## Introduction

We live in a world where businesses are motivated by limitless growth and expansion juxtaposed against a heavy reliance on a finite amount of natural resources. Any reasonable person would agree that this scenario, if viewed as a mathematical formula, does not balance. The current structure of this global economy, which we have all worked so hard to understand and operate within, can survive for only so long. In recent decades many stakeholders have taken notice. The result has been a movement towards sustainable business practices. Companies of all sizes have begun contemplating methods for reporting and some have even adopted reporting frameworks that, for the first time in history, separately disclose social and environmental impacts. Academics have been conducting research on both the effects of continuing to operate an economy without considering our environmental impact, as well as developing ways to reduce the footprint that businesses are currently leaving behind. As awareness is raised, there has been a steadily increasing desire expressed by the investing public for products that are produced sustainably and for increased disclosure on the part of businesses. In many areas, and especially the UK, the government has stepped up and begun studies of their own, while also forming organizations to work towards a solution. This small sampling of stakeholders alone does not fully explain where we are heading, but it does highlight perspectives on the revolution that has ensued.

A topic closely related to the sustainability revolution that has not been as heavily publicized is accounting for sustainability. It is easy for a business to state their commitment to sustainable practices and, in some situations, these practices may not be difficult to implement, but how does one track the financial benefit of such practices? How does one assign a dollar value to the effects of corporate pollution and use of natural resources? Should these figures be

included in the annual financial statements of every publicly traded company? These few questions are only a speck of sand on the beach that is the topic of sustainable accounting, but they provide an idea of what is currently being considered. This paper will not seek to answer such questions. The focus of this paper will be to provide more of an overview of some of the key issues and ideas related to sustainable accounting. This paper will begin with a discussion of what sustainability really is and how it relates to accounting. Some background information will be provided on both the methodologies and reporting frameworks that are being proposed and, in limited situations, have already been implemented. There will be a specific focus on the concepts of the Triple Bottom Line methodology and the Global Reporting Initiative (GRI) framework. These topics will be complemented by a brief discussion of the cost-benefit of sustainable accounting and recent developments to consider going forward. Included throughout the paper will be multiple examples of corporations taking steps towards consistent sustainable accounting practices. The overarching goal of the paper will be to better educate those who, much like the authors of this paper once were, are unaware of the need and demand for sustainable accounting.

## Defining Sustainable Accounting

What is known today as *sustainable accounting* was once more widely known as *environmental accounting*. We assert that this change in wording does not represent a shift in thought or change in method, but merely the evolution of sustainability in theory and practice. A debate over the best definition of sustainability will be avoided in this paper and our discussion will be based on the definition provided by the Brundtland Report of 1987. Sustainability is "development that meets the needs of the present without compromising the ability of future

generations to meet their own needs."[1]

A paper written by Geoff Lamberton discusses some of the history behind sustainable accounting while also attempting to provide a framework "that captures the breadth and complexity of this new form of accounting."[2] The relevance of this particular article is found in the discussed interaction between traditional accounting and the environment. The sustainability accounting framework he created draws on five basic components of a financial accounting model and is justified by the fact that stakeholders desire information sets that are balanced and include economic, social, and environmental impact. We will discuss this set of information, often called "Triple Bottom Line", in more depth later in this paper. The components of the current financial accounting model referenced would include accounting reports, established accounting principles, accounting records, established objectives of accounting, and qualitative attributes of information. In discussing the role of accountants within the sustainable accounting revolution, Lamberton writes:

> "If the accounting profession is to make a constructive contribution to the environmental crisis, it will draw on the accumulated knowledge and experience of accounting tradition. Accountants have significant experience and long established standards for reporting corporate financial performance which should prove useful when preparing sustainability accounting information at the corporate level."[3]

Lamberton asserts that developing a sustainability accounting model based off of the traditional financial accounting model could provide structure to sustainability accounting. It must be stated, however, that the process of reporting sustainability accounting information will never be free of

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[1] World Commission on Environment and Development. (1987) *Our Common Future, Report of the World Commission on Environment and Development, at the Center for a World in Balance*. Retrieved June, 27, 2009, from http://www.worldinbalance.net/agreements/1987-brundtland.php

[2] Lamberton, G. (2005, March) *Sustainability accounting – a brief history and conceptual framework*, Accounting Forum, Vol. 29 pp.7-26. Accessed via ABI/Inform database through USF Library

[3] Lamberton, G. (2005, March)

manipulation by vested interests.[4] For this reason, systems will need to be designed that can help accountants seek out such manipulation and hopefully prevent it. Systems are already being developed and this too will be discussed later.

## Methodologies

According to the World Business Council for Sustainable Development,

> "Business has to earn its license to operate, innovate and grow. The way business acts and is perceived is crucial to its success. Accountability, ethics, transparency, social and environmental responsibility and trust are basic prerequisites for successful business and sustainable development."[5]

Numerous methodologies have been developed for a business to account for its sustainability. These accounting structures are evaluated by their ability to assign monetary value to non-monetary items. Most of these structures were developed in the early 1990's and have recently been popularized. Each methodology has its advantages and disadvantages, partially due to the newness of sustainability accounting and reporting. Examples of a few popular methodologies include Triple Bottom Line, Sustainability Balanced Scorecard, and Sustainability Assessment Model. Only the Triple Bottom Line methodology will be considered in this paper.

## Triple Bottom Line

The premise behind Triple Bottom Line accounting is that a company should be measured by its financial, social and environmental operations and impacts. This methodology allows a format for the company to display its performance in each separate category and then combine those amounts to create a 'triple bottom line.' With regard to the methodology Norman states:

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[4] Lamberton, G. (2005, March)

[5] World Business Council for Sustainable Development. *WBCSD's 10 messages by which to operate.* Retrieved June 24, 2009, from http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=MTAyMQ&doOpen=1&ClickMenu=RightMenu

> "The apparent novelty of 3BL lies in its supporters' contention that the overall fulfillment of obligations to communities, employees, customers, and suppliers (to name but four stakeholders) should be measured, calculated, audited and reported – just as the financial performance of public companies has been for more than a century."[6]

Firms have an intrinsic requirement to be transparent to all shareholders, and the Triple Bottom Line is a conduit for companies to achieve this requirement.

Wal-Mart is one of many companies in the United States that has adopted some form of Triple Bottom Line. Its 2009 Sustainability Report is broken into three sections: Economic, Environment, Social. The report opens with a letter in which Michael Dukes, President and Chief Executive Officer of Wal-Mart Inc., states:

> "We've moved closer to the three core goals we set in October 2005: to be supplied 100 percent by renewable energy; to create zero waste; and to sell products that sustain our resources and the environment… 'Sustainability 360' is what we call the approach that has guided the expansion of our efforts. It's a company-wide emphasis on integrating sustainability into our business by engaging Wal-Mart's associates, suppliers, communities and customers. Together, our goal is to make an even bigger difference in people's lives, in our businesses, and in the communities that we touch around the world."[7]

Dukes does not explicitly mention the Triple Bottom Line, but follows its methodology throughout the report, most evidently in the separation of the three 'bottom lines.' In comparing environmental indicators from the Global Reporting Initiative Framework, which will be discussed in greater depth later in the paper, Wal-Mart specifically discusses 6 of 8 main topics which include: *Materials, Energy, Water, Biodiversity, Emissions Effluents and Waste, Products and Services, Compliance and Transport.* As a more specific example, in the Climate portion of the Environmental Section Wal-Mart's report references "Aspect: Emissions, Effluents and

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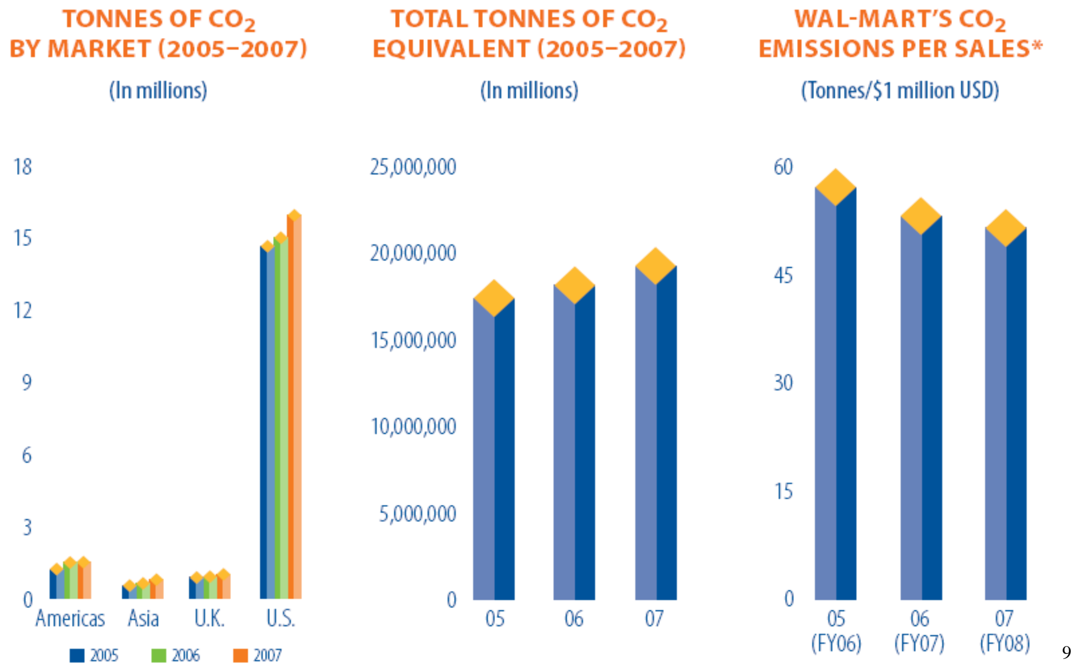
[6] Norman, Wayne, & MacDonald, Chris. (2004) Getting to the Bottom of the 'Triple Bottom Line'. *Business Ethics Quarterly*.

[7] Wal-Mart Stores, Inc.. (2009) *Global Sustainability Report* [Brochure]. Bentonville, Arkansas

Waste (EN 16-20)" from the framework being used.[8] Below are several graphs that were taken directly from Wal-Mart's report that help demonstrate the statistics contained within the Wal-Mart Report.



[9]

Many believe that there is no novelty to the proposed Triple Bottom Line methodology. Some argue that, for decades, firms have been accounting for the so-called social and environmental 'bottom lines.' Wayne Norman, in *Getting to the Bottom of "Triple Bottom Line"* states:

> "Indeed, most of the data to be reported on the so-called social-bottom-line is already gathered by the standard departments in any large organization. For example, Human Resource departments will typically keep records on employee turnover, employee-demographic information by gender and/or ethnicity, and various measures of employee satisfaction; good Marketing and Sales departments will try to track various measures of customer satisfaction; Procurement departments will monitor relationships with suppliers; Public Relations will be testing perceptions of the firm within various external

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[8] Wal-Mart Stores, Inc.. (2009)
[9] Wal-Mart Stores, Inc.. (2009)

> communities, including governments; the Legal department will be aware of law suits from employees, customers or other stakeholders; and so on."[10]

Norman argues that if the calculations are already being internally calculated by companies, then what is novel about the Triple Bottom Line? Supporters would say the novelty lies in that the information would now be externally audited and reported, but if these amounts have already been generated, and therefore have already been taken into account by management, could you also say that those figures have already been integrated into the single bottom line of net income? In the simplest of words, a company cannot successfully function unless its employees, communities and stakeholders are satisfied.

In 1940, Johnson & Johnson published on its website a credo stating the firm would focus on its employees, customers, communities and shareholders, in that respective order. "When we operate according to these principles [i.e., those outlining obligations to other stakeholders], the stockholders should realize a fair return."[11] Therefore, employee turnover, environmental contingencies and low market values for stock prices are already factored into the traditional bottom line, and no further 'bottom lines' are necessary.[12]

Another weakness with this methodology is the question of how a firm would go about measuring its social and environmental impacts. Can a firm decide on numerical valuations to associate to non-numerical factors? How can those amounts be verified, audited, and reported?

## Reporting

The use of sustainable accounting methodologies naturally progresses into sustainable reporting and disclosure. Guidance for each of these items is typically organized into some sort of framework. Similar to the accounting framework the Financial Accounting Standards Board

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[10] Norman, Wayne, & MacDonald, Chris. (2004)
[11] Norman, Wayne, & MacDonald, Chris. (2004)
[12] Norman, Wayne, & MacDonald, Chris. (2004)

(FASB) once created for financial accounting, as well as the frameworks currently being developed for sustainability reporting, a specific framework may be needed for sustainable accounting. That is not to say that frameworks have not considered sustainable accounting, and in some cases already been implemented, but rather that eventually a single framework may be most beneficial. Some specific benefits to be gained are clearly outlined within *The Accounting for Sustainability Report* that was recently issued by the Prince of Wales. An entire section of the report focuses on the need for improved reporting and characteristics of future frameworks. Characteristics, as discussed in the report, include comparability, balance of information, flexibility, changing of behaviors, and competitive advantage.[13] The comparability of sustainable accounting information is equal to the comparability of financial accounting information, in that numbers will be compared both between companies and within a company from year to year. Flexibility will be a welcome benefit and a necessary characteristic of the framework, since companies vary from industry to industry and each will need to report the sustainable statistics most relevant to their respective industry and environmental impact. An example of the needed flexibility would be a manufacturer and personal service corporation each reporting their carbon emissions. While such a statistic is relevant to sustainable reporting, it is unlikely that it would be cost beneficial for the personal service corporation to track its carbon emissions annually.

A competitive advantage would be implementing the framework early on to add credibility. Consumers want to conduct business with companies that disclose environmental information, so disclosure would create increased demand. As mentioned in the report,

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[13] Accounting for Sustainability Project. (2007, December) *The Accounting for Sustainability Report*, 26. Retrieved July 1, 2009, from http://www.sustainabilityatwork.org.uk/

eventually a framework will be required by law, so those companies with a head start stand only to gain.[14]

To pretend that there will not be any obstacles or hurdles to overcome throughout this process would be irresponsible, especially since sustainable accounting is currently a non-regulated sector. Until a framework with specific sustainable accounting procedures can be agreed upon, companies will be free to select any framework for reporting that suits its needs. Comparability was previously listed as a benefit, but here we see that there is also the possibility for lack of comparability. Comparability is a secondary characteristic of financial accounting which makes it both reliable and credible.

Another possible concern for any of the potential frameworks is that companies may be able to modify existing reporting frameworks to further conceal its sustainability flaws and highlight its success. What would prevent a company from manipulating their reporting frameworks from year to year? This too would need to be addressed to prevent a lack of consistency, another important secondary characteristic of financial accounting. Stakeholders cannot adequately value a company based on the sustainability reports issued by a company if they lack comparability and consistency. In addition to the positive characteristics that were provided in the Prince of Wales' Report were some potential issues and barriers to implementation of a standard sustainability framework.

Some of the issues and barriers discussed in the report include cost-benefit concerns, disclosure of competitive and benchmark information, wiping out of short-term profits, and the inadequacy of current incentive structures.[15] Cost-benefit analysis will be discussed later in this

[14] Accounting for Sustainability Project. (2007, December)
[15] Accounting for Sustainability Project. (2007, December)

paper. With regard to the disclosure of competitive information, it is clear in financial accounting that companies often seek transparency, but also rarely publish internal accounting information voluntarily. Without legislation, it is hard to believe that all publicly traded corporations are going to voluntarily publish additional accounting information, even if it is related solely to the environment. Corporations are also likely to fear the short-term effect that reporting additional expenses without additional revenues will have on their financials. In a world driven by short-term growth and profitability, we feel this will probably be the highest hurdle for industries to overcome. Even after industries have come to terms with the short-term effects of adopting a framework, incentive structures will need to be changed. Managers' compensation is currently based on profitability and wealth creation, but a successful framework will need to maintain the current goals of management, while introducing and aligning the goals of sustainable business with managers' goals. Would it be equitable for an executive at a large corporation to receive a compensation package that gives equal weight to both financial gain and environmental impact reduction? Questions such as this will need to be raised and answered in order for any potential framework to be successful. It is clear that these are all questions that will be handed to the accounting department for consideration.

## Global Reporting Initiative

To discuss several of the potential frameworks currently being considered by companies around the world could serve as the topic for an entire research paper itself. For the purposes of this paper, we will discuss a portion of a sustainability framework that is, by many accounts, the most widely accepted. As stated on their website, The Global Reporting Initiative (GRI) is a "network-based organization" that has developed and continues to improve their sustainability-

reporting framework.[16] Some noteworthy companies utilizing the GRI framework include Barclays, Heineken, HSBC, and McDonalds. The GRI website allows companies to register and participate in the global network it has been building over the last decade. Companies have several options with respect to reporting when utilizing the GRI framework. Companies may adopt the framework and publish their results with the GRI. Companies may also publish results on their own while referencing the GRI. Lastly, companies can simply use the GRI's framework as a guide in reporting sustainability, much like Wal-Mart has. Resources such as free access to the group's published guidelines and the providing of introductory materials, make registering with this group, or a similar one, a worthwhile investment for any company already reporting financial results. The GRI framework, as described on the website,

> "…sets out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. The cornerstone of the framework is the Sustainability Reporting Guidelines...the G3 Guidelines - was published in 2006, and is a free public good."[17]

It should be stated that this particular sustainability-reporting framework does employ the Triple Bottom Line methodology and it therefore encompasses, through three separate levels, many aspects of a company's business activities that do not relate directly to the topic of sustainable accounting. For this reason, we will examine only the economic indicators of the GRI and their ties to the sustainable accounting movement. In reviewing the G3 guidelines, the relationship between the performance indicators and accounting is strongly evidenced by the referencing of both the International Accounting Standards Board and International Financial Reporting Standards websites. The economic indicators are broken into three categories including

[16] Global Reporting Initiative. (2007) *GRI Portal - What we do*. Retrieved July 1, 2009, from http://www.globalreporting.org/AboutGRI/WhatWeDo/

[17] Global Reporting Initiative. (2007)

economic performance, market presence, and indirect economic impact. An example of an economic performance indicator is described as follows:

> "EC1: Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments."[18]

The guidelines expand upon this definition in the form of a line-by-line explanation of financial statement items that should or should not be included. Of particular interest to accountants would be the inclusion of "donations and other community investments" as a line item. An example of a market presence indicator is described as follows:

> "EC6: Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation."[19]

This particular indicator, considering the spending practices of corporations in local communities of operation, is another example of a statistic that most corporations would not publish, but is relevant to sustainability reporting and could be calculated by a staff accountant. An example of an indirect economic impact indicator is described as follows:

> "EC8: Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement."[20]

This final example again emphasizes the type of cost tracking that would be required to report sustainable statistics, but also demonstrates one of the many items that corporations should want to pursue. If for years companies have constructed community infrastructure and gone unrecognized, then why oppose a framework that standardizes the reporting of such information?

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[18] Global Reporting Initiative. (2006) *Indicator Protocols Set Economic (EC)*, *3*. Retrieved July 2, 2009, from http://www.globalreporting.org/NR/rdonlyres/D2BC0DF8-FF2C-4BAB-B2B4-27DA868C2A5F/2801/ G3_IP_EC _ENG_and_cov.pdf

[19] Global Reporting Initiative. (2006)

[20] Global Reporting Initiative. (2006)

One of the companies who have implemented the framework and currently reports with the GRI is Barclays. To better understand the aforementioned performance indicators it may be helpful to examine an item from Barclays' most recent Sustainability and Annual Report. It is important to note that Barclays addresses performance indicators from all three levels of the Triple Bottom Line, but we will continue to look strictly at accounting information through economic indicators. In addressing EC6, the aforementioned local spending indicator, the Barclays report focuses on supply chain management, often an important aspect of any company's cost structure, and goes as far as to discuss their supplier selection process. The report states,

> "As part of the tendering process for relevant spend categories, we ask specific questions about the sourcing of the product including its environmental and social impacts and ensure the supplier can provide us with data on these impacts when needed."[21]

More specific information is also included in the report, but what is important to note is the willingness on the part of Barclays to not just make a broad statement about the sustainability of its suppliers, but instead to provide details about the process behind actual supplier selection. Such efforts on the part of companies like Barclays to report and disclose may surprise competitors, but should serve as a catalyst for worldwide sustainable reporting and the eventual acceptance of a universal sustainability reporting framework.

## Cost-benefit

Initially, we sought to gather research to assign a dollar value to the cost of implementation for sustainability reporting. With regard to accounting for sustainability, this seemed like a reasonable proposal. Unfortunately, previous research conducted not only made

[21] Barclays. (2008) *Barclays.com - Global Reporting Initiative (G3)*. Retrieved June 30, 2009, from http://group.barclays.com/Sustainability/Reporting/Sustainability-Report-2008/Targets-and-performance/Global-Reporting-Initiative-(G3)

clear the full breadth of sustainability reporting information already being published, but also revealed the numerous costs and benefits associated with sustainable accounting that may never successfully be assigned a dollar value. Also a common theme in financial accounting, it can be very difficult to account for and value things such as customer approval, employee moral and environmentally friendly policies.

What may be more useful than calculating dollar values would be weighing pros versus cons to try and gain a better understanding as to why not all companies are reporting sustainability currently? Ans Kolk, of the University of Amsterdam, took such an approach in recently and provided a list to consider. In her paper, titled *A decade of sustainability reporting: developments and significance,* Ans reported on the progress of individual countries in reporting sustainability and also listed reasons for and against reporting. It may be a stretch, but one could view this list as costs and benefits to reporting sustainability. The list created is as follows:

*"Reasons for reporting:*
• enhanced ability to track progress against specific targets
• facilitating the implementation of the environmental strategy
• greater awareness of broad environmental issues throughout the organization
• ability to clearly convey the corporate message internally and externally
• improved all-round credibility from greater transparency
• ability to communicate efforts and standards
• license to operate and campaign
• reputational benefits, cost savings identification, increased efficiency, enhanced business development opportunities and enhanced staff morale

*Reasons for not reporting:*
• doubts about the advantages it would bring to the organization
• competitors are neither publishing reports
• customers (and the general public) are not interested in it, it will not increase sales
• the company already has a good reputation for its environmental performance
• there are many other ways of communicating about environmental issues
• it is too expensive
• it is difficult to gather consistent data from all operations and to select correct indicators

• it could damage the reputation of the company, have legal implications or wake up ‘sleeping dogs’ (such as environmental organizations)”[22]

In building off of the preceding lists we would like to emphasize several items of relevance to sustainable accounting. The final bullet point, listed as a reason for reporting, mentions cost savings identification and increased efficiency. These particular items can be tracked and assigned a dollar value and, while it may not be possible to obtain an exact dollar amount from companies in cost savings, there is no denying that any additional reporting will ultimately result in identifying better practices for business processes. The bullet point referring to the expense of sustainable reporting on the second list should be a little more specific. A brief list of expenses would be much more useful, especially since the public is likely to question this particular statement. They may ask how a corporation could not be able to afford reporting these figures. In researching it has become clear, however, that there are sometimes costs that are overlooked by even an informed investor. A handful of examples would be the cost of third party information gatherers, environmental scientists brought in to interpret data, and external auditors. Many are unaware that as of 2004 approximately one third of all sustainability reports issued were audited by external parties.[23]

We will avoid an in depth discussion of the Sarbanes-Oxley Act, but it is fair to state that, in the event of legislation in the United States requiring sustainability reporting, there would be an immediate need for promulgation of procedural guidance and possibly the assigning of a governmental body, whether it be the EPA or SEC, to oversee implementation of any sort of

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[22] Kolk, A. (2004) *A decade of sustainability reporting: developments and significance*, Int. J. Environment and Sustainable Development, Vol. 3, No. 1, pp.51–64. Retrieved from http://www.basisboekmvo.nl/files%5Cdecade.pdf

[23] Kolk, A. (2004)

framework. All of this would be deemed an expense and likely passed on to taxpayers. The expenses for individual companies would vary greatly based on items such as industry and geographic location. It is our opinion that most corporations currently listed on exchanges throughout the world could pursue any one of the current frameworks being developed for a minimal cost. As implied in both the Prince of Wales' report and related documents, much of the information needed to meet current sustainability guidelines is already collected for the annual financial reports issued by companies each year. For this reason specifically, the next chapter of the sustainability revolution may rest on the shoulders of accountants and their pursuit of sustainable accounting. No matter the argument against reporting sustainability, no dollar value cost will outweigh the benefit of a sustainable enterprise. Accountants may be the ones who have the financial data to lead companies into the light.

## Going forward

*Software*

Software companies have recently taken hold of the sustainability movement by creating programs to monitor and report on a firm's sustainability. Verdiem, established in 2001, offers innovative software programs to diminish energy usage of PC networks. While desktop computers are in idle mode, Verdiem switches them to low power mode, saving approximately two-thirds of its energy consumption. The program continues to track the reductions created and reports to firms the amount of savings, which allows the firm to manage and disclose its results to the public.[24] According to the Verdiem website,

[24] LaMonica, Martin (2009) *Verdiem: Nyquil for energy-hog PCs*. CNet News: Green Tech, Retrieved July 3, 2009, from http://news.cnet.com/8301-11128_3-9942968-54.html?tag=mncol;txt

> "WaMu has cut its PC-related greenhouse gas emissions by 65 percent and is on track to save $3 million on electricity costs this year by implementing Verdiem's SURVEYOR software- *Debora Horvath, CIO, Washington Mutual.*"[25]

The Surveyor application "can pay for itself within a year by saving between $20 and $60 per PC."[26]

Verisae, another sustainability software company, offers a carbon accounting program geared towards retail companies. The program tracks and reports on the greenhouse emissions data for individual assets' of the company. In June 2009, the U.S. Patent and Trademark Office granted Verisae a patent for its method of calculating greenhouse emissions.[27]

The most recent software company to enter into the field has been Hara. Hara, which opened its operations to the public in late May 2009, has received recognition from many political leaders. Al Gore, partner in Kleiner, Perkins, Caufield & Byers, participated in his company's funding of the project, and Hara's CEO, Amit Chatterjee, met with President Obama during an energy leaders meeting at the White House. More than ten companies are using Hara, most notably Coca-Cola and the City of Palo Alto, California. The City of Palo Alto has experienced $2.2 million in savings related to waste and energy efficiency.[28]

Hara has been created to allow companies a way to reduce greenhouse gas emissions and waste and, as a result, limit environmental impact by examining water and fuel consumption. Included in the software is a database that contains information on products and programs that can assist a firm in achieving efficiency. As stated on the Hara website:

> "Hara Environmental & Energy Management (Hara EEM) gives organizations auditable transparency and control of their 'organizational metabolism' — the collective resources

[25] Verdiem: Home. Retrieved July 1, 2009, from Verdiem Web site: http://www.verdiem.com/
[26] LaMonica, Martin (2009)
[27] LaMonica, Martin (2009)
[28] LaMonica, Martin (2009a) *Hara: Software for a carbon-constrained economy. CNet: Green Tech*, Retrieved July 1, 2009, from http://news.cnet.com/8301-11128_3-10252910-54.html

consumed and expended by an organization — including energy, water, waste, carbon and other natural resources. Hara EEM enables organizations to comprehensively and securely manage their environmental record and leverage best practices in order to improve efficiency, manage risk and maximize shareholder value."[29]

The following screenshots provide a glimpse into the two systems being developed.

**Verdiem**

[30]

**Hara**

[31]

*Laws*

As noted previously, there is no current regulation on sustainable accounting, but Congress is making strides towards making environmental reporting and disclosure required. The American Clean Energy and Security Act of 2009, which passed through the House Energy and Commerce Committee in May and passed through the House in June, set a limit on the amount

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[29] *Hara: Solutions*. Retrieved July 1, 2009, from Hara Web site: http://www.hara.com/solutions_overview.html

[30] Verdiem: Home. Retrieved July 1, 2009, from Verdiem Web site: http://www.verdiem.com/

[31] LaMonica, Martin (2009a)

of greenhouse gases a company can release and demanded that utility companies use renewable energy sources to supply a portion of its electricity.[32] The Senate will be voting on the bill later this year. If this bill passes, companies will need to track the amount of greenhouse gases emitted. Also, since the bill will be putting a cap on the amount companies can emit, firms will need to start thinking of innovative ways to manage its consumption of greenhouse gases. The tracking and managing of these emissions can be accomplished by using the new environmental accounting software programs. The American Clean Energy and Security Act of 2009, does not directly require the accounting and reporting of a firm's sustainability, but it does begin to put the pressure on firms to track and manage its environmental impact.

*Auditors*

There is a document produced annually by PricewaterhouseCoopers (PwC), one of the 'Big 4' public accounting firms, which specifically addresses their role within the sustainability revolution from year to year. It is titled the *Global Annual Review* and serves, for the most part, as more of an advertisement than anything else. Analyzing the document does not provide any useful statistics or groundbreaking data, but it does provide insight into the boardrooms of external auditors and their approach to sustainability. Take into consideration the following quote from the PwC 2008 Report:

> "The complexity and commercial implications of sustainability require not only the skills and expertise of our sustainability experts but also the breadth and depth of PwC's global network: economists, tax advisors, supply chain experts, strategists, due diligence teams, auditors, change management leaders, and sector experts."[33]

[32] H.R. 2454: American Clean Energy and Security Act of 2009. Retrieved July 1, 2009, from GovTrack Web site: http://www.govtrack.us/congress/bill.xpd?bill=h111-2454

[33] PricewaterhouseCoopers International Limited. (2008). *Global Annual Review*, 22. Retrieved July 4, 2009, from http://www.pwc.com/annualreview

Many people might assume that the phrase *sustainability experts* would refer strictly to environmentalists, conservationists, or scientists studying the impact of business on the environment, but based on PwC's statements they take a much different approach. The research behind this paper indicates that it may be difficult to argue with PwC's belief that the true experts are the accountants, economists, and supply chain experts.

Another aspect of this particular statement to be considered lies in the sense of need that is implied when PwC uses the words *complexity* and *require*. There is no denying that the public accounting firms of the world stand only to gain in the progression of the sustainability revolution. The sooner sustainability accounting becomes common practice, the sooner audits will be mandated by governing bodies of countries throughout the world. Such a scenario would warrant increasing the price of an external audit for every company required to practice and report sustainability accounting. We have seen from past experiences that when the pricing of audits become tied to any external factor that the potential then exists for auditor-client relationship concerns. Based on the strength of the sustainability movement in Europe, it is unlikely that the offices of these public accounting firms in the United States will act first. Even the aforementioned Report issued by PwC was headed by a senior partner in a UK office. Nevertheless, it may be in the best interest of current potential external audits to begin considering the implications of sustainability reporting on the auditing profession.

*Education*

Another thought to take into consideration is education. Auditors and accountants cannot be expected to go off into companies without the slightest bit of background education into sustainability, but that is the reality of our present situation.  A typical accounting major's college experience does not involve a class on sustainability. They, much like the authors of this

paper, have been taught the logistics of financial accounting, taxes and auditing. They have been given a degree certifying that they are proficient enough to work in the accounting and auditing fields, but with little to no knowledge of what might be the future of accounting. The Association for the Advancement of Sustainability in Higher Education (AASHE) has created a network of colleges and universities. As stated on the AASHE website:

> "Our mission is to empower higher education to lead the sustainability transformation. We do this by providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research."[34]

There are currently over 400 4-year colleges, universities and graduate schools that participate as members of the AASHE. The University of South Florida is listed as a member and yet as previously described, the accounting curriculum does not include sustainability.[35] Although the AASHE might be a considered a step towards the acceptance and promotion of sustainability in higher education, many efforts still need to be made so that all majors may incorporate sustainability into their curriculum.

## Conclusion

The current economic climate cannot be ignored when considering the sustainability revolution and especially the role that sustainability accounting will play moving forward. With global markets weak and businesses scrambling to make ends meet, cuts have been made throughout the world and any focus that was previously on sustainable practices has likely been

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[34] Association for the Advancement of Sustainability in Higher Education: About AASHE. Retrieved July 1, 2009, from Association for the Advancement of Sustainability in Higher Education Web site: http://www.aashe.org/about/about.php

[35] Association for the Advancement of Sustainability in Higher Education: Membership. Retrieved July 1, 2009, from Association for the Advancement of Sustainability in Higher Education Web site: http://www.aashe.org/membership/members.php

shifted to preservation, cost-cutting, and revenue maintenance. Not to say that sustainable business practices cannot lead a business to all three of the aforementioned positions, but companies, like humans, often return to what they know best. This has been best evidenced by things such as the cutting of jobs throughout the United States by large corporations and the slowing of the International Financial Reporting Standards (IFRS) movement. As companies downsize their accounting departments it will be difficult to expand sustainability reporting and even more difficult for external auditors to convince CEO's that their sustainability reports, that do not currently have to be audited, need to be audited for the sake of credibility.

The topic of accounting discussion for the last several years was IFRS and the impact it would have on accounting worldwide. Much debate has occurred with regard to the United States possibly adopting the standards, but it was once thought that adoption and implementation was only a few years away. Such estimates have now been pushed back to 5, 10, even 15 years. This raises the question, which issue will public accounting firms work towards first? Each option will be lucrative, but with companies cutting costs it is hard to tell whether sustainability accounting and reporting will hold priority.