of the CDP, the researchers decided on a broader geographic region, and a narrower industry segment. Initially, the research sought to determine which companies responded to the information requests, which methodology they used to report their greenhouse gas emissions, and whether their reported figures were externally verified. A summary of responses is provided in Table 1.

Table 1

Summary of responses to information requests, by country

Country	Sent Information Request	Response publicly available	Declined to participate	No response
Australia	24	8	5	11
Taiwan	2	2		
Japan	4	3		1
India	8	4		4
PNG	1	1		
China	6		3	3
Indonesia	1			1
Total:	46	18	8	20

As shown in Table 1, 46 companies were sent an information request in one or more of the three collection periods. Many of the 46 companies in the sample responded to more than one of the information requests. Therefore, in sum, 67 requests for information were sent to companies classified in the materials and mining sub-sector from the Australasian region in CDP5, CDP6, and CDP7. A full list of companies that received information requests, and their response states, is shown in the appendix to this paper. Of the 67 information requests sent, 38 responses were received (57 percent). In terms of the company response rate, of the

46 companies surveyed over each of the collection periods, only 18 provided a response to the CDP (39 percent).

Responses were received from companies based in Australia, Taiwan, Japan, India, PNG, and China.[3] Of the 18 companies that did respond, only 13 disclosed information regarding greenhouse gas emissions, with the remaining 5 providing no emissions information. Therefore of 46 companies surveyed, only 13 provided emissions information that could be used for comparison and decision making. This in itself casts doubt on the comparability and relevance of the CDP data.

One of the problems with early CDP data was that it lacked uniformity and comparability. This problem has been compounded by changes in CDP method and classifications. The format of the questionnaire that is used to gather data from companies has changed from year to year as specific information needs evolve, with questions added and omitted as considered necessary. For example, more recent CDP information requests have included questions about the European Union's Emissions Trading Scheme (Kolk et al. 2008). The CORE analysis software enabled CDP5 companies to be categorised into the "mining" sector, whereas in the CDP7 round this classification had disappeared, frustrating industry and sub-sector comparisons.

As noted, until the fifth round of data collection, CDP5, responding companies were not required to disclose the way in which they measured the greenhouse gas emissions reported to CDP. To move towards the aim of high quality standardised information, CDP5 required the disclosure of methodologies used to calculate greenhouse gas emissions. Although not compulsory, the CDP questionnaire directed respondents to use the Greenhouse Gas Protocol for emissions disclosures to encourage methodological consistency and transparency (Andrew 2007). However as shown in Table 2, the thirteen companies that provided information under this section used many different methodologies to determine greenhouse gas emissions. In fact, the only methodology consistently applied was the Japanese Global Warming Countermeasures Law, which was applied by all three Japanese companies that responded to this section. The GHG Protocol was used by some of the disclosing organisations in conjunction with other regulatory schemes, and certainly frameworks such as the Australian National Greenhouse and Energy Reporting (Measurement) Determination Regulations are based on the GHG Protocol so it will have had an underlying influence. This finding is consistent with that of Kolk et al (2008) who analysed the CDP5 responses of the Financial Times 500 companies and also found that the GHG Protocol is often used in combination with another measurement methodology (Kolk et al. 2008). However the level of adoption of the GHG Protocol that would be required to achieve true comparability seems a long way off.

Also shown in Table 2 is the respondents' verification of greenhouse gas emissions data and methodology. The majority of respondents in our sample undertook external verification of their greenhouse gas data, although in most cases this verification was part of the annual review of company sustainability reports.

[3] A full list of companies sent an information request across each of the three CDP requests and their response status is provided in the appendix to this paper. Given that the focus of this paper is the comparability of information disclosed under the CDP, the remainder of the paper will focus on those companies that provided this information in response to the CDP requests.

Table 2
Greenhouse Gas Emission Reporting Methodology Adopted, by company

Company name	**Country**	**Request year**	**Response year**	**Methodology adopted**	**External verification**
Alumina Ltd	Australia	CDP5, 6, 7	CDP5, 6, 7	GHG Protocol; Aluminium industry sector protocol.	Yes
China Steel	Taiwan	CDP6, 7	CDP6, 7	GHG Protocol and ISO 14064-1	Not specified
Dowa Holdings Co., Ltd.	Japan	CDP7	CDP7	Japan's Global Warming Countermeasures Law	Not specified
Hindustan Zinc	India	CDP6	CDP6	Carbon emission factors published by UNFCCC and Central Electricity Authority	Yes
Iluka Resources Ltd	Australia	CDP5, 6, 7	CDP5, 6, 7	Australian National Greenhouse and Energy Reporting (Measurement) Determination Regulations	No
Independence Group NL	Australia	CDP6,7	CDP7	Australian Greenhouse Office Factors and Methods Workbook	No
Lihir Gold Ltd	Papua New Guinea	CDP5, 6, 7	CDP6, 7	Rio Tinto Guidelines for Greenhouse and Energy and the Australian National Greenhouse Accounts factors	Yes
Mitsubishi Materials	Japan	CDP5, 6, 7	CDP5, 6, 7	Japanese Global Warming Countermeasures Law	No
Newcrest Mining Ltd	Australia	CDP5, 6, 7	CDP5, 6, 7	GHG Protocol	Yes
Oxiana Ltd	Australia	CDP5,6	CDP5, 6	Australian Greenhouse Office's Factors and Methods Workbook	
Sesa Goa	India	CDP5, 6, 7	CDP5, 6, 7	Carbon emission factors published by UNFCCC and Central Electricity Authority	Yes
Sterlite Industries	India	CDP6,7	CDP6, 7	India GHG Inventory Program	Yes
Sumitomo Metal Mining	Japan	CDP5, 6, 7	CDP5, 6, 7	Japan's Global Warming Countermeasures Law	Yes

CDP Disclosures - Greenhouse Gas Emissions

The disclosures required in the CDP information requests needed to be separated in to greenhouse gas emissions[4] and then further into Scope 1 and Scope 2 activities and global and Annex B countries. The concept of "scope" is used to delineate between direct and indirect emissions sources, to improve transparency, and provide a means for recognising differences between climate policies and business goals. Three "scopes" are defined for greenhouse gas accounting and reporting purposes. Scope 1 emissions relate to direct greenhouse gas emissions that occur from sources that are owned or controlled by the company, for example from combustion in owned or controlled boilers or furnaces (World Business Council for Sustainable Development/World Resources Institute 2004). Scope 2 emissions relate to greenhouse gas emissions from the generation of purchased electricity consumed by the company. Scope 3 is an optional reporting category that allows other indirect emissions to be reported. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company, for example employee business travel or outsourced business activities (World Business Council for Sustainable Development/World Resources Institute 2004). Given that Scope 3 activities were an optional reporting category, we have chosen to exclude them from this paper.

Table 3

Scope 1 and 2 emissions data reported across CDP information requests, by company

Company name	**Country**	**Total Scope 1 Global Activity, CO2e emitted**			**Total Scope 2 Global Activity, CO2e emitted**		
		CDP5-2007	**CDP6-2008**	**CDP7-2009**	**CDP5-2007**	**CDP6-2008**	**CDP7-2009**
Alumina Ltd	Australia	3,606,001	3,426,873	3,359,565	3,054,521	3,257,805	3,279,695
China Steel	Taiwan			23,548,799			1,237,340
Dowa Holdings Co., Ltd.	Japan			594,000			652,000
Iluka Resources Ltd	Australia			943,775	1,765,000		452,233
Independence Group NL	Australia						50,000
Mitsubishi Materials	Japan	8,207,000	8,731,600	12,248,000	378,000	431,600	1,738,000
Newcrest Mining Ltd	Australia		675,476	782,611			713,615
Oxiana Ltd	Australia	14,262	145,885		253,306	194,258	
Sesa Goa	India			508,339			29,096
Sterlite Industries	India		380,631	350,235		158,171	148,283
Sumitomo Metal Mining	Japan			1,137,000			891,000

Note: As shown in Table 2, Hindustan Zinc (India) indicated that they measured GHG emissions using the carbon emission factors published by UNFCCC and Central Electricity Authority, however the provided no emissions data to the CDP

[4] The GHG Protocol Corporate Standard covers the accounting and reporting of the six greenhouse gases covered by the Kyoto Protocol – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

According to a matrix given as an example in the CDP questionnaires, emissions are separated according to global emissions and emissions for Annex B Countries. Annex B Countries are defined in the Kyoto Protocol as developed countries that agreed to targets for greenhouse gas emissions in the first commitment period, 2008 to 2012. Across the three data collections there is an enormous amount of emissions data so for the purposes of this paper, Table 3 presents the total global emissions for scope 1 and scope 2 activities for each of the companies that responded to this section.

This data is supposed to assist institutional investors when making decisions about resource allocation by including firms' greenhouse gas position alongside other financial information that is already in the public domain. However, in contrast to financial information, which has long been used to make economic decisions, this information is very new to most people making investment decisions, and it is very new to broader user groups who may be interested in this type of information generally. The data is expressed in terms of metric tonnes of carbon emitted, a denomination that, to the lay person and even the institutional investors to whom the information is aimed, would be poorly understood. Kolk et al (2008, p.741) state:

> As to the contents of firms' responses to the CDP… it should be noted that the comprehensibility of carbon disclosures is still questionable. The frequent lack of disclosure of types and meaning of emissions data, and of reliability checks, means that it is very difficult to get insight into reported emissions, let alone firms' actual achievements. Even experienced analysts of climate change and emissions data find it very hard to make sense of firm reporting as part of CDP (Kolk (Kolk et al. 2008, p.741)

Although carbon reporting has been "portrayed as parallel, even integral to financial reporting, drawing from its legitimacy and regulatory mandate" (Kolk et al. 2008, p.736) the framing of the information produced is far less rigorous than comparable financial disclosures. For it to be useful at least for resource allocation decisions, it needs to be assessed against the qualitative characteristics that we have agreed should underpin information for those types of decisions (Prado-Lorenzo, Gallego-Alvarez, Garcia-Sanchez 2009). Although the CDP has been successful in promoting significant response rates the actual information that is being produced has not been particularly useful to investors, NGOs or policy makers (Kolk et al. 2008).

As it stands, it is very difficult to determine the validity of CDP data. The fact that this data is produced without an emphasis on comparability means that it is not possible to assess the performance of one company in relation to another; the fact that the CDP questionnaire has changed from year to year means that it is difficult to identify emerging trends within the same company over time (Hesse 2006; Kiernan 2008; Kolk et al. 2008). Comparability has been cited as the "key missing ingredient" (Ranganathan 1998, p.2) in environmental and social reporting and this is certainly true in the case of CDP disclosures.

Conclusion

This exploratory research has examined the CDP disclosures of metals and mining companies operating in the Australasian region with a view to determining the comparability of the information provided. We found that, although the CDP has tried to improve standardisation of responses by directing companies to the GHG Protocol for measuring and reporting emissions, those companies that did respond used a combination of methods for their disclosures. This presented obvious difficulties regarding the comparability of the information, which was compounded by the large number of companies that either did not respond at all to the CDP or chose not to provide emissions data.

Although in this study we have found that the CDP information is not comparable, and by extension, limited in its usefulness, this does not mean the work of the CDP is unimportant. The CDP has increased the amount of carbon related corporate information in the public domain. In fact, its size and scope is impressive holding out the promise of widespread climate change related allocation decisions, disciplining the market towards sustainable futures and carbon sensitivities. As noted by one commentator "a lot of information is available now" (Hesse 2006). The opportunities for future research mushroom alongside the growing CDP information repository. Country- and industry-based research on CDP data is relatively absent from the literature, as is in-depth case studies of corporate responses to climate change measurement schemes. Further, as the limitations of CDP data continue to be documented, there will be opportunities to explore more deeply the reasons why companies choose not to respond to information requests, and whether and how the many measurement schemes can converge to result in more comparable and user-friendly information.

References

Andrew, J 2007, 'The Carbon Disclosures Project: Accounting information beyond 2007', *Asia Pacific Journal of Environmental Accountability*, vol.13, no.2, pp6-10.

Andrew, J & Cortese CL 2008, 'Corporate strategy and the Climate Disclosures Standards board', in Proceedings of the 7th Australian Conference on Social and Environmental Accounting Research, 7-9 December, Adelaide, Australia.

Andrew, J & Cortese, CL 2009, 'Carbon reporting and the Greenhouse Gas Protocol', in Proceedings of the SiNET Conference, 26-28 September, Wollongong, Australia.

Carbon Disclosure Project 2010, *About the Carbon Disclosure Project*, accessed 23 April, 2010, http://www.cdproject.net/index.asp.

CDP 2008, *CDP6 Questionnaire*, accessed 19/03/2008, http://www.cdproject.net/questionnaire.asp.

CDP 2010, *About the Carbon Disclosure Project*, accessed 23/04/2010, http://www.cdproject.net/index.asp.

CDSB 2009, *About CDSB*, accessed 22/09/2009, http://www.cdsb-global.org/.

Fagatto, E & Graham, M 2008, 'Full disclosure: using transparency to fight climate change', *Issues in Science and Technology*, vol.23, no.4, pp73-79.

GHG Protocol 2010, *About Us*, accessed 27/11/2010, http://www.ghgprotocol.org/.

Gray, R 2010, 'Is accounting for sustainability actually accounting for sustainability…and how would we know? An exploration of narratives of organisations and the planet', *Accounting, Organizations and Society*, vol.35, pp47-62.

Hesse, A 2006, *Climate and corporations - Right answers or wrong questions?*, accessed 26/11/2010, http://www.sd-m.de/files/Hesse_Climate_and_Corporations_CDP.pdf.

Kiernan, M 2008, 'Climate change and investment risk. Presentation to*: The Amsterdam Global Conference on Sustainability and Transparency*, accessed 26/11/2010, http://www.globalreporting.org/NR/rdonlyres/C4B276F8-BDAA-4AD1-BBA0-CF09016121C3/0/CarbonDisclosureMatthewKiernan.pdf.

Kolk, A, Levy, D & Pinske, J 2008, 'Corporate responses in an emerging climate regime: the institutionalisation and commensuration of carbon disclosure', *European Accounting Review*, vol.17, no.4, pp719-745.

Kolk, A & Pinske, J 2008, 'A perspective on multinational enterprises and climate change: learning from 'an inconvenient truth'?', *Journal of International Business Studies*, vol.39, pp1369-1378.

Pfeifer, S & Sullivan, R 2008, 'Public policy, institutional investors and climate change: a UK case-study', *Climate Change*, vol.89, no.3-4, pp245-262.

Prado-Lorenzo, J.M., Gallego-Alvarez , I. & Garcia-Sanchez, M 2009, 'Stakeholder engagement and corporate social responsibility reporting: the ownership structure effect, *Corporate Social - Responsibility and Environmental Management*, vol.16, no.2, pp. 94-107.

Ranganathan, J 1998, *Sustainability rulers: measuring corporate environmental and social performance*, accessed 25/11/2010, http://www.wri.org/publication/sustainability-rulers-measuring-corporate-environmental-social-performance.

United Nations Climate Change Conference Copenhagen 2009, *COP15*, accessed 16/06/2010, http://unfccc.int/meetings/cop_15/items/5257.php.

United Nations Framework Convention on Climate Change 1997, *Kyoto Protocol*, accessed 16/06/2010, http://unfccc.int/kyoto_protocol/items/2830.php.

World Business Council for Sustainable Development/World Resources Institute 2004, *The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard (Revised Edition)*, accessed August 24, 2008.

Appendix 1

Companies sent an Information Request across each of the three CDP requests & the response status

Company name	Country	Request year	No. of requests	Response year	No. of responses
Alumina Ltd	Australia	CDP5, 6, 7	3	CDP5, 6, 7	3
Aluminum Corp of China	China	CDP6	1	Declined to participate	0
Bumi Resources	Indonesia	CDP6	1	No response	0
China Molybdenum Co.,Ltd	China	CDP6	1	No response	0
China Steel	Taiwan	CDP6, 7	2	CDP6, 7	2
China Steel	Taiwan	CDP6	1	CDP6	1
Coeur D'Alene Mines Corporation	Australia	CDP6	1	Declined to participate	0
Compass Resources NL	Australia	CDP6	1	No response	0
Consolidated Minerals Ltd	Australia	CDP6	1	No response	0
Dowa Holdings Co., Ltd.	Japan	CDP7	1	CDP7	1
Energy Resources of Australia Ltd	Australia	CDP6, 7	2	CDP6, 7	2
Fortescue Metals Group Ltd	Australia	CDP6	1	Declined to participate	0
Hindustan Copper	India	CDP6	1	CDP6	1
Hindustan Zinc	India	CDP6	1	CDP6	1
Hunan Nonferrous Metals Corp Ltd	China	CDP6	1	CDP6	1
Iluka Resources Ltd	Australia	CDP5, 6, 7	3	CDP5, 6, 7	3
Independence Group NL	Australia	CDP6, 7	2	CDP7	1
Jiangxi Copper Company Limited	China	CDP6	1	Declined to participate	0
Jubilee Mines NL	Australia	CDP6	1	Declined to participate	0
Kagara Ltd	Australia	CDP6	1	No response	0
Lihir Gold Ltd	PNG	CDP5, 6, 7	3	CDP6, 7	2
Lingbao Gold Company Limited	China	CDP6	1	Declined to participate	0
MacMahon Holdings Ltd	Australia	CDP6	1	No response	0
Minara Resources Ltd	Australia	CDP6	1	No response	0
Mitsubishi Materials	Japan	CDP5, 6, 7	3	CDP5, 6, 7	3
Mitsui Mining & Smelting	Japan	CDP6	1	No response	0
MMTC	India	CDP6	1	No response	0
Mount Gibson Iron Ltd	Australia	CDP6	1	No response	0
Murchison Metals Ltd	Australia	CDP6	1	No response	0

National Aluminium Co.	India	CDP6	1	No response	0
National Mineral Development Corp	India	CDP6	1	No response	0
Newcrest Mining Ltd	Australia	CDP5, 6, 7	3	CDP5, 6, 7	3
Neyveli Lignite Corporation	India	CDP6	1	No response	0
Oxiana Ltd	Australia	CDP5,6	2	CDP5, 6	2
Pan Australian Resources Ltd	Australia	CDP6	1	No response	0
Perilya Ltd	Australia	CDP6	1	Declined to participate	0
Sally Malay Mining Ltd	Australia	CDP6	1	No response	0
Sesa Goa	India	CDP5, 6, 7	3	CDP5, 6, 7	3
Sims Metal Management Limited	Australia	CDP5, 6	2	CDP5, 6	2
Sino Gold Mining Ltd	Australia	CDP6	1	No response	0
Sterlite Industries	India	CDP6,7	2	CDP6, 7	2
Straits Resources Limited	Australia	CDP6	1	Declined to participate	0
Sumitomo Metal Mining	Japan	CDP5, 6, 7	3	CDP5, 6, 7	3
Western Areas NL	Australia	CDP6	1	No response	0
Zijin Mining Group (H)	China	CDP6	1	No response	0
Zinifex Ltd	Australia	CDP5,6	2	CDP5, 6	2
Total			**67**		**38**