EarthTrends Featured Topic:

Accounting for Business Greenhouse Gas Emissions

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During the last decade concern has grown over the continued rise in anthropogenic greenhouse gas emissions (GHGs) and the associated risks of climate change. Climate models predict that floods, droughts, and severe storms are likely to become more frequent and severe, costing agriculture harvests, economic progress, and lives. The most prominent international effort to date to reduce GHG emissions is the Kyoto Protocol, an international treaty signed in 1997, which specified national GHG targets for countries that contribute the largest amount of GHGs (Annex I countries). As of November 2003, 103 countries, representing 43.9% of 1990 CO_2 emissions have signed. If ratified, the participating industrialized countries will be required to meet GHG emissions reduction targets between 2008 and 2012.

Business, as a major contributor to global GHG emissions, will need to play a significant role in helping countries achieve their reduction targets under the Kyoto Protocol. Even if countries like Australia, Russia, and the U.S. do not ratify the Protocol, businesses are being encouraged to take action to reduce GHG emissions - albeit on a voluntary basis. For many businesses, compiling a comprehensive inventory of their GHG emissions is the first key step in developing an effective GHG management and reduction strategy. If developed properly, a GHG inventory will improve the company's understanding of its GHG emissions profile and thereby its potential GHG liability or "exposure" in a carbon constrained economy.

Why Climate Change Matters to Business

A company's GHG exposure is increasingly becoming a management issue in light of heightened scrutiny by reinsurers, climate related shareholder resolutions, and the emergence of environmental regulations/policies designed to reduce GHG emissions. In the context of future GHG regulations, significant GHG emissions in a company's value chain may result in increased costs (upstream) or reduced sales (downstream), even if the reporting organization itself is not directly subject to regulations. Thus, investors may view significant indirect emissions up or downstream of a company's operations as potential liabilities that need to be managed and reduced.

In an effort to curb GHG emissions from business, market-based approaches are emerging in some parts of the world. These typically take the form of emissions trading programs that set GHG targets or caps on participating companies. Companies facing high costs in reducing their own GHG emissions can purchase allowances or credits from another party, to meet its own target. Trading programs are being implemented on both a mandatory and voluntary basis. The forthcoming European Union community wide GHG Emissions Allowance Trading Scheme will require each Member State to impose binding caps on emissions of carbon dioxide (CO_2) from certain industrial installations. Participation in the UK Emissions Trading Scheme and the Chicago Climate Exchange® is voluntary, but once companies have elected to join the targets are binding and penalties exist for non-compliance. While trading programs typically focus on business operations in a specified geographical region, some companies are setting voluntary GHG reduction targets (see Figure 1) for their global operations. These targets may be set independently by the company or as part of a formal program such as the WWF Climate Savers, Business Leaders Initiative on Climate Change, and EPA Climate Leaders program.

In order to participate in these mandatory and voluntary programs, businesses need to first establish a robust and credible GHG inventory system for accounting and reporting their GHG emissions. Just like financial reporting, both business and external stakeholders benefit if these GHG accounting systems are based on common standards. For business, it reduces costs if their accounting system is capable of meeting different internal and external information requirements. For external stakeholders, it improves the consistency, transparency and understandability of reported information, making it easier to track and compare progress over time. For companies with global operations, the standardization of GHG accounting rules across countries is important in order to reduce the

cost of responding to an array of different domestic policies.

Greenhouse Gas Protocol Initiative: Accounting and Reporting Standards for Business

The Greenhouse Gas Protocol Initiative (*GHG Protocol*) is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI), a US-based environmental NGO, and the World Business Council for Sustainable Development (WBCSD), a Geneva-based coalition of 165 international companies. Launched in 1998, *GHG Protocol's* mission is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards for business and to promote their adoption by businesses and policy-makers alike.

A first edition of the GHG Protocol Corporate Accounting and Reporting Standard was published in October 2001, with a second edition scheduled for release in January 2004. The standard was designed to serve multiple business goals (See Box 1) and addressees a range of accounting issues, such as:

- Defining GHG accounting and reporting boundaries relative to upstream and downstream activities in the value chain (see box 2);
- Accounting and consolidating emissions from partially owned entities such as joint ventures;
- Calculating emissions from specific sources;
- Tracking performance over time in a dynamic business environment (e.g., mergers, acquisitions and divestitures etc.);
- Setting GHG reduction targets; and
- Publicly reporting GHG emissions.

The GHG Protocol corporate standard has been widely adopted around the globe, with more than 100 companies using it to compile a GHG emissions inventory (see Box 3). The standard has been used as the basis for the accounting and reporting systems of numerous climate programs, including: US EPA's Climate Leaders program, WWF's Climate Savers program, California Climate Action Registry, World Economic Forum Global GHG Registry, the UK's emissions trading scheme, Chicago Climate Exchange, and the French REGES Protocol. GHG Protocol has also begun work on a new standard addressing the quantification of GHG mitigation projects that will be used as offsets or credits in trading programs.

Taking the Lead

Figure 1: Examples of Voluntary GHG Reduction Targets

	COMPANY	GHG Reduction Target
1	Alcoa	Reduce GHGs by 25% from 1990 levels by 2010, and 50% from 1990 levels over same period, if inert anode technology succeeds.
2	BP	Hold net GHGs stable at 1990 levels through 2012.
3	Dupont	Reduce GHGs by 65% from 1990 levels by 2010.
4	Entergy	Stabilize CO2 from U.S. generating facilities at 2000 levels through 2005.
5	Ford	Reduce CO2 by 4 percent over 2003-2006 timeframe based upon average 1998-2001 baseline as part of Chicago Climate Exchange.
6	Intel	Reduce PFCs by 10% from 1995 levels by 2010.
7	Johnson & Johnson	Reduce GHGs by 7% from 1990 level by 2010, with interim goal of 4% below 1990 level by 2005.
8	Polaroid	Reduce CO2 emissions 20% below its 1994 emissions by year end 2005; 25% by 2010.
9	Royal Dutch/Shell	Manage GHG emissions so that they are still 5% or more below the 1990 baseline by 2010, even while we grow our business.
10	Transalta	Reduce GHGs to 1990 levels by 2000. Achieve zero net GHGs from Canadian operations by 2024.

Source: WRI 2003.

Looking Ahead

Irrespective of Russia's decision regarding ratification of the Kyoto Protocol, the European Union

trading program will proceed and major emitters of CO_2 will need to reduce their emissions. In parallel, voluntary industry, NGO and government efforts to reduce the GHG emissions of business in countries such as USA and Australia will continue. These will likely be supplemented by mandatory regulations in specific states, such as the proposed Regional Greenhouse Gas Initiative in several Northeast states of the U.S., which intends to cap CO_2 emissions from fossil fuel-fired power plants. Thus it makes sense for business, no matter where it operates, to take the first important step of establishing a GHG emissions inventory. This will enable them to more effectively anticipate and manage both the risk as well as the opportunities that climate change creates in the market place.

BOX 1

The Business Value of Accounting and Reporting for GHG emissions

A well designed corporate emissions inventory can serve a number of business goals, including:

Managing GHG risks and identifying reduction opportunities

- Identifying risks associated with GHG constraints in the future
- Identifying cost effective reduction opportunities
- Setting internal and public GHG targets, measuring and reporting progress

Public reporting and participation in voluntary GHG programs

- Voluntary stakeholder reporting of GHG emissions and progress towards voluntary GHG targets
- Reporting to voluntary government and NGO reporting programs, including GHG registries
- Eco-labelling and GHG certification

Mandatory government reporting programs

- Participating in government GHG reporting programs at the national, regional, or local level

GHG markets

- Supporting internal GHG trading programs
- Participating in external cap & trade allowance trading programs
- Calculating carbon taxes

Recognition for early voluntary action

- Providing information to support "baseline protection" and/or credit for early action

BOX 2

Accounting for GHG emissions in the value chain

Companies with inventory boundaries that only capture direct emissions from sources they own or control will miss identifying major GHG risks and opportunities. Almost all businesses generate indirect GHG emissions due to the use of imported electricity for their processes or products/services.

In addition, appliances such as washing machines, refrigerators and automobiles produce most of their GHG emissions during their use phase, rather than their manufacturing phase. Whirlpool has estimated that its clothes dryer uses 20 times more energy over its working life than the energy used in manufacturing the dryer; and its washing machines 50 times more. Similarly, General Motors (GM) has estimated that all GM vehicles in operation in the United States account for 23 percent of US transportation-related emissions. A study undertaken at Norsk Hydro revealed that from a life cycle perspective, about 80 percent of GHG emissions were related to use of their products. CO_2 from oil and gas use comprised the bulk of these emissions, along with nitrous oxide from fertilizer use. GHG Protocol recognizes the significance of value chain emissions and provides an accounting framework that captures both direct and indirect emissions.

BOX 3

Examples of Companies using the Greenhouse Gas Protocol Corporate Standard

Alcan Aluminum, USA
Alcoa, USA
AstraZeneca, UK
Australian Cement Industry Federation
Ball Corporation, USA
Baxter International, USA
BP, USA
Bethlehem Steel, USA
Birka Energi, Sweden
The Body Shop, UK
Canadian Cement Association
Casella Waste Systems Inc., USA
Cembureau (Europe)
Cemex
Cimpor
Cinergy, USA
Eastman Kodak, USA
FPL Group, Inc., USA
CODELCO, Chile
Edison Mission Energy, USA
Ford, USA
ENDESA, Spain
Green Mountain Energy, USA
Heidelberger Cement
Holcim
IBM, USA
IKEA International, Sweden
International Paper, USA
Interface, USA
Italcementi,
ITC Inc., India
Japanese Cement Industry Association
Johnson & Johnson, USA
Kansai Electric Power, Japan
Lafarge
Lockheed Martin, USA
Miller Brewing Co., USA
Mirant, USA
NREL, USA
Nike, USA
Norm Thompson Outfitters, USA
Norsk Hydro, Norway
N.V. Nuon Energy, Netherlands
Philips & Yaming, China
PWC, New Zealand
PSEG, USA
Pfizer Inc, USA
RMC
SC Johnson, USA
St Lawrence Cement Inc., USA
Seattle City Light, USA
Siam Cement
Simplex Paper & Pulp, India
Sony Electronics, Japan
STMicroelectronics, Switzerland
Suncor, USA
Taiheiyo
Target Corporation, USA
Tata Steel, India
Tokyo Gas, Japan
Verizon Communications, USA
Voterantim
Volkswagen, Germany
We Energies, USA
500 PPM GmbH, Germany

REFERENCES

Intergovernmental Panel on Climate Change (IPCC), 2001. *Climate Change 2001: The Scientific Basis.* Cambridge: Cambridge University Press.

Raganathan, Janet and Pankaj Bhatia. 2003. Greenhouse Gas Protocol: A corporate accounting and reporting standard (revised edition). Washington DC: World Resources Institute.