

FOUNDATION EARTH

Rethinking society from the ground up!

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Brent J. Fields, Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

Thursday, July 21

Via email to rule-comments@sec.gov

Re: Disclosure Effectiveness Review, File Number S7-06-16

Dear Mr. Fields:

Thank you for the opportunity to submit ideas to hopefully expand the useful work of the SEC. Founded in 2011, **Foundation Earth** is a think-tank -- rethinking society from the ground up! It creates reports on major steps for deep long-term sustainability via a true cost, zero-waste, circular economy grounded in general systems theory.

Regarding modernizing SEC disclosure requirement, Foundation Earth would like to speak specifically to the ecological impacts of environmental social governance (ESG), as that is our area of expertise. Other social change groups will no doubt be conveying their important thoughts on social equity and governance to the SEC for consideration.

Mandatory Corporate Ecological Impact Disclosure is called for and the SEC is the place to implement this important task. [These ten points below provide our general thinking.](#)

1. A functioning economy that doesn't destroy the planet's natural systems is desperately needed!
2. Foundational to any economy that is claiming to better people's lives is excellent transparency of ecological impacts to nature's great cycles. Investment and voting decisions should be based on more of this information not less.
3. We need a complete and open-source database to track these harmful impacts to the planet.
4. That database needs to show how the impacts relate to the planet's life support systems¹ (Planetary Boundaries: see graphic below).
5. Disclosure needs to be audited by independent ecological auditors who ensure the reliability of the information entering into this system.
6. Some might think it overly ambitious or even idealistic, but at Foundation Earth we believe that any common sense concerned citizen, parent, or government oversight agency would simply see it as necessary.
7. Creating a comprehensive ecological impact database is not rocket science. As the SEC knows, the information exists in isolated pockets.
8. The Commission could enact a "one-stop shopping center" for investors, as well as our dedicated researchers, concerned citizens, and elected officials to use for solving quite pressing problems.
9. We have to design this reporting process into the economic model or the economy will continue to fail us and our biosphere. The SEC could help take an important next step in this direction.
10. We don't want to wait to take such a common sense step in a post-collapse rebuild. We must start telling the ecological truth now!

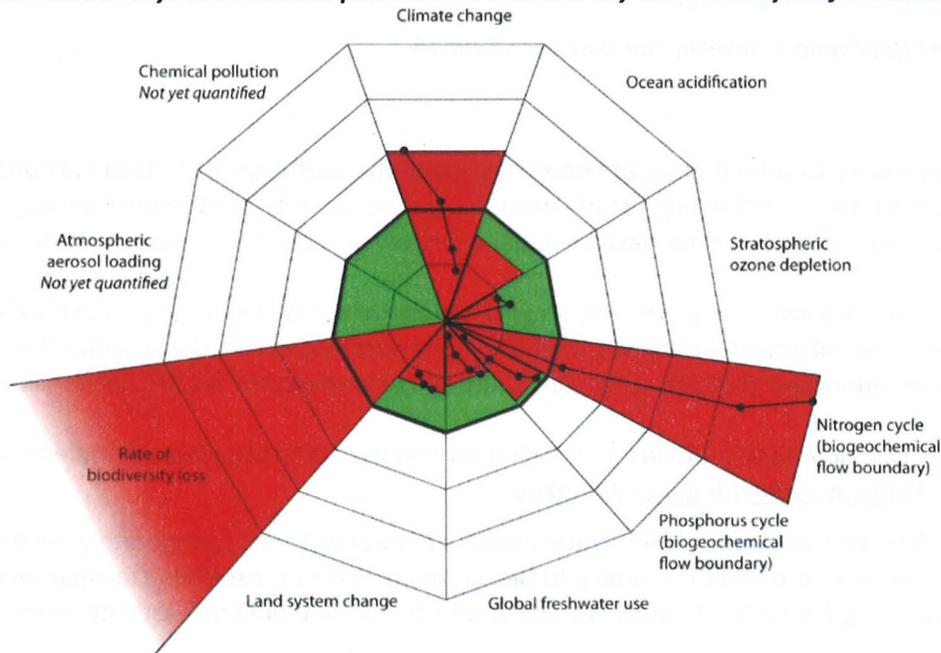
Our specific suggestions are in the attached document, [Mandatory Corporate Ecological Impact Disclosure: A Working Paper](#)². The Foundation Earth team analyzed the ecological disclosure information problem, studied admirable first steps to rectify the problem, and put forth a major new step. We request the SEC staff to review our suggestions. The paper:

¹ **Investments & the Nine Planetary Boundaries**, A short overview available at <http://www.fdnearth.org/files/2015/03/Planetary-Boundaries-Investments-Overview.pdf>.

- addresses how specific disclosures are important or useful to making investment and voting decisions and how more information is needed;
- suggests specific steps to revise current requirements to enhance the information provided to investors that promote efficiency and competition;
- enhances the protection of the growing number of investors in pursuit of a profitable, but livable planet and;
- argues that this level of disclosure is worth some additional cost given the need to protect the biosphere's life-support functions and with it -- the entirety of humanity.

An appendix provides a detailed statement of the policy solution.

The earth's great cycles are represented in the nine science based Planetary Boundaries. Anything red (that is approaching or surpassing the green zone) is of great threat to future. This chart conveys that climate problems are absolutely not our only major concern.



Question 217 & 219: The Commission would best protect the environmental aspects of investors' concerns via ecological line-item requirements. While key existing frameworks offer some important ecological information categories none are sufficient enough to relate to the Planetary Boundaries or the planet's life support systems. Specific frameworks that do not deserve serious consideration as templates include the SASB, GRI, CDP, the IIRC (International Integrated Reporting Coalition). Review industry-specific climate risk disclosure guidance developed by Ceres, the Institutional Investors Group on Climate Change and the Investors Group on Climate Change for ideas. A more comprehensive approach is needed. We believe that the most comprehensive framework for ecological disclosure is presented in detail in the July 2014 paper, [Mandatory Corporate Ecological Impact Disclosure: A Working Paper](#). In our global survey, no other framework properly discloses the ecological information required to adequately assess the damage being done to the biosphere by publically traded companies and global commerce at large.

Be advised, materiality relates to a company's financial condition, operating performance, and its incremental ecological impact on the biosphere's life support systems. To summarize, Mandatory Corporate Ecological Impact Disclosure is called for and the SEC is the place to implement this important task.

Randy Hayes

Randy Hayes, Executive Director
Foundation Earth

Attached: [Mandatory Corporate Ecological Impact Disclosure: A Working Paper](#)

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² Foundation Earth, Mandatory Corporate Ecological Impact Disclosure: A Working Paper (July 2014), available at <http://www.fdnearth.org/files/2012/11/Mandatory-Ecological-Impact-Disclosure-Report-Final-v3.pdf>.

Mandatory Corporate Ecological Impact Disclosure: A Working Paper

JULY 2014

So many of the catastrophic consequences of carrying on with ‘business-as-usual’ are bearing down on us faster than we think . . . One thing is clear. We need to be much more informed about the actual state of the planet. We do not have nearly enough knowledge on which to base the decisions that will be best for the long term. We do not have long to capture such a comprehensive picture.

*Prince Charles of Wales, message to participants at Rio+20
(As reported by BBC News, 17 June 2012)*



foundation

EARTH

Rethinking society from the ground up!

ABOUT US

FOUNDATION EARTH is a national, non-profit, public interest advocacy organization founded in 2011. Our focus includes: economic models, technology, biospheric education, and earth jurisprudence. We call for a rethink of society from the ground up. We envision more self-reliant communities embedded in a continental network of bioregional economies. Time is not on our side. A rapid shift from an industrial society that ignores nature's carrying capacity limits and irresponsibly pollutes (cheater economics) to a True Cost Economy will require examining the dimensions of a deeply resilient economy, arguing for it, and providing advisory services to social movements concerning systems change. Our mission is to bring an earth-centered "True Cost Economy" into reality.

ACKNOWLEDGMENTS

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Mandatory Corporate Ecological Impact Disclosure: A Working Paper

Preface

If a preface is about setting forth the purpose and scope of a document or an initiative, I invite your help to accomplish that task. Here are ten talking points to provide elected officials in every political party:

1. A functioning economy that doesn't destroy the planet's natural systems is desperately needed!
2. Foundational to any "new economy" (claiming to be better) is excellent transparency of ecological impacts to nature's great cycles.
3. Just imagine if we had a complete and open-source database to track these harmful impacts to the planet.
4. Imagine further if that database showed how the impacts relate to the planet's life support systems.
5. Envision this audited by independent ecological auditors who ensure the reliability of the information flowing into this system.
6. Some might think it overly ambitious or even idealistic, but at Foundation Earth we simply see it as necessary.
7. Creating a comprehensive ecological impact database is not rocket science. The information exists in isolated pockets.
8. Officials could enact a "one stop shopping center" for our dedicated researchers, concerned citizens, and elected officials to use to solve quite pressing problems.
9. We have to design this reporting process into the economic model or that economy will continue to fail us and our biosphere. That is what this initiative is about.
10. We don't want to wait to take such a common sense step in a post-collapse rebuild. We must start telling the ecological truth now!

In this document Neil Glazer and the Foundation Earth team have analyzed this information problem, studied admirable first steps to rectify the problem, and put forth a major new step. The narrative tells a compelling story. An appendix provides a detailed statement of the policy solution.

Randy Hayes, Executive Director
Foundation Earth
Summer 2014 Washington, DC

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Introduction

We are proposing something very simple: that Congress pass a law requiring public companies tell the truth about what they are doing to the planet.

We are faced with a series of impending ecological crises and we know far too little to quickly and determinedly turn the tide.¹ We are being hit with waves of low quality information from companies around the world on their sustainability, but the problem is obvious: no corporation is voluntarily going to disclose the actual facts of its ecological impacts when it can selectively dress up generalized information and trends as indicators of sustainability “performance.” The companies are in the driver’s seat.

The most valuable and significant information is under their control and they will hold it under lock and key until legally required to disclose it. That makes perfect sense. No polluter wants to talk honestly about its pollution. If we are serious about deep sustainability, ecological sustainability, then we need honesty and transparency and not endlessly hollow, public relations discourse. Solving pressing ecological problems requires ecological clarity, and that means a level of honesty only law can attain.

Where We Are Today

Society is at a crossroad. Human activities are challenging the boundaries of the earth system’s resilience, driving critical processes beyond their capacity to provide life-sustaining conditions. We have already overshoot some of these planetary systems, most obviously disrupting 10,000 years of relatively stable climate conditions, and we are taking others right up to the brink.² Economic activities are the principal drivers of these changes, the results of our destructive extraction and consumption of natural resources and generation of pollution and wastes at levels far beyond the

¹ Wagner, W., *Commons Ignorance: The Failure of Environmental Law to Produce Needed Information on Health and the Environment*, 53 Duke L.J. 1619, 1625 (2004) (“Virtually every prominent expert panel convened to consider the effects of industrial activities on health and the environment expresses alarm at the dearth of research and basic information.”); Esty, D.C., *Environmental Protection in the Information Age*, 79 N.Y.U. L. Rev. 115, 140-41 (2004) (“Information gaps plague environmental decision making from the household level to the global scale. . . . [I]nformation problems represent a fundamental issue holding society back from better results in pollution control and natural resources management.”); *Why Externalities Matter to Institutional Investors*, UNEP-PRI (2012) at 4 n.1 (“Due to lack of available global data, the analysis excludes most natural resources used, as well as many environmental impacts . . . Externalities [valuations] would also be higher if degradation [of ecological systems] . . . could be accounted for.”); see also *id.* at 6 (“Actual externalities are likely to be higher . . . since the analysis excludes external costs caused by product use and disposal, as well as companies’ use of other natural resources and release of further pollutants through their operations and suppliers.”).

² See the Appendix for a general explanation of the planetary boundaries framework and its significance. The framework and its underlying science was first published in Johan Rockstrom, et al., *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, *Ecology & Society* 14(2): 32 (2009), a version of which was subsequently published as Rockstrom, et al., *A Safe Operating Space*, *Nature* (Sept. 24, 2009).

We are proposing something very simple: that Congress pass a law requiring public companies tell the truth about what they are doing to the planet.

Information is the lifeblood of problem solving, and the more complex the set of problems, the more information is required to arrive at intelligent solutions.

planet's carrying capacity. The mounting evidence is clear: our relationship with the earth is inherently unsustainable. Increasing recognition of these dire circumstances has thus led to a growing chorus of calls for more sustainable development: an economic system consisting of "sustainable" enterprises producing "sustainable" goods and services. But what does that mean?

"Sustainability" is a buzzword, a generally familiar idea that doesn't readily lend itself to precise definition. Yet it's really quite basic: if we want to secure, or perhaps even expand or extend human well-being, then we first need to sustain the planet's systems and processes that are, in turn, our sustenance. The earth system is a vast, complex, self-regulating ecological system, and if it is to sustain itself we must restrain ourselves from the reckless abandon with which we have devoured its resources and laid waste to its air, land, and waters. This is not philosophical opinion. It is science, and if we cannot approach sustainability as a scientific endeavor, we are not likely to succeed.

Yet when it comes to sustainability discourse, we are incredibly unscientific. Corporate sustainability reports are filled with indicators and benchmarks, but rarely do they have much in the way of the kind of empirical data or analysis necessary to fully understand the wide range of their impacts. Economists estimate that humans are inflicting a bare minimum of \$6 trillion to \$7 trillion worth of ecological damage to the planet each year. This is equal to a staggering 10-15% of global GDP.³ These statistics offer perspective, but they are abstractions calculated using methodologies that leave out entire categories of economic "externalities" that are too difficult or even impossible to price. We do need to revisit the operating rules of our economic system, because it is inflicting incalculable damage on living systems. We need to strip away the abstractions inherent in traditional economic thinking and corporate platitudes and squarely face the real facts of our economic activities' actual impacts. Only then can we make well-informed personal and policy decisions that might make possible an authentically and deeply sustainable economic system, situated comfortably within an ecologically sustainable society.

Information is the lifeblood of problem solving, and the more complex the set of problems, the more information is required to arrive at intelligent solutions. There is nothing the human mind can conjure that is more complex than the earth system; an impossibly intricate web of mutually influencing and sustaining relationships giving rise to a whole so much greater than the sum of its parts that our best minds and supercomputers can only begin to attempt to model aspects of it. We know that pro-

³ *Why Externalities Matter to Institutional Investors*, - (estimating monetary value of total global externalities at \$6.6 trillion to \$7.6 trillion per year); *Natural Capital At Risk: The Top 100 Externalities of Business*, TEEB-True-Cost (2013) (valuing total business externalities at \$7.6 trillion).

duction and consumption of goods and services – economic activities – impact ecosystems in countless ways every day, and we know that at least some of these impacts result in ecologically harmful effects at local, regional, and even planetary levels. But we are almost willfully blind as to specific causes and conditions for these real world problems, and the longer we remain ignorant of the specific facts the more unlikely sustainability becomes in any meaningful sense of the word.

The Business of Sustainability

In response to growing public concern, sustainability claims have become *de rigueur* in the business world. Each passing year brings more green-labeled products to store shelves and growing numbers of reports published by companies touting their progress toward sustainability. This results in a greenwashing epidemic of, at best, very low quality information and at worst, blatant disinformation. The absurdity of the situation is self-evident: we cannot possibly know how sustainable an enterprise might be, or how much progress it has made toward becoming sustainable, unless we know clearly, precisely, and in scientific terms how unsustainable it presently is.⁴

Actual ecological impacts, the events and points at which human activities intersect or make contact with ecological systems, are the only objective facts that can be observed, recorded, monitored, and documented without any need for subjective analysis. Of course this impact data needs to be contextualized in order to understand and explain consequent direct, indirect, and cumulative effects on all levels of planetary systems.⁵ However, to attempt the latter without the former is simple unscientific folly. Information voids (when they can be avoided) are bad science. They distort markets, frustrate policy, and generally lead to poor outcomes.

If we are serious about becoming sustainable – which means ecologically responsible – we must know all of the facts concerning how unsustainable we are, and that necessarily starts with quality information on the ecological impacts of our economic activities as well as those impacts' various direct, indirect and cumulative effects.⁶

⁴ For critical examination of the weak links between sustainability reporting, general notions of sustainability, and planetary ecology, see, e.g., Milne, Ball and Gray, *W(h)ither Ecology? The Triple Bottom Line, the Global Reporting Initiative, and the Institutionalization of Corporate Sustainability Reporting*, *Journal of Business Ethics* 118:1, 13-29 (2013), and Markus J. Milne and Christopher Byrch, *Sustainability, Environmental Pragmatism and the Triple Bottom Line: Good Question, Wrong Answer?* (Paper presented to the 10th CSEAR Australasian Conference, December 6-8, 2011).

⁵ For an excellent discussion of how to analyze the connections between corporate activities and planetary boundaries, including how to address questions of local, regional and global scale effects, see Whiteman, Walker and Perego, *Planetary Boundaries: Ecological Foundations for Corporate Sustainability*, *Journal of Management Studies* 50:2 307-336 (March 2013).

⁶ By impact we mean an initial point of contact with an ecological system, such as where a chemical discharge leaves a facility and enters a body or flow of water. An effect is any consequence of that impact, such as changes or impairments in the healthy functioning of the surrounding ecosystem caused by the introduction of that chemical.

If we are serious about becoming sustainable – which means ecologically responsible – we must know all of the facts concerning how unsustainable we are.

To the extent companies want to compete on sustainability issues, they will do so on a level playing field, subject to the kind of scrutiny that only true ecological transparency can bring.

This is within reach. The information already exists, either known or knowable, to the actors generating the impacts. Consider a company reporting its water “usage” in an annual sustainability report.⁷ Since it is boasting about its progress or sustainability “performance” with respect to water systems, it likely states that it has reduced its overall water consumption by some number of gallons or some percentage. It might even break that down by continent or region. Then, the company will likely “normalize” the information and tell us how much water it is using per unit of production, say gallons per pair of shoes, which it will compare favorably to prior years when it took more gallons to produce each pair of shoes.⁸

But what does that tell us about the sustainability of the enterprise? Do we really know that it is sustainable, or becoming sustainable? Do we know anything about the actual ecological impacts of its activities, even with respect to this one resource? Does it tell us anything about whether we are becoming more sustainable as a society? Clearly, the answer is no. For one thing, declining gallons per shoe is a meaningless statistic in the absence of hard data on production growth projections. If a company cuts its water use “intensity ratio” in half but plans to quadruple its production output, it will use twice as much water as when it was somehow less “sustainable.” More importantly, unless we know specific facts about a particular water source, we have no factual context to understand the actual impact.

The inadequacies of such an approach even further compound. For instance, a typical sustainability report will aggregate data for an entire corporation at the parent level and then give a breakdown of water “usage” by type of source, but that will be a small table listing aggregate numbers of gallons or cubic meters drawn from categories like “metropolitan water district,” or “well water,” or some other equally uninformative phrase. But we don’t know how much water each operation uses, where it comes from, or where it ends up.

That site specific information is precisely what we need to know – that a specific facility in a specific place drew a specific quantity of water from a specific source over a specific period of time. It may be the case that a company that in the aggregate cuts its water use by 50% is performing well in terms of sustainability, but that is not necessarily so. The sustainability claim is entirely dependent on all of the *specific* conditions and circumstances that the company is uniquely positioned to know, but is

⁷ Water is of course “used” in many ways: it can be drawn from a source, used up, recycled, or output back into a source, with or without additional by-products, wastes or temperature alterations. For simplicity, this example considers simply water consumption.

⁸ It has become common practice to report environmental “performance” in so-called “normalized” terms, sometimes referred to as “intensity ratio,” where some environmental value is expressed in terms of some economic value – thus, gallons of water per shoe, or per dollar of revenue.

not telling us. We need the particulars, and it is misleading to make the sustainability claim without at least providing the backup detail necessary to verify it.

A robust flow of specific impact data will advance science considerably, allowing us to better understand causal relationships underlying the indirect and cumulative effects of multiple actors' impacts. This expanded knowledge base will enable customers and consumers to make better informed purchasing decisions, allow investors to develop smarter long-term strategies, and provide policy makers opportunities to make intelligent policy while wisely choosing the right policy tools for each particular problem.

To the extent companies want to compete on sustainability issues, they will do so on a level playing field, subject to the kind of scrutiny that only true ecological transparency can bring. And to the extent that companies want to report their progress against sustainability performance indicators, objective impact data provides meaningful reference points that can be confirmed through independent third-party audit or assurance processes. This ensures reliability, a critical condition for any useful information system.

We can cure the information deficit, though it will take some time. Clear, detailed, and mandatory ecological impact disclosure rules will bring the information to light, where it can be used in the largest number of ways by the broadest range of users.

More than one-third of all ecological externalities are the result of public companies⁹ operations, supply chains and products.¹⁰ We can't overnight impose ecological impact disclosure obligations on every company on the planet, but we can start with public companies. For forty years, concerned investors and citizen groups have been asking securities regulators to clearly impose just such a requirement, but those demands have been largely ignored. Nations around the world are starting to enact laws requiring companies to issue sustainability reports, but they almost invariably allow them to apply the same flexible frameworks that are now resulting in wave after wave of greenwashed PR.

We need a better law. We need Congress to enact legislation mandating ecological impact disclosure by public companies, requiring the Securities and Exchange Commission to adopt detailed regulations to ensure a continual flow of useful information. This is the *sine qua non* of sustainability, and it is remarkable (and inexcusable) that we have so clearly failed to do this already. Demanding that companies tell the complete truth about their ecological impacts is an obvious and simple first step. It is time to demand that Congress do this, now, before it is too late.

⁹ A public company is one that has securities traded on public exchanges.

¹⁰ *Why Externalities Matter*, *supra* n.1.

Demanding that companies tell the complete truth about their ecological impacts is an obvious and simple first step.

Voluntary disclosure has failed to yield either desirable levels of useful information concerning corporate ecological impacts or adequate changes in corporate behavior to shift the global economy toward ecological sustainability.

I. Problems with Voluntary and Flexible Reporting

Brief Timeline

Critiques of voluntary reporting or disclosure reflect a common thread: voluntary disclosure has failed to yield either desirable levels of useful information concerning corporate ecological impacts or adequate changes in corporate behavior to shift the global economy toward ecological sustainability. In response to long-standing demands for more relevant non-financial information concerning important environmental and social issues, corporations have increasingly been issuing stand-alone reports on their “responsibility.” These documents purport to inform stakeholders on a range of concerns related to a company’s environmental, social and corporate governance performance (“ESG”, also known as the “triple bottom-line”). The nature of voluntary disclosure itself, in the context of a highly competitive economic system dominated by self-interested profit-seeking enterprises, undermines its theoretical promise as a transformational tool.

Writing on corporate social obligations dates at least to the 1950s and 60s, taking hold in public discourse to a point that, in 1970, Milton Friedman railed in the *New York Times Magazine* against the very notion of corporate responsibility as “fundamentally subversive” to a market economy. Nevertheless, by the early 1970s citizen groups and “ethical” investors began unsuccessfully to advocate expanded corporate disclosure duties to help society understand whether corporations were meeting their larger social obligations, not least of which is to avoid damaging the earth’s ecological systems. In the 1980s a few companies began to respond to these calls by voluntarily issuing reports on their environmental performance. As the trend continued in the 1990s, hundreds of companies began publishing some form of stand-alone non-financial report, and the phenomenon was hailed as signaling a long-awaited change in the relationship between corporations and society. It was hoped that as companies reported more information on their environmental and social impacts, society would be empowered to engage and advocate for needed changes. The rise in number of organizations developing guidelines, frameworks, and standards intended in one way or another to ensure some level of uniformity and reliability in these reports reinforced these hopes. Indeed, over the course of the past 15 years those sets of guidelines have become all but institutionalized in the corporate world. Some have even recently been adopted in one form or another in laws.

Today, thousands of companies voluntarily publish sustainability reports in compliance with one or more sets of standards. The most notable are those established by the Global Reporting Initiative (GRI), the largest and most influential sustainability reporting standard-setter, which alone guides more than two thousand companies in the preparation of their sustainability reports.¹¹ To its credit, GRI’s hard work has

resulted in large numbers of corporations publishing ESG reports, and it has set an increasingly high bar with respect to the discipline companies must apply if they wish to boast that their sustainability reports are “GRI compliant.”

Reports that comply with GRI’s standards are typically well-organized and presented, offer some level of information on a range of topics, and discuss policies and practices adopted by the reporting company to become more sustainable. Over time, GRI has modified and strengthened its framework, developed industry sector-specific guidelines, and in its latest iteration – G4 – focused heavily on the newly developed concept of “non-financial materiality” as a benchmark for reporting select activities, events, effects or impacts.¹²

Over time, GRI has modified and strengthened its framework, and its latest iteration focuses heavily on the newly developed concept of “non-financial materiality.”

Where Are the Results?

Results are what matter, and they are a disappointing but unsurprising reflection of the realities in play. For one thing, as a consequence of needing to achieve significant uptake by a corporate community not accustomed to volunteering information on subjects they would prefer not to discuss to stakeholders they would rather not acknowledge these frameworks are extremely flexible. As Friedman observed in 1970, corporate managers and directors owe a duty to shareholders to maximize the financial value of their investments. Most officers and directors believe they are legally bound by this duty, to a point that some states are enabling optional “B Corporation” charters that expressly permit directors and officers to take into consideration wider social and environmental issues in managing their companies. In other words, managers are conflicted. Absent considerable flexibility to adjust their reporting to fit their own institutional needs, they may as well make up their own standards.

It is difficult to put “flexibility” and “standard” in the same sentence. Although it has long been evident that society needs clear rules for ecological impact disclosure, what

¹¹ There are other organizations doing good work in this general space. The Sustainability Accounting Standards Board (SASB) is developing industry-specific guidelines for use by corporate CFOs in deciding whether non-financial matters are material enough to warrant inclusion in a financial report’s management discussion and analysis section. London based AccountAbility provides companies with a range of corporate responsibility consulting services, and it has published guidance on the same question of non-financial “materiality.” Swiss based International Organization for Standardization (ISO) publishes literally tens of thousands of standards, including the ISO 14000 series of detailed certifiable standards for design and operation of environmental management systems and the conduct of operational environmental audits and, most recently, the ISO 26000 series of non-certifiable guidelines on corporate sustainability and sustainability reporting. We like that there are so many dedicated people working to help companies become better global citizens. Coverage of all of these and others is beyond the scope of this overview paper. But we have the same concerns about their work as we do with the better known and widely used GRI: the guidelines are either too narrowly focused, or too subjective, or too flexible, or all of the above. In their current forms, none can achieve the level of ecological transparency the world so urgently needs.

¹² Meaning the relative importance of different issues.

Corporate sustainability reporting has three overriding and interrelated objectives: managing key stakeholder perceptions, enhancing corporate reputation and brand value, and legitimizing the enterprise with respect to societal norms and expectations.

GRI and others provide instead are frameworks and guidelines for preparing reports (and not disclosures). It makes a difference.

These guidance documents focus on process – the processes by which a company thinks about its environmental (and social) issues and decides whether and how to address some of them, the processes by which a company makes high level decisions, the processes by which a company engages with whomever it deems to be important stakeholders, and the process by which the company evaluates all of these processes, decides what is “material,” and prepares its report.¹³ Materiality is an especially tricky concept. It implies that the importance of a particular issue is significant enough that it needs to be included in a report. But the more subjectivity there is in the process, the more risk there is that managerial bias and other subjective judgments will result in a set of material items that may not reflect the universe of ecologically significant impacts that need to be covered for a report to be complete and accurate.

One of the express factors a company is permitted to take into consideration in deciding whether an environmental problem is “material” is the company’s own self-interest. Another major factor is simply the company’s evaluation of what issues are important to stakeholders. Not only does the company decide at the outset which stakeholders to engage and how to engage them, but it then ranks their concerns. This information is then added to the company’s own internal evaluations, and management then judges which items are significant enough to warrant reporting. Each and every step is highly subjective.

The Image of Sustainability

These flexible standards suit corporate managers’ needs quite well. Studies demonstrate that corporate sustainability reporting has three overriding and interrelated objectives: managing key stakeholder perceptions, enhancing corporate reputation and brand value, and legitimizing the enterprise with respect to societal norms and expectations.¹⁴

Interviews with managers bear this out as well; while many express interest in the information to highlight areas that might benefit from some form of innovation (either

¹³ See, e.g., Global Reporting Initiative, *G4 Sustainability Reporting Guidelines: Reporting Principles and Standard Disclosures*, and Global Reporting Initiative, *G4 Implementation Manual*.

¹⁴ E.g., Cho, Guidry, Patten and Hageman, *Do Actions Speak Louder Than Words? An Empirical Investigation of Corporate Environmental Reputation*, Accounting Organizations and Society, Jan. 2012, Vol. 37 pp. 14-25; Bebbington, Larrinaga and Moneva, *Corporate Social Reporting and Reputation Risk Management*, Accounting, Auditing and Accountability Journal Vol. 21, 337-361 (2008); Tregidga, Milne and Kearins, *Organisational Legitimacy and Social and Environmental Reporting Research: The Potential of Discourse Analysis* (presented at the Asia-Pacific Interdisciplinary Research into Accounting Conference, Auckland, 2007)); Sue Hrasky, *Carbon Footprints and Legitimation Strategies: Symbolism or Action?* (presented at the Australasian Conference on Social and Environment Accounting Research Dec. 6-8, 2009).

to reduce an impact or increase a business opportunity), virtually all are quite frank that their primary concern is managing expectations and perceptions.¹⁵ Indeed, in many companies, sustainability reports are a function of communications or PR departments rather than operations managers whose facilities generate the impacts in the first place.¹⁶ Companies are not competing on sustainability; they are competing on the image of sustainability.

Empirical evidence highlights the problem. The worst polluters are the most likely to publish sustainability reports, as are companies in more polluting industries,¹⁷ while superior environmental performers are more forthcoming in their disclosures.¹⁸ Thus there is no real correlation between sustainability reporting and ecological sustainability, nor is there any evidence of a causal relationship between publishing a GRI compliant report and reducing a company's ecological impacts.¹⁹ There is some evidence of a possible correlation between GRI compliance and shareholder value, but that is consistent with the hypothesis that GRI compliance assists with reputation management.

Public relations professionals are free to twist company reputations because there are no objective metrics for how sustainable an entity is.²⁰ What would be helpful, and what can be measured objectively, are considerations of how unsustainable an enterprise might be, chiefly by measuring its ecological impacts. But one would have to drag most CEOs kicking and screaming down that path, if for no other reason than because they have invested billions of dollars creating sustainable images.

Voluntary and flexible sustainability reporting frameworks deprive us of concrete information on truly important matters like actual ecological impacts. The superficiality of these reports has led to a decrease in non-governmental organization (NGO) engagement because, as a number of studies have shown, despite the fact that many

The worst polluters are the most likely to publish sustainability reports, as are companies in more polluting industries, while superior environmental performers are more forthcoming in their disclosures.

¹⁵ Cho, et al., *supra* n. 14.

¹⁶ *Id.*

¹⁷ C.H. Cho and D.M. Patton, *The Role of Environmental Disclosures as Tools of Legitimacy*, Accounting, Organizations and Society J. Vol. 32 pp. 639-647 (2007);

¹⁸ Clarkson, Li, Richardson, and Vasvari, *Revisiting the Relation Between Environmental Performance and Environmental Disclosure: An Empirical Analysis*, Accounting, Organizations and Society J. Vol. 33 pp. 303-327 (2008).

¹⁹ In other words, companies that reduce their impacts are more likely to publish reports to boast about their progress, but there is not yet any evidence that publishing a report causes subsequent reductions in impacts. For an excellent study and analysis of many of these various causal correlations, see Adam Sulkowski & Steven White, *Financial Performance, Pollution Measures, and the Propensity to Use Corporate Responsibility Reporting: Implications for Business and Legal Scholarship*, 21 Colo. J. Int'l Env'tl. L. & Pol'y 492 (2010).

²⁰ There are some people developing sustainability metrics and methodologies for calculating and comparing the relative sustainability performance of various companies, but they either lack an empirical base or assume that one will be developed.

What we need from companies is an honest accounting of their ecological impacts, absent framing and without biases or spin.

frameworks have an express stakeholder engagement component, civil society remains on the outskirts, uninformed, disempowered and disappointed.²¹ By now we ought to be routinely seeing congratulatory messages from environmental advocates when companies publish their sustainability reports, but instead the criticism grows increasingly vocal. What ought to be a process to inform has instead become a means of greenwashing, legitimized by ostensibly empirical but highly subjective and process-oriented standards.

And there's the real problem. Everything is oriented toward a voluntary process of making a series of highly subjective judgments. There is no real possibility of anyone being held accountable for creating misperceptions or failing to disclose meaningful, objective information. What we need from companies is an honest accounting of their ecological impacts, absent framing and without biases or spin.

Unfortunately, this is impossible with voluntary or flexible frameworks. This leads back to this paper's central point; we need an effective law that would result in detailed, enforceable rules and a clear set of standards for ecological impact accounting, disclosure and auditing.

²¹ Levy, Brown and de Jong, *The Contested Politics of Corporate Governance: The Case of the Global Reporting Initiative*, *Business & Society* Vol. 49 pp. 88-115 (2010); Stuart M. Cooper and David L. Owen, *Corporate social reporting and stakeholder accountability: The missing link*, *Accounting, Organizations and Society* J. Vol. 32 pp. 649-667 (2007).

II. Highlights of Global Disclosure Regulation

Recognizing these shortfalls, national and regional authorities, along with some national securities exchanges, have been enacting laws and rules obligating certain companies to report on their ESG performance. Although varying considerably in terms, scope, and coverage, at least 30 countries have adopted legislation promoting some form of sustainability reporting.²² As compliance with these laws rises, an increasing number of companies will publish some form of sustainability report or integrate some sustainability information in their standard annual financial reports.

However, the content requirements of these laws are flexible, tending to emphasize sustainability policies and environmental “performance” at fairly high levels of generality rather than disclosure of specific impacts. There is considerable doubt how informative the general public and concerned stakeholder groups will find these reports. Even more important is whether they will result in adequately significant and rapid reductions in corporate pressures on ecological systems and planetary boundaries.²³

Regional and National ESG Disclosure Regulations

European Union: Most recently, on April 15, 2014, the EU Parliament adopted a Directive concerning the mandatory reporting of ESG performance by public companies²⁴ as well as certain other large enterprises.²⁵ The Directive is fairly general and performance oriented, but it requires the EC to develop more detailed rules, and every member country is obligated to enact a law at least as strong as the Directive. It is hoped that this will ultimately raise the bar on ESG reporting in EU member countries to at least the level required by GRI’s framework or ISO’s 26000 series of standards. It will take several years for the European Community (EC) to publish more detailed standards and several years more for member countries to implement them. In the process, it is hoped that the number of European sustainability reporting companies will continue to rise, albeit with reports we expect to vary in content quality.²⁶

²² See Appendix for a list of countries. Coverage ranges from disclosure of investment criteria by pension funds, to disclosure of certain ESG matters by state-owned enterprises, to disclosure by companies in specified industries, to disclosure by companies listed on public exchanges, to disclosure by companies exceeding a certain defined size. In addition to national laws, some public stock exchanges impose rules either requiring sustainability reporting by some or all listed companies or requiring such reporting by companies seeking to qualify for listing in sustainability indexes. Some rules are global in scope, while others are focused solely on domestic ESG considerations. See, e.g., Initiative for Responsible Investment, *Global CSR Disclosure Requirements* (The Houser Institute for Civil Society at Harvard University 2012), retrieved from <http://hausercenter.org/iri/about/global-csr-disclosure-requirements>

²³ Because flexible sustainability reporting frameworks have not meaningfully reduced corporate ecological impacts, NGOs ought to be concerned that these frameworks are now becoming public policy in some nations.

²⁴ Companies listed on national exchanges within the EU.

²⁵ See <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2014-0368#top>

At least 30 countries have adopted legislation promoting some form of sustainability reporting.

Of all the nations to have implemented some form of mandatory non-financial reporting law, the UK deserves special mention.

Denmark: Denmark is often cited as one of the pioneers in mandatory sustainability reporting. Under Danish law, all large companies²⁷ are required to report annually on three dimensions of their corporate social responsibility (CSR): policies, practices, and sustainability performance.²⁸ The law does not specify disclosure of any particular ecological impact except greenhouse gas emissions, which was added to the law as of 2013. More than 97% of Danish companies publish CSR reports, though the content varies widely.²⁹ Like other countries, Denmark is a ‘flexible mandatory’ reporting jurisdiction – large companies must report, but the content is largely within the discretion of management, including a choice to not disclose information so long as the company explains why it is not disclosing it.³⁰

France: Another early leader in corporate non-financial reporting, France revised a nearly decade-old law on social responsibility reporting in 2010. Effective beginning in 2012, the new law, known as Grenelle II, requires all companies with more than 500 employees and total assets exceeding 100 million Euros to include in their annual financial reports information on social and environmental performance. There are a few specific impacts that must be disclosed, such as water and energy usage and greenhouse gas emissions, but the disclosures may be at the parent company level, and a company may choose whether to conform reports to GRI guidelines, ISO 26000 guidelines, or some other standard. As with most voluntary frameworks, the French law thus emphasizes reporting of policy, process, and performance over disclosure of specific impacts.

UK: Of all the nations to have implemented some form of mandatory non-financial reporting law, the UK deserves special mention. The Companies Act of 2006, which previously encouraged in general terms the reporting of ESG information, was amended in 2013 to create a new annual reporting structure.³¹ The law now includes mandatory disclosure in a new “Strategic Report” of greenhouse gas emissions and other “environmental matters” to the extent necessary to understand a company’s business.³²

²⁶ See, e.g., European Coalition for Corporate Justice, *EU Directive on the disclosure of non-financial information by certain large companies: an analysis*, May 8, 2014, at <http://www.corporatejustice.org/On-15-April-2014-the-European.html>

²⁷ Roughly, more than 250 employees.

²⁸ Act. No. 1403 (27 December 2008) amending the Act on Financial Statements.

²⁹ *Corporate Social Responsibility and Reporting in Denmark: Impact of the third year subject to the legal requirements for reporting on CSR in the Danish Financial Statements Act* (Danish Business Authority, March 2013).

³⁰ The so-called “report or explain” provision is common to many national ESG reporting laws.

³¹ UK Companies Act 2006 (Strategic Report and Directors’ Report) Regulations 2013; for an in-depth analysis see UK Department for Environment, Food & Rural Affairs, *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance* (February 2014) (the “Defra Guidelines”).

³² Defra Guidelines. The reporting requirement applies to all “quoted companies,” defined as UK incorporated companies listed on the Main Market of the London Stock Exchange, on the exchange of any state in the European Economic Area, or on the New York Stock Exchange or NASDAQ.

At first, this law may seem fairly unremarkable. But what is notable is the detailed guidance provided to companies on how to comply with the law. Published by the UK Department for Environment, Food & Rural Affairs (Defra),³³ the guidance makes clear that the UK wants something more than generic sustainability reporting, though companies still have considerable flexibility in determining content. With respect to greenhouse gas emissions, companies are required to report their direct (Scope 1) emissions for all activities they are responsible for, anywhere in the world. Companies may choose the framework for measuring, evaluating and reporting their emissions, but they are expected at least to provide fairly complete disclosure of all Scope 1 GHGs in CO₂ equivalent units at the aggregate parent level.

Defra also provides detailed guidance on what it considers to be the voluntary aspects of the law, starting with Scope 2 (indirect) and 3 (supply chain and product life cycle) GHG emissions. The guidance also offers concrete information on how companies should consider and report on waste generation and disposal, other emissions to air, soil and water, water use (broadly defined to include many water impacts), resource efficiency and material inputs, and impacts to biodiversity and ecosystem functions (services).

As with other nations, the UK Companies Act is still largely performance oriented and flexible. Other than GHG emissions, “environmental matters” determined by management to warrant discussion may be reported in the form of performance indicators selected from any of the frameworks in use, such as GRI or ISO. However, where they choose to report on a matter, companies must disclose at least some information on their methodologies, and it is strongly recommended that companies endeavor to provide quantitative data in absolute and normalized form. In addition, there is specific guidance encouraging consideration of supply chains and product life cycles. There are also specific recommendations concerning the implementation and maintenance of environmental management systems, including reference to established standards. Unfortunately, there is no audit requirement for either the compulsory or voluntary aspects of the reports, though third party assurance is recommended as a best practice.

Thus, indirectly, the UK Companies Act may be planting seeds for more meaningful and complete ecological impact information disclosure rules in years to come, as reporting companies taking to heart the comprehensive scope of Defra’s guidance will already be starting to develop the systems and practices necessary to measure, monitor, and report site-specific ecological impacts from their operations, suppliers, and products around the world. There is considerable room for improvement, but

The UK Companies Act may be planting seeds for more meaningful and complete ecological impact information disclosure rules.

³³ Defra Guidelines.

The Toxic Release Inventory provides some evidence that mandatory disclosure leads to changes in firm behavior, and as early as 1998 it was credited with reducing by almost 50% the overall release of hazardous substances on the list.

providing the environmental authority a role in the process sends a signal that these values extend well beyond the narrow band of traditional investor concerns.

Site Specific Impact Disclosure Laws

There are alternatives to flexible reporting standards. Information disclosure has become a central feature in environmental regulation, described as the “third wave” of regulation, following direct regulation of activities and more “market oriented” solutions like pollution taxes, fees, and subsidies. The idea is that transparency not only provides the general public and policy makers with information they can use in making decisions, but it can itself alter corporate behavior. Transparency is considered an economically efficient means of regulating corporate activity, because requiring economic actors to measure, monitor, and report certain activities forces management to invest resources in the systems necessary to track them and to examine those activities in light of potential regulatory, competitive and social pressures to reduce them. This can in some cases incentivize companies to reduce their ecological impacts without direct government intervention. Specific mandatory disclosure can thus, in some instances, reduce corporate pressures on ecological systems.

United States: Perhaps the most well-known and oft-cited example of environmental regulation by disclosure is the U.S. Toxic Release Inventory, administered by the Environmental Protection Agency (EPA) pursuant to the Emergency Planning and Community Right-to-Know Act of 1986.³⁴ TRI’s focus is on facilities, and if a facility in a specified industry sector employs more than 10 full-time employees and manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of a listed chemical, then it must submit certain data regarding that chemical to EPA and the state in which the facility is located. EPA makes TRI data public, and offers a searchable database to facilitate citizen engagement. The database can be difficult to master, but it does provide site-specific data on the release of hundreds of potentially dangerous substances.

Many studies conclude that TRI provides some evidence that mandatory disclosure leads to changes in firm behavior,³⁵ and as early as 1998 it was credited with reducing

³⁴ 42 U.S.C. sections 11001-11050. Canada, the EU and other places have equivalent structures, though composition of the lists varies by jurisdiction, as do the consequences of a chemical being listed.

³⁵ There have been innumerable studies and analyses on TRI and information disclosure as regulation generally. For a representative sample, see, e.g., Esty, *Environmental Protection in the Information Age*, *supra* n.1; Wagner, *Commons Ignorance*, *supra* n.1; Doshi, Dowell & Toffel, *How Firms Respond to Mandatory Information Disclosure*, 2012 (Mossavar-Rahmani Center for Business and Government at Harvard University); Wendy E. Wagner, *Imagining Corporate Sustainability as a Public Good Rather Than A Corporate Bad*, 46 Wake Forest L.Rev. 561 (2011); Mark A. Cohen and V. Santhakumar, *Information Disclosure as Environmental Regulation: A Theoretical Analysis* (Environmental & Resource Economics (2007) 37:599-620.

by almost 50% the overall release of hazardous substances on the list.³⁶ However, from a risk management perspective, the jury is still out – TRI focuses on quantities of chemicals released, not on the risks associated with those chemicals. Because one chemical might pose more ecological risk than another, or it might pose greater risk in one kind of ecological system compared to others, gross reductions in pounds of discharge might not accurately reflect reductions in ecological risk.

TRI is also extremely limited in scope. As of 2013, the TRI list contained 683 chemicals, less than one-percent of the more than 75,000 chemicals produced, used, or released by industry. Though some are assuredly safe, it would be foolish to assume that EPA has made well-informed decisions on every chemical substance in every ecological system. The EPA's approach is largely reactive, adding chemicals to the list only after there is enough science to establish some danger to ecological systems or human health. Even then, companies are only required to provide estimates rather than undertake rigorous monitoring and measurement of releases.³⁷

For all of its merits, TRI shares the same problem inherent in most environmental regulations: limited information and government resources. Even though TRI does not directly regulate the manufacture, use, or release of any listed chemical, EPA still must undertake expensive studies before it can add a new chemical to the list. With scarce funds and relatively few employees, EPA is simply overwhelmed; it is impossible for a relatively small government agency to do all of the science necessary to evaluate such a vast and growing universe of chemicals and compounds, most of which the agency knows little to nothing about.

The answer to these problems echoes this paper's original proposition: expand companies' disclosure obligations to include all chemicals. This information would not have to overload the TRI system because disclosures of non-listed chemicals could be uploaded to a separate database and cross-referenced against the TRI list. The resulting comprehensive and site-specific database of chemicals manufactured, stored, used, or released into ecological systems would be a vast storehouse of information from which we can build a broader and more solid knowledge base of the risks different economic activities pose to fragile living systems. Chemical dispersion is considered one of the nine planetary boundaries; this information is critical to ecological sustainability. As a component of an effective and comprehensive corporate ecological impact disclosure process, society would have the information

As a component of an effective and comprehensive corporate ecological impact disclosure process, society would have the information resources to understand more deeply the nature and extent of complex causal networks.

³⁶ See, e.g., Tom Teitenberg & David Wheeler, *Empowering the Community: Information Strategies for Pollution Control*, presented at Frontiers of Environmental Economics Conference (1998).

³⁷ It's been estimated that only 20% of disclosed releases are the result of actual monitoring. Thus some call into question the quality or reliability of TRI's data, though it is widely acknowledged that the database is a fairly decent indicator of the possible presence of listed chemicals in the environment regardless of its accuracy.

Requiring economic actors to report this information can in some cases incentivize companies to reduce their ecological impacts without direct government intervention.

resources to understand more deeply the nature and extent of complex causal networks underlying existing pressures on planetary boundaries. This, in turn, would lead to smarter, better-informed policy decisions necessary to achieve deeper, more meaningful sustainability.

Current Trend: Hopeful but Insufficient

The international trend is thus clearly in favor of compulsory reporting of limited non-financial information, including environmental sustainability performance. This narrow increase in transparency may result in a modest shift in corporate culture, at least to the extent that officers and directors might start thinking about some environmental, social, and corporate governance issues. This likely will satisfy some stakeholders. Customers and investors will to one extent or another be able to compare reports among at least sizeable companies in particular industry sectors and at least get a general idea of which ones might be trending toward greater sustainability by one or another approximate benchmark. Environmental and social justice advocates might in some instances have a better basis for engagement with particular companies depending upon what the companies discuss or fail to discuss in their reports. The general public may finally have a sense of the kinds of sustainability issues key economic players are thinking about.

However, it is unlikely that any of these laws will result in the kind of information necessary to concretely address the many threats to planetary boundaries posed by economic activities. Helpful as general corporate sustainability policy and performance indicators may be, we need a full accounting - clear disclosure of specific, localized ecological impacts as well as more detailed company-level data - on a fuller range of activities. Because sustainability is a societal phenomenon, the most critical information conveyed is the extent to which particular enterprises are unsustainable. Trends in sustainability performance do not allow us to pinpoint where and how particular activities pressure the earth's life support systems.

Requiring economic actors to report this information can in some cases incentivize companies to reduce their ecological impacts without direct government intervention. In the same way that the financial disclosure aspect of our securities laws reduced the frequency of frauds that had become too common in our capital markets, this reporting may curb some ecologically harmful practices as well. But the information is far more valuable than merely any capacity to influence corporate decisions. It has the potential to improve science and understanding across many dimensions, allowing a wide range of people to make wiser decisions. Absent that information, we cannot hope to know whether and to what degree any activity, business, or product may or may not be bringing us towards ecological sustainable society.

Only by considering both specific and cumulative impacts of all consequential companies can we establish benchmarks for achieving deep sustainability. Without that detailed data, it's impossible to pinpoint the most serious problems, the most serious problem places, and the activities most significantly contributing to those problems. Without that information, we can neither establish accurate thresholds or benchmarks nor measure specific activities against those benchmarks. Sustainability performance indicators may currently offer rough approximations, but with adequate information they can become powerful tools. Unless we can obtain reporting of accurate, reliable, and comprehensive information on ecological impacts, deep sustainability will remain an elusive aspiration.

Sustainability performance indicators may currently offer rough approximations, but with adequate information they can become powerful tools.

Occasionally a President will issue a request to the Commission, but it is entirely within the Commission's discretion whether to comply.

III. U.S. SEC Disclosure History & Issues Related to Ecological Impacts

The SEC & Its Independence

The Securities and Exchange Commission was created in the 1930s to protect the “general welfare” by administering and enforcing newly enacted securities laws.³⁸ The SEC regulates public securities exchanges and it regulates issuers³⁹ of securities⁴⁰ traded on those exchanges (but only with respect to those securities). Both of these functions are intended to serve the public good by ensuring open, fair, and efficient markets. With respect to issuers, the governing principle is transparency, achieved pursuant to a set of laws and regulations obligating issuers to publicly disclose considerable information about their financial and operating performance.

The Commission is one of the most independent agencies in all of federal government. There are five Commissioners, serving staggered five-year terms, one appointed each year by the President and confirmed by the Senate. Neither the President nor Congress can dismiss a Commissioner. Occasionally a President will issue a request to the Commission, sometimes in the form of an Executive Order, but it is entirely within the Commission's discretion whether to comply.

Congress has more power to direct the Commission, but only by enacting legislation. Once a law is enacted, it is entirely up to the Commission to interpret the law and adopt any additional rules it feels it may need to administer and enforce that law.⁴¹ The Commission takes its independence seriously; one reason why securities laws have become increasingly complex is that statutory detail is the only means Congress has to direct the Commission and to limit the Commission's discretion to interpret Congressional demands. Mary Jo White, the current Chair of the Commission (confirmed April 2013), highlighted this problem in a recent speech. Commenting on several new disclosure requirements added by Congress in 2010, which she and fellow Commissioners believe inappropriately address broader societal needs than those of just investors, White said, “we can, *unless no leeway is given*, write the rule in a way that best comports with our view of our mission . . .”⁴²

³⁸ Securities Act of 1933, 15 U.S.C. sections 77a et seq.; Securities Exchange Act of 1934, 15 U.S.C. sections 78a et seq.

³⁹ The corporation offering or proposing to offer securities.

⁴⁰ The SEC definition of security is broad.. For our purposes, it is sufficient to think of a security as representing an ownership or other significant financial stake in a company.

⁴¹ As a federal agency, the Commission can only promulgate rules through the formal notice and comment process required by the Administrative Procedures Act.

⁴² The Importance of Independence, speech by Mary Jo White delivered at Fordham Law School, October 3, 2013 (transcript from SEC website at <http://www.sec.gov/News/Speech/Detail/Speech/1370539864016>) (emphasis added).

Disclosure, Materiality, and the Financial Investment Paradigm

Issuers file a variety of reports with the Commission, most notably the annual report of financial and operating performance on Form 10K. Although skewed heavily toward financial data, these documents are not entirely numbers – SEC regulations require issuers to include in their annual reports discussion of operating results, significant developments in the company’s business, and certain risks and opportunities.

The principal means of keeping companies honest is by rules making unlawful any false or misleading statements, largely enforced by private civil actions brought by investors against companies, their executives and other persons alleged to have assisted them in making false or misleading statements. Any investor whose investment decision concerning a security was influenced by a false or misleading statement, and who lost money as a result of that investment decision, may sue for money damages if (and this is a big if) the statement was “materially” misleading, meaning that it concerned a “material” fact.⁴³ A fact is material if it is the kind of information that a “reasonable investor” would consider important in making her investment decisions, often meaning that this hypothetical reasonable investor would have made a different decision had she known the truth. This can be something that the issuer outright falsified (for example, inflating its earnings by claiming it sold more units than it actually did), or it can be something the issuer omitted from its statement if the omitted fact was necessary for the statement to be truly accurate (for example, the company sold the number of units it stated, but it failed to note an unusually high number of returned items).

Statements concerning liabilities can likewise be material, regarding both actual and contingent liabilities (those liabilities yet to transpire), but only if those liabilities are material risks to the company’s condition. This requires consideration of both probability and magnitude. If the odds are high that an event will transpire and give rise to a liability, and if that liability is going to be large enough to seriously affect the company’s performance (perhaps it shuts down a critical plant or the company loses an important lawsuit and is ordered to pay some vast sum of money damages), it may be a material fact that must be disclosed. But even a massive potential liability is not a material risk if the probability of it arising is too low or uncertain. Even a highly probable liability is not material if the likelihood is that it will be relatively small. For multi-billion dollar corporations, not many liabilities are material, and almost no contingent risks are considered material by this traditional approach.

The principal means of keeping companies honest is by rules making unlawful any false or misleading statements.

⁴³ It is important to note that materiality under the federal securities laws is a very different concept, using a very different approach, from the notions of non-financial materiality being worked out by organizations developing guidelines for sustainability reporting.

There has been increasing pressure on the Commission to push companies into disclosing more non-financial information, and by and large the Commission has resisted.

Materiality and Non-Financial Information

With financial information, these rules are fairly straightforward. If a company cooked its books, a thorough audit can often ferret out the real facts and figures, and there are rules of thumb for deciding what's material. But with non-financial information, more subjective judgments are required to interpret what was and wasn't said, what should or should not have been said, and the effects of all these things on the decisions of a hypothetical reasonable investor.

This is a lowest common denominator approach that includes those subjects and facts virtually any investor would consider important, and excludes anything else even if some significant percentage of investors – even 15%, 20% – might consider them important.⁴⁴ For this reason, a relatively large amount of financial information is disclosed and relatively little non-financial information is included in company disclosures. And where disputes arise concerning non-financial information, the focus is almost always on the financial impact or aspect of that non-financial information. Even though investor materiality is supposed to be about both financial and non-financial information, it is most often reduced to financial terms.

There has been increasing pressure on the Commission to push companies into disclosing more non-financial information, and by and large the Commission has resisted, on the grounds that (a) it is very difficult to police non-financial information for materiality; (b) too many different investors are interested in too many different things; and (c) the one thing in common to all investors is maximizing return on investment. Nowhere has the Commission more strongly held this line than with respect to information concerning companies' environmental or ecological impacts. It has steadfastly refused for decades to adopt any regulation expanding in any way issuers' obligations to disclose facts concerning their ecological impacts. Instead, the Commission has repeatedly insisted that since our hypothetical reasonable investor is primarily concerned with financial performance, and since the laws and rules require issuers to disclose "material" liabilities, issuers already are obligated to disclose ecological impacts if those impacts constitute actual or contingent liabilities that are material to a company's financial condition.⁴⁵

According to the Commission, nothing else matters but the company's bottom line.

⁴⁴ An estimated 12-15% of all managed funds are held by "socially responsible investors." These "SRIs" try to do well by doing good – working from inside the system to encourage companies to adopt more benign and sustainable practices, operations and products. But the existing financial materiality paradigm marginalizes even these fairly sophisticated investment companies, depriving them of information they consider important.

⁴⁵ In addition, companies are required to disclose any environmental action brought against them by a government agency if there is a likelihood that it will result in a penalty of more than \$100,000. As discussed below, this requirement is largely honored in the breach.

Environmental Disclosure Under Securities Law: Some History

Historically, issuers disclosed very little information on ecological impacts. As early as 1971, investors and environmental citizen groups were pressing the SEC to obligate companies to be more forthcoming about their environmental problems. It was dawn of an era, with several landmark environmental laws enacted and a new administrative agency created to protect the environment. Advocates concerned about public companies' impacts on the environment formally petitioned the SEC to adopt rules requiring issuers to file environmental impact disclosures. Rebuffed by the Commission several times, the concerned investors and environmentalists took the SEC to court, asserting that the National Environmental Policy Act ("NEPA") required the Commission to adopt environmental disclosure rules.⁴⁶ The district court agreed and ordered the SEC to adopt rules, but the federal appeals court reversed that decision, holding that the adoption of environmental disclosure rules was entirely within the Commission's discretion, and it was under no obligation to mandate corporate environmental disclosure.⁴⁷

This effectively meant companies could remain largely silent on the immense damage their businesses and products were inflicting on ecological systems. The rare environmental disclosures that were made were most often buried in the section of the 10K concerning legal proceedings, which automatically narrowed the focus only to situations resulting in civil suits and law enforcement actions. For companies, this represented a miniscule fraction of their harmful ecological impacts. These disclosures were typically phrased in nondescript, boilerplate language concerning unspecified or vaguely described problems, uncertainties surrounding the legal proceedings, defenses to the actions and beliefs there would be little or no liability, and most commonly a rote conclusion that even in worst case scenarios none of it would be material to the company's financial results. Because everything was framed in terms of the lowest common denominator "reasonable investor's" interest in "material" financial impacts, no information was provided to help understand the nature and extent of the ecological consequences of the company's business. The reasonable investor, it turns out, is a very poor proxy for what might be in the public interest.

Good examples of this phenomenon are GE's 10Ks for the fiscal years 1999 and 2000. During this period, the company entered into a consent decree to remediate parts of the Housatonic River and its floodplain in western Massachusetts' Berkshire Mountains. For decades, GE wantonly dumped PCBs in the region, burying them in metal

The federal appeals court held that the adoption of environmental disclosure rules was entirely within the Commission's discretion, and it was under no obligation to mandate corporate environmental disclosure.

⁴⁶ *Natural Resources Defense Council Inc. v. Securities and Exchange Commission*, 606 F.2d 1031 (1979).

⁴⁷ In its ruling, the appeals court noted that during the interim between the lower court's decision and its own, the Commission had adopted a rule clarifying that issuers were required to disclose environmental problems if they constitute material contingent liabilities. In other words, the new rule added nothing new.

EPA was so frustrated with the lack of environmental disclosure by public companies that EPA itself began sending public companies letters informing them of their disclosure obligations.

barrels, pouring and leaking them into the ground, even giving away PCB-laden detritus from its operations for residents to use as supposedly harmless “fill” for their properties. Over time, the soils, groundwater and riverbed were so thoroughly permeated with toxins that not only was the area’s ground and surface water unsafe to drink, but fish and wildlife were unsafe to consume, and even swimming in the river was hazardous. There were a number of cancer clusters within the floodplain, in some instances spanning several generations.⁴⁸

Yet, even as it sought court approval of a consent decree that was going to cost the company hundreds of millions of dollars in cleanup related expenses, it said nothing whatsoever about this situation in its annual 10Ks. The only mention of environmental problems in the FYE 1999 report was in two pro forma footnotes, where it mentioned that the company “is involved in a sizeable number of remediation actions.” According to GE, even in a worst-case scenario, the aggregate impact on the company from these actions “would not be material to GE’s financial position, results of operations or liquidity.”⁴⁹ The company’s report for the following year, filed well after GE committed itself to spend an estimated \$250 million to \$700 million on cleanup, was completely silent on the matter; it simply referred to the footnotes in the FYE 1999 report and once again recited that GE had no material liabilities related to environmental problems. Existing laws and rules enabled the polluter’s silence about the pollution.⁵⁰

EPA Pressure Hasn’t Worked

With respect to environmental problems, nondisclosure or minimal disclosure was the rule. By 2001, EPA was so frustrated with the lack of environmental disclosure by public companies and the apparent lack of SEC enforcement of its existing disclosure rules that EPA itself began sending public companies letters informing them of their disclosure obligations.⁵¹ However, that did little to change the situation.

⁴⁸ For an overview, see Berkshire Environmental Action Team, *GE and PCBs*, <http://www.thebeatnews.org/BeatTeam/ge-pcbs/>. Everything stated about the GE case is a matter of public record. The author of this paper served as counsel to some residents of the area at the time in challenging the adequacy of the consent decree. Today, after fifteen years of cleanup activities, residents of that region are once again challenging EPA and GE, this time on the adequacy of the cleanup.

⁴⁹ GE Annual Report on Form 10K for FYE December 31, 1999, filed March 17, 2000.

⁵⁰ Of course some information about some matters like these can be found in other public records. But this kind of decentralization is highly inefficient, contributing to higher than necessary levels of ecological ignorance.

⁵¹ United States Environmental Protection Agency, Office of Enforcement and Compliance Assurance, Memorandum to OECA Office Directors, Offices of Regional Counsel, Enforcement Division Directors and Enforcement Coordinators Re: “Guidance on Distributing the ‘Notice of SEC Registrants’ Duty to Disclose Environmental Legal Proceedings’ in EPA Administrative Enforcement Actions (copy in author’s file date-stamped Jan 19, 2001)

EPA had a strong basis for doing so, because not only are companies required to disclose material contingent environmental liabilities, but they are also required to disclose government actions if it is likely that a penalty of more than \$100,000 will be imposed. Many EPA actions, as well as those brought by other state and federal agencies, result in penalties that qualify for disclosure under this rule, but very few companies actually disclose them, concluding that the outcome is too uncertain to predict likelihood. Further, companies don't generally worry about the consequences of non-disclosure. Penalties of even millions of dollars are not usually financially material and thus investors cannot sue even though they may be under the false impression that the company is a better corporate citizen than it really is.

Although very few public companies disclose anything at all about environmental problems, SEC rarely takes action for nondisclosure.

Nor do issuers have much to fear from the SEC itself for such books and records violations. As the Government Accountability Office concluded in a 2004 report,⁵² although very few public companies disclose anything at all about environmental problems, SEC rarely takes action for nondisclosure. GAO noted it was possible that in some cases SEC staff might communicate more informally with issuers concerning material environmental liabilities, but it could not assess the level of engagement with issuers on environmental disclosure matters because of what it found to be extremely poor record keeping.

Nobody Knows What Polluters Don't Disclose

GAO's other major conclusion goes directly to the heart of the matter: it said it could not draw any conclusions about the lack of disclosure, because the only ones who know the nature and extent of companies' environmental problems are the companies themselves. If they aren't talking, there's no way to know what sort of environmental problems there might be, let alone which ones must be disclosed under existing rules. This highlights the true dilemma: where only polluters have information concerning their ecological impacts, nobody can understand or solve the problems.⁵³

Climate Change & GHG Disclosure 2006-2010

Around the time of the GAO report, SRIs took a narrower tack, urging the SEC to adopt rules governing disclosure of climate change related risks. In 2006 and 2007 they formally petitioned the Commission for rulemaking. The Commission refused to start the rulemaking process. In 2010, the Commission instead published "guidance" on disclosure of climate change related risks and opportunities and, for all intents and purposes, it was business as usual.⁵⁴ The guidance explicitly states that the

⁵² *Environmental Disclosure: SEC Should Explore Ways to Improve Tracking and Transparency of Information*, GAO-04-808, Government Accountability Office, July 2004.

⁵³ Economists call this the problem of asymmetric information, a market failure resulting in (among other things) poor use of the planet's scarce resources and higher levels of pollution and waste.

⁵⁴ "Commission Guidance Regarding Disclosure Related to Climate Change," Securities and Exchange Commission Rel. Nos. 33-9106, 34-61469, 75 Fed. Reg. 6290 (Feb. 8, 2010).

Congress offered two rays of hope in the omnibus Dodd-Frank Wall Street Reform and Consumer Protection Act, which require public companies to disclose the existence of any conflict minerals in their supply chains and payments they make to governments and government officials.

Commission did not adopt any new rule nor did it expand in any way issuers' existing disclosure obligations. The SEC was simply clarifying for this context the same obligation issuers have had since the 1930s: to disclose any liability, actual or contingent, if it is material. The SEC's bottom line: companies should identify climate change related risks, "consider" whether any of them are material, and disclose the material items. No more, no less. Nothing changed.⁵⁵

Hopeful Developments 2010

In 2010, however, Congress offered two rays of hope in the omnibus Dodd-Frank Wall Street Reform and Consumer Protection Act.⁵⁶ One is a law requiring public companies to disclose the existence of any conflict minerals in their supply chains,⁵⁷ and the other is a law requiring public companies in extractive industries (principally mining and petroleum) to disclose payments they make to governments and government officials.⁵⁸ These groundbreaking new disclosure laws expand the scope of corporate disclosure obligations in several important respects: neither law concerns disclosure of "material" information; indeed, the conflict minerals law is about completely non-financial information. Perhaps most important, neither of these laws are focused on investor needs. Both are designed to increase the amount and quality of information available to the public and policy makers regarding critical human rights and environmental problems.

Congress recognized that although other agencies and departments could have been tasked with receiving these disclosures (notably, State is responsible for processing and mapping conflict mineral supply chain information), the SEC was the most logical choice to administer the disclosures because it has a robust information disclosure system and well-understood, enforceable rules concerning false or misleading corporate filings and records. Although it is unclear whether investors will have any role in enforcing these new disclosure rules, corporate accountability will result in meaningful transparency regarding these matters of public concern.⁵⁹

⁵⁵ Recent reports by high profile business leaders, investors, and former government officials document that few companies have added climate change risk disclosures to their SEC filings. *Risky Business: The Economic Risks of Climate Change in the United States*, 46 & 51 (Risky Business Project, June 2014); *Cool Response: The SEC and Corporate Climate Change Reporting* (CERES, February 2014).

⁵⁶ Pub. L. 111-203, 124 Stat. 1376 (July 21, 2010) ("Dodd-Frank")

⁵⁷ Dodd-Frank section 1502.

⁵⁸ *Id.* section 1504.

⁵⁹ It would be more accurate to say there might be accountability. It took the SEC two years to write the rules for these two modest laws, and industry immediately sued the Commission challenging each of them. As of the date of this report, the SEC lost one case (involving the extractive industry payments law and rules) and is perhaps going to rewrite the rules and try again. The conflict minerals law and rules are still tied up in litigation, although issuers are now required to disclose some information that is no longer at issue in those lawsuits. Because Congress gave the sometimes obstinately independent Commission very little leeway it is possible there will be at the end of this process a set of rules clearly obligating issuers to disclose these matters.

IV. The Disclosure Detail Needed: Measuring Unsustainability

We can measure every company's unsustainability.

Whether a company is sustainable can only be assessed by understanding all of the effects of its activities, including the cumulative effects of its particular set of ecological impacts along with those of all other actors. Sustainability is a collective problem requiring collective decisions and solutions.

As of now, we cannot measure sustainability, at least with respect to any particular enterprise.⁶⁰ Regardless of a company's level of "performance," by whatever set of benchmarks might be chosen, its sustainability as an enterprise is entirely dependent upon a complex set of external factors including the inputs and outputs of other actors and the characteristics and dynamics of the systems they are collectively interacting with. There is a temporal element to this analysis as well, because what might be considered sustainable today may well be considered less sustainable over time, as actors and their inputs and outputs change and even highly resilient systems undergo changes to trophic processes. These numerous and often changing variables make benchmarking and indicators extraordinarily imprecise, a problem amplified by a lack of accurate, objective data.

We can do better. We can measure every company's unsustainability, and doing so allows for direct comparison among and between businesses based upon accurate disclosures of actual impacts (and the ecological effects of those impacts) connected to their operations, their supply chains, and the use and disposition of their products. This impact information can be processed in numerous ways, giving us an accurate picture of how unsustainable various elements and subsystems of our economic system are,⁶¹ as well as the gross impact of the system as a whole. In knowing how unsustainable enterprises and collectives of enterprises are, we can far more accurately gauge the overall unsustainability of our society, leading to better informed and more intelligent decisions regarding everything from investments and product purchases to public policy. In this way, we can deliberately transition to more sustainable systems and we can more accurately and honestly gauge individual corporate sustainability performance.

⁶⁰ For a thorough and powerful treatment of the problem of measuring sustainability, see, Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi, *Report by the Commission on the Measurement of Economic Performance and Social Progress* (2009), pp. 61-84, 233-287 (these world-class economists insist emphatically that no valid sustainability measure or index is possible without using "well-chosen set[s] of physical indicators" of ecological conditions, such as pollutant emissions, nutrient loading to water bodies, abundance of key species, rates of habitat conversion, etc.)

⁶¹ For example, we can examine cumulative impacts of all operations affecting a particular ecosystem or bioregion, or of particular industries, or of certain defined kinds of activities. These tasks are impossible with compilations of existing sustainability reports.

The baseline must be disclosure of objectively verifiable facts conveyed in the universal language of science benefiting from the well-established scientific process used by federal agencies in the preparation of environmental impact statement.

Measuring Unsustainability Means Knowing Ecological Impacts

No company can honestly boast of its sustainability performance without knowing what its ecological impacts are. A company claiming to be performing at a certain level with respect to its water impacts must know what water systems it is impacting, how much water it is drawing from those systems, how much it is returning to those systems (and how quickly), the quality, chemical composition and temperature of the water it is returning, the ways in which it is altering the flow of water in those systems, and more. If all we are told in its sustainability report is that the company invested a certain amount of money in water conservation processes that have reduced its overall water “use” by a certain amount, we are left fairly ignorant about the enterprise’s water impacts. Adding normalized information about intensity ratios such as water use per unit of product or dollar of revenue does nothing to improve the quality of information.

What is relevant is likely what the company does not want to talk about: for example, how its particular operations, facilities, business units, suppliers, and products are impacting particular water systems and sources, as well as the ways those direct impacts indirectly or cumulatively affect larger systems and the species that inhabit them. And if that company decides to start providing that information, we still are not much better off if other enterprises are not likewise providing the same information. Until every company is disclosing the particulars of its ecological impacts, we simply have no way of knowing how sustainable or unsustainable any constituent element of our economic system is.

What We Need Now

The United States needs to help advance how a very large number of major corporations report their sustainability and unsustainability to the public. Congress must enact legislation amending the Securities Exchange Act to require every issuer to disclose its ecological impacts in a report to be filed annually with the SEC, and to obtain independent third-party assurance or certification of the accuracy of its report. The law must be designed to maximize the timeliness, accuracy, comprehensiveness, and reliability of every company’s ecological impact disclosures. The baseline must be disclosure of objectively verifiable facts conveyed in the universal language of science, developed according to established techniques and principles used by people working in the sciences in private, non-profit and public sector settings. The law must compel disclosure of any direct, indirect or cumulative effects of those impacts on surrounding systems and species if a company knows or has reason to know of such an effect.⁶²

⁶² In many cases companies know something about some of the ecological effects of their direct impacts. There is no reason to compel companies to undertake studies, but they ought to disclose what they know. The “has reason to know” standard prohibits cases of willful blindness by requiring a company to disclose an effect if a person of ordinary intelligence and prudence would ascertain the existence of that effect from all of the known facts.

Therefore, wherever possible, impacts and effects should be disclosed by:

- ◆ precise geographic location according to generally used terms such as physical address, and a universal coordinate system;
- ◆ impacts and effects expressed in quantitative physical units (such as gallons, tons, acres, kilowatts);
- ◆ framed in terms of relevant temporal units (e.g., per day, per month, per season, per year);
- ◆ when quantitative data is not available or adequate to disclose an impact or effect, qualitative descriptions should follow the conventions of a relevant scientific field;⁶³ and
- ◆ emphasis on objective rather than subjective information.

Settled case law might reduce the number of disputes.

What Type of Legislation

Where it serves the overarching purpose, legislation could incorporate a term or concept with established meaning, such as NEPA's "cumulative impact." In those cases, settled case law might reduce the number of disputes. However, the purpose of this policy is different from NEPA, so the details of the law and regulations will need to be drafted with those distinctions in mind.

Of course, the SEC does not have the expertise to provide all of the necessary detail, so the law must establish a consultative or cooperative process by which other agencies or bodies with relevant expertise can provide the SEC with needed input or write some of the rules, or supplements to the rules, themselves. A clear law and precise rules will lead to more predictable and reliable outcomes, including administrative and/or court decisions when questions or disputes arise. We do not have the luxury of decades to evolve a workable disclosure process; a well-designed law and robust regulations will result in meaningful disclosures relatively quickly, which in turn will result in more rapid assimilation of the information by markets, sciences, citizens, regulators and legislators.

The law can provide criteria by which regulators can, where necessary, grant reasonable extensions of time to comply with aspects of the disclosure rules, and it can likewise create blanket exemptions, presumptions, and other means calculated to generate an increasing flow of accurate and comprehensive information as systems are refined and deployed, analyses are commissioned, inquiries and investigations made, and other good faith efforts undertaken to secure information necessary to render corporate impact reports complete.

⁶³ In these cases a reporting company should explain why it has not or is unable to take quantitative measurements, and if it is possible to measure or express an impact quantitatively it should state what plans it has to do so for future reporting periods. This is a stronger version of "report or explain" provisions in some other countries' and regions' sustainability reporting guidelines, necessary to achieve the best quality disclosure possible.

This law must have teeth. As with our securities laws, an ecological impact disclosure law must prohibit the making of false or misleading statements.

Because large numbers of companies and investors value having some sustainability information in certain forms, the law ought to allow these practices to continue. But at a minimum, that information must be segregated from the core section disclosing information on ecological impacts and effects. For example, most sustainability reports discuss various measures taken to mitigate, reduce or rectify environmental impacts or effects. Companies should be encouraged to disclose such information, but they must be required to provide concrete, objective data on actual reductions, remediation or restorations. Just as with impact data, the law should require absolute figures using established or widely-accepted measures.

Similarly, there are trends to frame sustainability information in economic or financial terms. That, too, should be permitted. But natural capital and ecosystem services valuations and analyses must be accompanied by clear and complete disclosure of methodologies, references to applicable standards, and either tables of data, or links to publicly accessible data adequate to allow third-party testing of the methods and verification of the calculations. Moreover, no mitigation or economic information can be permitted unless it is expressly and clearly tied to actual impact disclosures. A statement of statutory purpose is essential given the context in which this reporting will occur. While some investors are concerned with these issues, and all investors ought to be, the purpose of this legislation is to serve an acute and overriding public interest in facilitating the transition to a more ecologically benign economy by increasing the amount and quality of publicly available information on corporate ecological impacts. The reference point is any user of the information, across a wide range of stakeholders and others. This needs to be stated explicitly in the legislation so that regulators, courts and others will not drift toward the default investor-centric position of financial materiality.

Enforcing the Law

This law must have teeth. As with our securities laws, an ecological impact disclosure law must prohibit the making of false or misleading statements⁶⁴ in or concerning the subject matter of company reports, and there must be consequences for violation of this provision. To prevent companies from spinning or greenwashing their disclosures, this provision must apply to any sustainability reports or other documents published by companies; this does not mean that such reports need be of the same level of detail or rigor, nor need the law dictate formats or content, but at a minimum statements in sustainability reports cannot be permitted if they are false or misleading in light of the information disclosed in (or omitted from) annual corporate ecological disclosure filings.

⁶⁴ Including omissions of information where the information omitted is necessary to render the statement true or accurate.

The incentives to maintain information asymmetries are overwhelmingly numerous and strong. The objective of this law is to maximize high quality information to achieve ecological honesty and transparency. This demands maximum enforceability or actors will invest considerable resources in gaming the system to their short-term advantage whenever the opportunity arises. An ecological impact disclosure law will not be written on a blank slate; there are eighty years of disclosure law history on which to build a realistic and workable set of rules, including rules necessary to maximize compliance and minimize distortions.

The objective is to maximize high quality information to achieve ecological honesty and transparency.

While it is appropriate to provide for some forms of administrative action, enforcement of this law does not require the creation of a vast new bureaucracy.⁶⁵ Regulators simply have neither resources nor broad expertise to monitor and evaluate every disclosure report filed by every issuer, and it would be inefficient to expend taxpayer funds to remedy this shortcoming. The combined resources of the myriad citizens and citizen groups interested in the multitude of reporting companies and ecological impacts related to these reports are more than sufficient to gather intelligence, monitor activities, conduct studies, tests, and conduct analyses necessary to evaluate reports, and to take action where it becomes evident that a report is false or misleading. Granting these interested citizens a private right of action is therefore a cornerstone of an effective ecological impact disclosure law. A well-drafted statement of statutory purpose will convey citizen standing by establishing a right to the information and actual injury where that right is infringed. It would defeat the purpose to require economic injury, so the statute must provide a reasonable range or measure of statutory penalty, in addition to the court's inherent equitable power to issue an appropriate injunction.⁶⁶ Given that parties will not be required to prove economic injury, it might be unjust to allow them to profit by collecting statutory penalties in cases where they prevail. Instead, these funds should be paid over to the Treasury, or to some other appropriate fund designated or established by Congress, perhaps to study the ecological effects of certain kinds of impacts or activities, or perhaps to development of databases, maps and indices of impacts and effects. In order to ensure that citizens and organizations lacking the resources have both the ability and incentive to engage in what may

⁶⁵ Administrative actions may be necessary to ensure compliance with recordkeeping requirements and technical features of the law and rules. In addition, the SEC ought to be empowered to bring civil actions, or even refer possible criminal actions to DOJ, in serious cases. The law could also contain whistleblower provisions that reward people who act as watchdogs and provide valuable information that prompts the SEC to take action where appropriate.

⁶⁶ To be clear, this proposed law is not intended to intersect with or expand investors' independent rights under existing securities laws. If an investor suffers a loss by reason of a false or misleading statement in or concerning an ecological impact disclosure, she or he may have recourse through traditional securities fraud causes of action. It may also be possible to provide as an alternative to statutory penalties an option for a person instead to elect to prove and recover economic damages for false or misleading ecological impact disclosures, though it is unlikely there would be many such instances because the object of the law is the information itself.

In some instances, an issuer may perceive a legal impediment to disclosing certain information, because some countries may have laws prohibiting the public disclosure of certain kinds of information.

be quite expensive court battles with huge multinational corporations, the law should require courts to award reasonable attorneys' fees where those citizens prevail.

There is no need for this to become an attorney boondoggle because the law can provide courts with criteria or guidance for determining what fees might be reasonable in a given circumstance. Further, to be fair to reporting companies the law may also provide courts with discretion to award defendants reasonable attorney fees in cases where a court finds claims to have been frivolously made.⁶⁷

International Disclosure Prohibitions

Many issuers subject to this ecological impact disclosure law will operate overseas, and virtually all will have suppliers located in foreign countries and/or products used or disposed of in those places. In some instances, an issuer may perceive a legal impediment to disclosing certain information, because some countries may have laws prohibiting the public disclosure of certain kinds of information. These issues arise frequently in tax disputes and in litigation with transnational dimensions, and courts have inherent powers to command any party over whom they have jurisdiction to produce information regardless of an alleged foreign prohibition. The law's default position should require disclosure by an issuer without regard to any asserted foreign prohibition.

However, some issuers will balk because they may fear punishment, including possible criminal penalties, depending on the foreign law at issue. Some of these claims may in fact be legitimate and companies should not unduly be put in the position of having to choose one country's penalties versus another. Thus, the statute should provide that in circumstances where a company has a genuine good faith belief that it is prohibited from disclosing certain information by a foreign law or authority, it must disclose everything it can disclose, then describe the kinds of information it cannot disclose, identify the foreign law or other authority prohibiting it from further disclosure, and certify that it has taken good faith steps to obtain waiver or exemption from the prohibition. That information should be included in the company's annual disclosures and separately reported to the SEC to effectively notify it and the public that the company is withholding otherwise discloseable information.

A copy of that notification should also be provided to the State Department with all of the detail necessary for State to pursue an inquiry with the foreign government and seek on behalf of the United States a waiver from application of the prohibition

⁶⁷ Meaning claims that are brought to harass, embarrass, or attempt to extract a settlement, or otherwise made in bad faith, knowing or having good reason to know that there is absolutely no factual or legal basis for making the claim. This does not include all cases in which a court concludes that the complaint lacks merit, but only those in which it was unreasonable by any standard to have filed the complaint in the first place.

so that the company may be permitted to disclose the withheld information. There should be penalties for bad faith claims of foreign prohibition, as well as for refusals to disclose information once State has obtained a waiver or determined there is no legal impediment.⁶⁸

The law would not impose a unique burden on U.S. companies. Many foreign companies issue securities for trading on U.S. exchanges, and they would be considered issuers subject to the ecological impact disclosure law. The statute should exempt only to those foreign companies who are required by their home country to publish or file publicly a report similar to that required under U.S. law. This would exclude most foreign company reports which are or will be published according to one or another of the flexible frameworks the U.S. law is designed to improve upon. But this provision would allow for ready harmonization with foreign laws as and when countries or regions elect to bring their companies up to U.S. standards. This is how the U.S. can exert its influence as a world leader, much as it did decades ago with our securities laws and then our laws against bribery. In raising those bars, we provided examples that have become norms throughout much of the world.

Private Company & Small Business Disclosure

This paper highlights what would be required to establish a workable, enforceable, clear and rigorous set of rules governing corporate ecological impact disclosures. This is not a panacea – even with respect to the flow of information, many large companies will be exempt because they are privately held and not subject to SEC jurisdiction. The EU and some countries have decided to bring at least some privately held large companies within the scope of their sustainability reporting frameworks, but the legal structure in the U.S. makes comparisons difficult and, in any event, by and large the approach around the world has been first to impose some obligation on public companies and then extend obligations to others. We think that is the wiser course, and there will be nothing prohibiting private companies from following suit and voluntarily issuing disclosure reports consistent with the standards applicable to public companies. It would be smart for them to do so, because sooner or later the law will need to be expanded to include them.

A more open question concerns small and medium size enterprises. The general approach has been to exempt many of them, but it is widely understood that ultimately they, too, will need to do some form of reporting. Small businesses are generally less likely to have impacts significant enough to trigger the preparation of an ecological

The EU and some countries have decided to bring at least some privately held large companies within the scope of their sustainability reporting frameworks.

⁶⁸ Provided that a company files notice of the prohibition on its own in the first place, there should be a safe harbor for liability arising from good faith withholding of the information at issue. However, where a company waits until an action is commenced and then claims foreign prohibition as a defense, the safe harbor should not immunize it from liability for false or misleading statements.

Much has been learned regarding basic tests for whether ecological impacts are significant and need to be disclosed in an audit.

impact disclosure statement, just as federal agencies don't have to do a NEPA EIS if a particular project does not have significant impacts.

Auditing

Clearly, much of what will be required to draft a set of clear, precise and effective rules for ecological impact disclosure is beyond the expertise of the Commission and its staff. This is true with respect to defining what must be disclosed, how it should be disclosed, and how those disclosures should be audited by independent third-parties. Ecological accounting and auditing standards must be clear, precise and designed to ensure the integrity of the entire process. In this regard there are already standards and guidelines issued by private and governmental bodies from which much could be borrowed in developing standards. For instance, various federal and state agencies have procedures for developing and performing ecosystem assessments, evaluations and management plans, federal agencies have procedures for undertaking environmental assessments and preparing environmental impact statements pursuant to NEPA, and the EPA publishes considerable guidance for conducting environmental audits and assessments in various contexts. Likewise, the number of private and non-profit sector entities issuing potentially useful guidance and standards is growing rapidly.

Among other approaches, Congress could create, or authorize the SEC to create, an independent non-profit corporation or organization to establish and even enforce in the first instance certain audit or ecological accounting standards, including standards governing qualifications necessary to perform the function. This independent body could be self-financed by members of a new ecological accounting and auditing profession, thereby alleviating government of some of the economic burden of establishing and administering all of the rules necessary for the system to properly function.

Congress would need to carefully direct how this entity is to be set up, how it is to be governed, how its independence is to be established and maintained, how it would be financed, and what powers it might be allowed to have to enforce its standards with respect to the nascent ecological impact audit industry. After which, under the supervision or oversight of the SEC, this independent body would relieve government of some administrative burden while ensuring that the profession maintains the highest standards of conduct, thereby serving the public by keeping as open as possible the flow of timely, accurate, comprehensive and reliable ecological impact information.

Professional ecological auditing businesses would advise companies on the preparation of ecological impact disclosure reports. Given the growing number of companies, including major accounting firms, with established and growing sustainability

consulting and examination practices, there would be rapid uptake of this idea and very likely adequate financial support to get it started and operating. Care would have to be taken in drafting the law or regulations to ensure that ecological impact auditing practices are fully independent, including separation from financial accounting practices, but such conflict walls are common to various professions.

Controversy

The business lobby will fight hard to oppose this law. But the number and magnitude of the planet's ecological problems is enormous; we are floating about in a sea of ignorance and disinformation, and something needs to be done. Curing the conditions of ignorance is a huge first step, and the lightest possible form of regulation. To the extent behavior changes enough as a result of disclosure that no further government intervention is warranted, that's great. To the extent it is not, there will be plenty of information for a spirited but well-informed public debate. Meanwhile, investors, customers, consumers, citizens, everyone will have plenty of good information on which to base their decisions, and since the information disclosure law will be entirely value neutral, designed to capture information free of bias, there can be no legitimate reason to complain about government paternalism. To the contrary, it is paternalistic of government to decide this kind of information is too confusing or challenging to be of any real use or value to the public.

Companies may argue that this process will be expensive to implement, and some will argue that it will be an economic burden on government as well. They were against the financial auditing requirements but today this practice is well-received and even demanded as essential to good investment and good governance. True, information gathering systems may be costly to develop and implement, and there will be some expense going forward to maintain those systems and process the information for disclosure. But from an economic perspective, someone has to bear the burden of correcting for the market and policy distorting effects of asymmetric information, and that answer is the least-cost provider. It's an economically sound decision, and it is entirely supportable as a matter of justice and equity as well. When we factor in the immense cost to society and the planet of all of these externalities there simply is no other reasonable answer than this: polluters ought to bear the cost of informing the public of their pollution.

Some will argue that this is technologically difficult, or that there are not always well-developed methodologies for measuring or otherwise describing certain impacts. All of which is true. But technical difficulties are always overcome, and in this instance environmental management systems and supply chain management systems are already so sophisticated that adding components to gather up whatever impact information is not already being captured is going to be fairly simple. It may

Curing the conditions of ignorance is a huge first step, and the lightest possible form of regulation.

Truth ought never be an enemy, and there comes a time to stand up, be straight up, and know that honesty will be a valuable asset.

take some time, but regulators can be given some discretion, according to clearly established criteria, to be flexible in cases where the technology or a methodology simply doesn't exist. And in cases where there are multiple methodologies, either the regulations can address that, or some other standards can address it, or differences will simply get worked out over time. Nobody is going to lose a lawsuit because the methodology they employed resulted in different quanta of ecological impact than one used by a plaintiff; the 'false or misleading' standard requires some level of intent to falsify or mislead, so good faith employment of a reasonable methodology taking into account all of the available information will not result in liability.

To the extent that companies decry the competitive disadvantage this may place them at, this is no different than the opposition leveled at Congress over passage of the Foreign Corrupt Practices Act. If a company is profiting at the planet's expense, damaging some ecosystem or extinguishing some species, it has no ground to complain that it's somehow not fair to have to disclose its impacts while others not subject to the law get to keep their secrets. Truth ought never be an enemy, and there comes a time to stand up, be straight up, and know that honesty will be a valuable asset. Ecological honesty will enable stronger and more reliable sustainability claims, and the discipline imposed by the process will place disclosing businesses at greater and greater competitive advantage as society adopts measures to defend planetary boundaries. And if not, such is the price of ecological progress. It's unfair to all the rest of the world that a company pollutes. We're not proposing to make outlaws of polluters; our only point is that they have to start telling the truth about it.

Last, many will argue that they are already publishing much information on their impacts through sustainability reports and elsewhere. They will argue that flexibility is required to meet the needs of different companies in different industries. They will assert that these things will improve over time, that the markets can take care of things, and that they really are serious about sustainability even if we don't necessarily trust or believe them. If you've read this far, you know where we stand. If you haven't, start from the beginning and you'll get it.

Conclusion: A Healthier Economy and a Cleaner Planet

Quality information is always valuable. Although information can be hidden or locked away for private gain, many economists consider information to be a public good.⁶⁹ This is all the more true for information concerning matters of public concern. Nothing can possibly matter more than whether humanity is going to be able to transition to more ecologically sustainable ways. We must rapidly reduce from the immense pressures we are placing on life giving planetary systems.

The Benefits of Transparency

In adopting a law and regulations of this nature, we will not simply ensure a flow of useful information, but we will ultimately shift expectations leading to new norms. Instead of walls of secrecy and privacy, a new norm of ecological transparency will emerge. Society will come to expect levels of ecological honesty from those privileged to operate business enterprises, at least those of any real scale or consequence. Customers will develop expectations that goods and services they consume come with reliable information concerning their relative impacts. Investors will expect more rigorous ecological impact accountings and they and society will begin to hold companies accountable for those impacts. Policy makers will have far more information to act upon. This means they will make better informed decisions concerning what to regulate and which policy tools to use, and society will have rightful expectations that their leaders actually take action where it is warranted because the picture will be far more clear, doubts and debates far fewer and of less merit.

We will have ecological clarity and it will be incumbent upon us to act on that knowledge. NGOs will have a meaningful role in the entire process, from gathering information and monitoring companies, to enforcing the laws ensuring truthful and accurate information, to processing all of the disclosures, issuing reports and educating the public on ecological problems and their causes, to advocating policy and pressuring policy makers to take concrete steps once information is more fully developed. People working in the sciences will have vast new resources at their disposal, flows of useful and usable data and information they can integrate into existing work and use to undertake new studies and develop new models. There is hardly an element of society or in the web of life that would not benefit from this policy, and whatever inconveniences or costs might be borne by business will be substantially outweighed by a healthier economy and a cleaner planet.

Instead of walls of secrecy and privacy, a new norm of ecological transparency will emerge.

⁶⁹ On the nature and value of information and the market distorting effects of information imbalances, see, e.g., Joseph E. Stiglitz, Information and the Change in the Paradigm in Economics, Nobel Prize Lecture, December 8, 2003.

APPENDIX I

SUMMARY OF PROPOSED DISCLOSURE REQUIREMENTS (SAMPLE STATUTE)

This summarizes the legal requirements necessary to achieve the level of ecological transparency of economic actors society needs to more fully understand the ways we impact the planet's living and life support systems. It largely follows the form of an operative statute and contains many of the provisions necessary to make it workable, but it is not exhaustive. It has been drafted in a way designed to harmonize with existing securities laws, which it will amend in order to accomplish its purposes. We are organizing a consultative process with experts in various fields of endeavor, in law, science, economics, and business management, among others, to continue to expand this work toward a final, publishable, enforceable and passable bill to advance in Congress and with other countries.

I. The Act

*This Act shall be known as the **Corporate Ecological Impact and Effects Disclosure Act** (the "Act"). This Act amends the Securities Exchange Act of 1934 (15 USC sec. 78m) by adding a new Section __ .¹*

II. Findings²

Sustainable economic activity is an imperative for society, a goal shared by the United States and the community of nations. A sustainable economic system protects and preserves natural resources, systems and processes to secure the well-being of current and future generations.

Ecological systems are vital to all life on earth. The earth system is an ecological system composed of nested and interconnected networks of systems and processes that exist variously at local, regional and planetary scales in relationships of mutual influence and feedbacks. Human society is embedded within these systems.

Ecological systems are resilient, but there are thresholds and tipping points beyond which they can be impaired and collapse. Likewise, the planetary processes that support and sustain life on earth have limited capacities to provide the necessary conditions for life to flourish. These limits constitute planetary boundaries, delineating the safe operating space for a diverse and healthy biosphere.

Human health and well-being are inextricably bound to the integrity of local, regional and planetary ecological systems and processes, which provide a range of conditions and resources necessary to the sustenance of society and all species.

Human activities are principal drivers of negative ecological change, exerting pressures on and even overshooting planetary boundaries. Many of these drivers result specifically from economic activities, particularly the extraction and consumption of renewable and non-renewable material resources, water and energy and the generation of pollutants, toxic by-products and wastes.

The planet and its resources are finite. One of the purposes of an economic system, particularly a market economy, is to ensure that resources – including raw materials, water, energy and waste-absorbing capacities – are used in a way that best serves society by maximizing the well-being of all. The imperative of sustainability requires us also to take into consideration future generations, because society is obligated to

ensure that today's actions do not deprive future generations of the ability to maximize their own well-being.

Activities of private economic actors often generate negative externalities, which are physical and economic costs imposed upon and borne by society and the planet's ecological systems.

Negative ecological externalities constitute market failures that are costly to society and the planet's ecological systems. Although economic figures alone are inadequate to fully express the true costs of these externalities, it is clear that private actors are shifting trillions of dollars of costs associated with their activities onto society such that a relative few are inordinately and unfairly profiting at the expense of the many.

There is considerable uncertainty regarding the existence, nature and magnitude of negative ecological externalities. Conditions of asymmetric information, under which economic actors have greater access to and control of information concerning the externalities of their activities, contribute significantly to this uncertainty. An economic system that operates with such a high degree of uncertainty about such an enormous magnitude of physical and economic costs is not sustainable.

There is a compelling public need for information concerning negative ecological externalities. Information concerning negative ecological externalities is a public good inasmuch as it relates to the external impacts of private economic activity on the planet and society.

The public benefits of greater access to information concerning negative ecological externalities substantially outweigh any value such information might have in the exclusive hands of private economic actors.

It is economically inefficient and unreasonable for society to expend resources to detect, measure and monitor negative ecological externalities; economic actors are the least-cost providers of information concerning their negative ecological externalities.

Growing numbers of companies are issuing sustainability reports, corporate social responsibility reports, corporate citizenship reports and other reports and publications purporting to set forth, among other things, the environmental performance or consequences of those companies' businesses. ("Sustainability Reports"). Due to the lack of a comprehensive, definite and binding set of rules and standards, such reports are often incomplete, biased, misleading or otherwise unreliable sources of information concerning the negative ecological impacts of the reporting companies' businesses.

There is growing need among consumers and customers for accurate information concerning the ecological and human health impacts of the products they purchase.

There is growing need of investors for non-financial information, including information concerning the negative externalities of private economic actors, useful to them in making decisions concerning their long-term investments and investment strategies.

There is growing need by those working in the physical and social sciences for complete and accurate information concerning the negative ecological impacts of private economic actors.

There is a compelling need for regulators and policy makers to have complete, accurate and timely information concerning the negative ecological impacts of private economic activity.

III. Purpose

The purpose of this Act is to facilitate the transition to a more ecologically sustainable economy by increasing and expanding society's knowledge and understanding of the ways economic activity impacts and affects the planet's ecological systems. Impairment of the planet's ecological systems diminishes the well-being

of all human society. The public has a right to know what human activities are contributing to or causing these changes. This Act is intended to increase the amount of useful information available to all members of society, including without limitation: investors; economists; scientists; producers; customers; consumers; regulators; and policy makers. This Act is intended to induce prompt investigations, incentivize the design and implementation of controls and practices, and otherwise make transparent and reduce the ecological impacts and effects of such impacts by business enterprises.

Unless otherwise specified herein, nothing in this Act shall be interpreted to supersede, alter, replace or eliminate any obligation of any Issuer with respect to any other section or provision of the Securities Act or Securities Exchange Act, including without limitation any disclosure obligations of an Issuer under those other sections or provisions. Where there is an apparent conflict or inconsistency, uncertainties shall be resolved in favor of maximizing disclosure of information. Unless otherwise specified, no provision in this Act may be interpreted in such a manner as to reduce, impair or eliminate the rights of any person to information under any other provision of law.

IV. Definitions

“Ecological Impact” shall mean any (i) extraction, removal, withdrawal, elimination or subtraction from, (ii) insertion, deposition, discharge, emission, release or other addition to, onto or into, or (iii) other activity resulting in a change to, of or in any ecological system or any feature, function or component of an ecological system.

“Change” shall mean any significant alteration, variation or modification in composition, course, flow, size, area, temperature, quantity or quality of any ecological system or any feature, function or component of an ecological system.

“Ecological System” shall mean: A dynamic complex of biotic and abiotic components interacting as a functional unit within a defined boundary and with other adjacent or interconnected ecological systems.³ Ecological systems include features, functions and components and the spatial and temporal relationships and flows of material and energy stocks among and between them. Ecological systems may be terrestrial (including forests, deserts and grasslands) or aquatic (including marine and freshwater). The planet’s atmospheric and climatic systems, oceanic and freshwater or hydrological systems, and other life supporting systems, processes and cycles are also Ecological Systems.

“Life Support System” shall mean any system, process or cycle that provides or contributes to the conditions necessary to sustain life.

“Biological region” shall mean a contiguous area of common, shared, similar, interconnected or interdependent topographic, geologic, hydrologic and ecologic features which functions on the whole as an ecological system and which may be composed of several smaller, interconnected or nested ecological systems.

“Component” shall mean a constituent part of an ecological system.

“Abiotic component” shall mean any non-living constituent part of an ecological system, including without limitation stocks and flows of energy, water, nutrients, minerals, soils, sunlight, air and climate.

“Biotic component” shall mean any living constituent part of an ecological system, including without limitation plants, animals, fungi and microorganisms.

“Feature” shall mean geologic, topographic and hydrologic components, aspects, elements or boundaries of an ecological system.

“Process” shall mean relationships, interactions, exchanges and cycles within, among and between biotic or abiotic components that underpin the generative and regenerative capacity of an ecological system. Processes include but are not limited to the category of Ecosystem Services.

“Ecosystem Service” shall mean those ecological processes that provide direct or indirect benefits or value to human society, including supporting services, provisioning services, regulating services and cultural services.

“Effect” shall mean any change, impairment or alteration of or to any ecological system, or any feature, process or component thereof, resulting in whole or in part, directly, indirectly or cumulatively, from an ecological impact.

“Significant” shall mean non-negligible. Unless otherwise specified herein, impacts and effects shall be presumed significant unless shown to be insignificant. In determining significance, due consideration must be given to known, knowable and reasonably foreseeable past, current and future direct, indirect and cumulative impacts and effects on an ecological system and its features, processes and components.

“Cumulative” shall mean an impact or effect which results from the incremental addition of such impact or effect to other past, present or reasonably foreseeable future impacts or effects regardless of what person or persons caused such other impacts or effects.

“Ecological Impact Report” shall mean a report prepared and filed with the Commission pursuant to this Act.

“Disclosure” shall mean any statement made in an Ecological Impact Report.

“Sustainability Report” shall mean any publication discussing, concerning or relating to the subject matter of an Issuer’s Ecological Impact Report or an Issuer’s ecological impacts or effects, regardless of whether such publication also discusses, concerns or relates to other matters.

“Public Statement” shall mean any communication referring or relating to an Ecological Impact Report or concerning the subject matter of an Ecological Impact Report, including without limitation Sustainability Reports, and any communication concerning the Ecological Impact of an Issuer’s product, operation, facility or supply chain.

“Mitigation” shall mean any measure, step, system, process, procedure or other action taken to control, reduce, prevent, eliminate or correct an ecological impact or an effect of an ecological impact, including without limitation measures to remediate or restore an ecological system, and measures taken to offset an ecological impact or effect.

“Issuer” shall mean any company which has registered a security with the Commission for trading on a U.S. securities exchange, including subsidiaries, affiliates, joint ventures, partnerships, projects and other enterprises or undertakings owned, controlled or managed by such company.

V. Transparency

All disclosures made pursuant to this Act shall be public. There shall be no confidential or non-public disclosures or submissions, except as provided for herein. Public access to disclosures and submissions shall be speedy, utilizing the best available technology to ensure the widest practicable dissemination. No member of the public shall be charged any fee to access such disclosures and submissions. The Commission and every

other agency or body, including any private entity organized for the purpose of fulfilling any provision of this Act, involved in the promulgation, administration or enforcement of rules, regulations or standards under this Act, or otherwise charged with any duty or obligation under Act, shall to the greatest extent practicable make transparent all deliberations, hearings, decisions, and other matters related to the subject matter of this Act, including maintaining public records of all meetings with persons outside such agency or agencies. Nothing in the foregoing shall be interpreted to require any agency to make public information it is expressly prohibited from disclosing under other statute, except as may be ordered by a court of the United States.

VI. General Disclosure Law

This Act shall be effective on _____ (the “Effective Date”). Commencing not more than 180 days after promulgation of final regulations by the Commission pursuant to this Act, and continuing on an annual basis thereafter, every Issuer shall publicly file with the Commission an Ecological Impact Report disclosing all of the Issuer’s significant ecological impacts (the “Report”). Such Report shall be separate from the Issuer’s annual report of financial and operational performance made pursuant to Section 78m of the Securities Exchange Act (a “Financial Report”).

An Issuer shall disclose in its Report all significant ecological impacts generated or caused by or resulting from, directly or indirectly, the Issuer’s operations, facilities, plants, projects, offices and places of business, equipment, machinery and other means and modes of conducting the Issuer’s business. An Issuer’s Report shall also disclose all significant ecological impacts generated or caused by, resulting from directly or indirectly, or otherwise related to materials or goods processed, produced, manufactured, made or sold by the Issuer, including the processing, manufacture, transport, use and disposal of such goods. An Issuer’s Report shall also disclose all significant ecological impacts generated or caused by or resulting directly or indirectly from persons within or part of the Issuer’s supply chain, including without limitation all supplies of material resources, energy, water and other processed, unprocessed or finished materials, goods or substances.

Every Ecological Impact Report shall also disclose the significant effects and risks of significant effects of each significant ecological impact, but only to the extent the Issuer knows or has reason to know of such effect or risk of effect. Nothing in this section shall be construed as imposing on any Issuer any obligation to undertake or commission any study or research concerning such effects.

The Commission shall within no more than 365 days from the Effective Date of this Act promulgate and implement regulations consistent with the purposes and provisions of this Act, including all necessary rules and standards governing the content, preparation and filing of Ecological Impact Reports.

The Commission may obligate Issuers to include and set forth in their Financial Reports information or data disclosed in or relating to their Ecological Impact Reports, but any such obligation shall not relieve any Issuer from its independent obligation to include such information or data in its Ecological Impact Report.

Every Ecological Impact Report shall be organized into segregated sections as follows:

Physical data: The information shall be organized by inputs to and outputs from a facility, operation or otherwise geographically definable location; each significant impact must be disclosed in a manner that clearly distinguishes between and separately sets forth information concerning the following categories: raw and processed renewable and non-renewable material natural resource inputs (including source data and the impacts related to the extraction, processing and transportation of such inputs); water inputs

(including source data and the ecological impacts related to such inputs); energy inputs (including source data, fuel source, and other data related to the ecological impacts of such energy use); water and wastewater outputs (including information on volume or flow rates, temperature and chemical composition); liquid chemical waste outputs; solid chemical waste outputs; gaseous, vapor and particulate waste outputs; solid waste outputs; other waste outputs; land use conversion and other physical alterations of ecological systems; impacts directly affecting biodiversity and biotic components; and all other ecological impacts. Chemicals, soils, nutrients and other materials that are released from, transported or run off of or leach or seep through soils and geological features out of an agricultural operation are wastes and must be disclosed. Soil and rock clearing or removal, any activity resulting in soil erosion, any activity altering the course or rate of any flow of water on or in a watershed, or any activity resulting in the depletion of an aquifer or other groundwater supply is an ecological impact and must be disclosed. Timber removal or the removal or clearing of other biotic components of a forest ecological system are land use conversions, impacts to biodiversity or biotic components, or other ecological impacts and must be disclosed. Biotic components may constitute material natural resource inputs, if used as such by an Issuer, or may constitute waste outputs if removed from an ecological system and subsequently disposed of; in every event where an Issuer removes any biotic component from an ecological system, the Issuer must account for such removed biotic component as either an input or output as the case may be; a release or other introduction into an ecological system of any organism produced or altered in any manner by an Issuer or its suppliers, regardless of whether it constitutes a biotic component, shall be disclosed as an output-related impact to biodiversity or as a waste output or as an other ecological impact.

An Ecological Impact Report's disclosures shall be organized so that the data is set forth in the following forms (1) aggregate data for an Issuer and, where applicable, for an Issuer's relevant business unit by class of impact;⁴ (2) aggregate data for an Issuer and, where applicable, for an Issuer's relevant business unit by class of impacted system;⁵ (3) each impact by ecosystem location; (4) each impact related to each of an Issuer's projects, facilities or other operations; (5) each impact related to each of an Issuer's products.

Disclosures must include ecological impacts from within the Issuer's supply chain, organized by supplier, cross-referenced to the Issuer's operations and facilities, and to its products, and including information necessary to identify the supplier's location if different than the location of the impact. In disclosing supply chain impacts, an Issuer may rely upon representations made to it by a supplier, provided that the Issuer has made a good faith inquiry and has no reason to know or believe that information provided to it by such supplier is in any way false, misleading or unreliable. An Issuer must conduct due diligence to determine its supply chain related impacts, and it must describe its due diligence practices, but it is not required to make impracticable, unreasonable, or unreasonably burdensome efforts to obtain precise data on supply chain impacts provided that it disclose enough information for a reasonable person to understand the nature and extent of those impacts in general terms.

Disclosures also must account for the ecological impacts of subsequent use and disposition of Issuer's products throughout the product life cycle. All data must be presented in quantitative units of physical measurement commonly or typically used with respect to the nature and characteristics of the impact in question, as well as qualitative descriptions such as are generally accepted in a relevant field of science. If an impact is a composite or aggregate, each constituent part, element or aspect of such impact must be separately disclosed.

Significant effects, if any, shall be disclosed in a manner that clearly relates the effect to the impact or impacts it is caused by or results from. If an effect is indirect or cumulative, an Issuer shall provide a reasonable description of causal relationships, to the extent the Issuer knows or has reason to know such information. Uncertainty regarding probability or magnitude of risk shall not excuse disclosure of an effect unless such probability or magnitude is insignificant. An Issuer may state that an effect or risk of an effect is uncertain, provided that it sets forth information adequate for a reasonable person to understand and evaluate the basis for the Issuer's conclusion regarding such uncertainty. In disclosing an effect or risk of an effect an Issuer knows or has reason to know of, an Issuer has an obligation to present the information concerning or relating to its knowledge fairly and accurately, including disclosure of all information known to the Issuer that is necessary to understand such effect or risk of effect. Where such information is voluminous, an Issuer may accurately disclose its knowledge and either disclose citations to and locations of publicly accessible information or state that it maintains a publicly accessible record of such information and provide instructions on how a member of the public may examine or obtain a copy of such record.

Mitigation data: In a section of its Report separate from Physical Data, an Issuer may disclose information concerning steps, measures or procedures it has taken to mitigate its ecological impacts or the effects of its ecological impacts, including actual mitigation systems, processes or procedures, but only if it also discloses measured effects of such mitigation or, if such information will not be available until the next reporting period, specifications, projections and methodologies necessary to understand expected effects of such mitigation; planned mitigation, but only if the Issuer discloses what it has budgeted and where applicable state that it has entered into binding contracts or agreements to undertake or perform such mitigation; mitigation policies and procedures, but only if they are set forth in detail and management represents that the Issuer's practices are consistent and comply with those policies and procedures, discloses measurements or accurate descriptions of the effects of such practices, and describes the systems, processes or methodologies implemented or employed to measure the effects of such mitigation policies and procedures. Mitigation data must be organized and set forth in the following categories: prevention; remediation; restoration; replacement/offset; other. Mitigation data must also be organized consistent with the Issuer's organization of Physical Data, with clear cross-referencing between a mitigation and the impact or effect it is designed or intended to mitigate. In addition, a mitigation must disclose the related impact or effect for a five year period, including the current reporting period and each of the four preceding years. Programs and systems to recycle, reuse or repurpose materials or products are mitigation actions. Incorporation of recycled or recyclable materials in goods or products are mitigation actions that may be disclosed, provided there is an active, identifiable program to recycle such materials and that the Issuer disclose specific information concerning the ecological impacts of such recycled or recyclable materials pursuant to the provisions concerning Physical Data. Progress in reducing an Issuer's ecological impacts may be reported in the mitigation section of an Ecological Impact Report, but only to the extent of and in the same terms as its Physical Impact Data, at the same level of detail. The use of progress or performance indicators or other such benchmarks is permitted, but such information must be segregated from the foregoing mitigation disclosures and it may only be included to the extent that has disclosed adequate information on impacts, effects and mitigation necessary to support, evaluate and verify such performance measures; where indicators or benchmarks are included, an Issuer must also provide a detailed description of the methodology used to determine performance or progress.

Economic Analyses: An Issuer may include in its Ecological Impact Report in a section segregated from other disclosures and information economic analyses or valuations of, concerning or related to its ecological impacts, effects and mitigation, including disclosures concerning payments for ecosystem services, natural capital valuations, offsets, credits, avoided cost calculations (including costs of prevention, mitigation, remediation, restoration and/or offset/replacement), and/or such other information as the Issuer believes to be reliable and that would provide or convey information useful to investors and the general public in understanding an Issuer's ecological impacts, effects and mitigation. Where any economic information is included in a Report an Issuer must disclose the methodology employed to calculate such economic values or perform such economic analysis, except that it may reference a published standard used by the Issuer in preparing its economic disclosures if the Issuer rigorously applied such standard without deviation. An Issuer may state that its economic analysis and its disclosed economic information constitutes non-financial information and represents estimates, reflects or includes uncertainties, utilizes or relies upon non-standard, novel or newly developing methodologies, and is not intended to be relied upon in interpreting or analyzing the Issuer's Financial Statements. Notwithstanding the foregoing, if any economic information reflects, concerns or relates to a material risk to an Issuer's financial or operating performance or condition, the Issuer shall not be relieved of its obligation to disclose such material risk in a manner and form consistent with other applicable provisions of law.

The Commission may promulgate regulations directing Issuers to disclose the economic costs of their ecological impacts, using such methodologies as the Commission determines are reliable and appropriate given the purposes of this Act.

Disclosure of Payments for Permits and Licenses: An Issuer who has a permit, license or other permission to cause an ecological impact shall disclose the terms of such permit, license or other permission as well as all fees, taxes and other payments it has made or is required to make to any government, an agent or agency of a government, or any official of a government, in connection with such permit, license or other permission. Contracts, concessions and leases for facilities, operations or projects, including but not limited to non-renewable or renewable resource extraction activities, shall be deemed licenses or permits under this provision if the terms of such contract, concession or lease refer or relate to an ecological impact and constitutes permission to cause such ecological impact. Notwithstanding the foregoing, no Issuer shall be required to disclose the entirety of a contract, concession or lease provided that it fully disclose the term or terms concerning an ecological impact. An undertaking to remediate or restore an ecological system constitutes a term relating to an ecological impact and shall be fully disclosed pursuant to this subsection, regardless of when such term becomes operative.

Public Statements Encouraged: In order to make information concerning Ecological Impacts more available, understandable and accessible, Issuers are permitted and encouraged, but not obligated, to publish or communicate Public Statements concerning their Ecological Impacts, in forms other than the form of Ecological Impact Report required pursuant to this Act, including but not limited to the publication of Sustainability Reports. Every Public Statement shall be subject to the provisions of this Act concerning the making of false or misleading statements in or concerning the subject matter of ecological impact disclosures. No action may lie against an Issuer or other person solely by reason of a Public Statement excluding information disclosed in an Ecological Impact Report or another Public Statement unless such excluded information is necessary to render truthful an otherwise false or misleading statement.

If a person who makes a statement concerning an Issuer's ecological impacts has been paid by or on behalf of such Issuer in relation to such statement or the subject matter of such statement, or is employed by or an agent of an Issuer, the statement of such person shall be deemed a Public Statement, subjecting such person and, if appropriate, the Issuer, to all of the provisions of this Act, including those concerning the making of false or misleading statements. Any person who certifies or provides an opinion intended to be relied upon by the public concerning the fairness or accuracy of an Issuer's Ecological Impact Report or who renders any publicly available opinion concerning an Issuer's systems, controls or processes for, concerning or relating to preparation of an Issuer's Report, shall be deemed to have made a Public Statement. Notwithstanding the foregoing, nothing in this section shall be deemed to render a private or confidential communication to an Issuer's employees, managers, officers, directors, attorneys or agents a Public Statement solely by reason of such communication having been disclosed to another person or otherwise becoming public if appropriate safeguards were in place to prevent such communication from becoming public such that it would be unreasonable to believe that the person making such communication intended the public to rely upon such communication.

VII. Safe Harbors and Special Rules

Safe Harbor for First Time Disclosures

To further this Act's central purpose of facilitating the disclosure of significant ecological impacts and effects, no Issuer or other person shall be liable to any investor under a provision of securities law or regulation other than this Act by reason of the Issuer's failure, prior to the date on which the Issuer's first Ecological Impact Report is filed, to disclose an ecological impact or effect, provided that such impact or effect is disclosed truthfully and accurately in the Issuer's first Ecological Impact Report filed pursuant to this Act. The safe harbor of this provision is to be strictly limited in application to an Issuer's first Report and no other, and it shall not apply to any disclosure made in a Public Statement subsequent to such first Report regardless of whether such Public Statement concerns such first Report.

Safe Harbor for Corrective Public Statements

Because the purpose of this statute is to increase transparency, reduce uncertainties and contribute to the body of knowledge, an Issuer may publish a Public Statement correcting, adjusting or changing a prior disclosure in an Ecological Impact Report or Public Statement (herein, a "Corrective Public Statement"), without giving rise to liability under this Act by reason of the prior disclosure or statement being corrected having been false or misleading, provided that (1) the Corrective Public Statement clearly and accurately identifies the prior disclosure or statement to which it relates, (2) the Corrective Public Statement clearly states that it is correcting such prior disclosure or statement, (3) the Corrective Public Statement actually and completely corrects such prior false or misleading statement, (4) the Corrective Public Statement is not false or misleading in light of all of the information known or available to the Issuer or which the Issuer has reason to know about, and (5) the prior disclosure or statement was not based upon intentionally falsified records or data. A Public Statement that discloses an ecological impact or effect not previously disclosed in an Ecological Impact Report shall be deemed a Corrective Public Statement. All Corrective Public Statements shall be publicly filed with the Commission in a form prescribed by the Commission. This safe harbor shall be available to an Issuer at any time prior to commencement of an action pursuant to this Act.

Special Rule for Resellers

An Issuer that in the regular course of its business resells a product manufactured, distributed or sold to it by another person (a “Supplier”) may, with respect to that product, rely upon representations made to it by such Supplier regarding the ecological impacts related to that product, unless the Issuer knows, suspects or has reason to believe such representations are false, misleading or otherwise unreliable. If an Issuer has no information concerning the ecological impacts of any such product, or if it does not believe it can reasonably rely upon representations given to it by a Supplier, it may state in its Ecological Impact Report that it has no such information or cannot rely upon the representations of its Supplier, provided the Issuer has made a good faith effort to obtain such information. To qualify for treatment under this special rule for resellers, an Issuer must include in its Ecological Impact Report an accurate statement of its policies, practices and procedures for conducting due diligence on the ecological impacts of the products it sells, including but not limited to a clear representation that it makes good faith inquiries of its Suppliers. If a Supplier is also an Issuer, a reselling Issuer may rely without further inquiry upon information concerning a resold product disclosed in the Supplier’s Ecological Impact Report. This special rule for resellers shall not be applicable to disclosures concerning private label goods, including any product manufactured specifically or exclusively for an Issuer or according to an Issuer’s specifications, nor shall it apply to a product bearing an Issuer’s private or exclusive label or brand or contained in packaging of the Issuer’s unique or proprietary design.

With respect to large retailers, distributors and other Issuers that resell a large number of different products, the Commission may by regulation grant Issuers a reasonable extension of time, not to exceed five years, to develop adequate due diligence programs and the necessary processes and systems to collect information necessary to provide complete and accurate disclosures of the impacts of such products in their Ecological Impact Reports. Nothing in the foregoing shall relieve an Issuer of its obligation to comply with the provisions of this Act from the Effective Date except with respect to disclosure concerning specific products it resells if it qualifies as a large retailer pursuant to Commission regulations. If an Issuer qualifies for an extension under this provision, it shall each year prior to the year in which the extension expires disclose as much information as it knows or has reason to know concerning the ecological impact of each product it sells, and in addition it shall describe in detail the due diligence procedures, programs and systems it is developing to comply with this Act.

Foreign Issuer Exemption

If an Issuer is a foreign company that publicly discloses its ecological impacts pursuant to a law or regulation of the country in which it is domiciled, it may file a statement with the Commission in lieu of an Ecological Impact Report certifying that it has publicly disclosed its ecological impacts pursuant to its home country’s law and setting forth specific information on where the public may access such report, provided only that this exemption shall not apply unless such foreign Issuer’s disclosures provide information consistent with the requirements and purposes of this Act.

VIII. Liability; Enforcement

No Investor Right of Action

Except as otherwise provided for herein, nothing in this Act shall expand an Issuer’s reporting or

disclosure duties under Section 78m of the Securities Exchange Act or any other provision of U.S. securities laws or regulations. No provision herein may be interpreted as providing an independent basis for establishing liability to investors in any private right of action under any other provision of U.S. securities laws or regulations. Specifically, no information disclosed or omitted in an Issuer's Ecological Impact Report shall be considered material for purposes of an investor private action for money damages unless it can be shown to be material pursuant to the standards applicable to such investor's claim. Nothing in the foregoing shall in any way impair, affect or alter an independent private right of action set forth in this Act.

Misleading Statements or Omissions

Any Issuer or other person who is an officer, director, employee, agent or other person acting on behalf of an Issuer who makes or causes to be made any statement in or concerning an Ecological Impact Report or Public Statement which in the light of the circumstances under which it was made is false or misleading concerning a significant ecological impact or effect of such impact shall be subject to the actions, fines and penalties set forth herein.

An Issuer who omits an ecological impact from its Ecological Impact Report shall not be liable for making a false or misleading statement if it has a reasonable and informed good faith basis for concluding the impact is not significant. An Issuer who in good faith omits information concerning a significant ecological impact or effect shall not be liable for making a false or misleading statement under this Act unless the omitted information would significantly alter the overall mix of information concerning such impact or effect.

Private Right of Action

Any person who uses or relies upon an Ecological Impact Report, information in an Ecological Impact Report, or Public Statements concerning an Ecological Impact Report may sue an Issuer and/or other responsible persons in a court of competent jurisdiction for informational injury arising out of the false or misleading statements of such Issuer or other persons. No such suit may be commenced until the plaintiff has served the Issuer or other responsible person with notice of intent to sue under this Act, setting forth with specificity the alleged false or misleading statements upon which the plaintiff intends to bring an action, describing the manner in which the plaintiff believes the statement to be false or misleading, and giving the Issuer or other responsible persons thirty (30) days to correct such false or misleading statements by filing a Corrective Public Statement. Every notice of intent to sue pursuant to this provision shall be filed with the Commission no later than the date on which it is served on the Issuer or other allegedly responsible person. Should the Issuer or other responsible person fail to make an adequate Corrective Public Statement within 30 days of service of such notice, the plaintiff may commence an action. In any such suit, should there be a finding of liability, the court shall, in addition to any equitable relief it may order, impose a monetary penalty in accordance with the provisions herein and award reasonable costs and attorneys' fees to the prevailing party. Should a court find a claim to have been frivolously made, it may in the interest of justice award reasonable costs and attorneys' fees, in part or in whole, to the Issuer or other defendant.

Penalties

In any case in which a party is found to have made a false or misleading statement concerning a significant ecological impact, the court shall, at the election of the prevailing party, award money damages in an

amount adequate to compensate such prevailing party for actual economic injury, if any be alleged and proved, or impose a penalty of not less than \$10,000 if an individual person or \$100,000 if an Issuer, corporation, partnership, limited liability company or other legal entity nor more than \$1,000,000 if an individual person or \$10,000,000 if an Issuer or legal entity, per false or misleading statement. In light of the totality of circumstances, every disclosure in a Report may constitute a separate statement. In the event a court concludes that separate false or misleading disclosures in a Report constitute separate false or misleading statements, no individual person shall be held liable for a particular disclosure except to the extent it can fairly be concluded that such person is deemed to have made or contributed to the making of such disclosure; a person may, however, be deemed to have made a false or misleading statement in relation to an entire Report even if such person cannot be deemed to have made any particular false or misleading statement. In determining a monetary penalty for making a false or misleading statement, the court shall take into consideration (1) the party's state of mind at the time the false or misleading statement was made; (2) the significance of the false or misleading statement to the person who brought the action, or to any group or category of users of the information at issue, or to the general public; (3) the ecological significance of the ecological impact or effect of such impact that is the subject of the false or misleading statement; and (4) whether the false or misleading statement was intended to deceive, mislead or avoid action by any government agency. Should the court find that the false or misleading statement was intended to mislead or avoid action by a government agency, the amount of the penalty shall be trebled and the matter shall be referred to the Department of Justice for a determination concerning whether criminal prosecution is warranted. In any subsequent criminal proceeding, should there be a conviction or plea of guilty, any monetary penalties already imposed upon the party hereunder shall be subtracted from the fine imposed as a result of the criminal conviction.

The availability of money damages shall not be construed to require any allegation of economic injury in addition to or as a substitute for an allegation of informational injury, which is all that is required to give rise to an actionable, justiciable and remediable cause of action hereunder. A court is not required to grant equitable relief before it may impose a statutory penalty, because every Issuer is under an independent and continual duty to correct false or misleading statements concerning the disclosure of ecological impacts and effects. Among other reasons, a court may wish to grant equitable relief in order to maintain jurisdiction over the action and the person until such time as any false or misleading statement that is the subject of the action has been corrected. Nothing herein shall be construed as intended in any way to constrain, restrict or otherwise direct courts in the exercise of their equitable powers.

No Strict Liability

Absent proof that it knows or has reason to know a statement is false or misleading no issuer shall be held liable for incorrect statements or omissions. If an issuer receives notice of intent to sue pursuant to this Act, and it fails to undertake a good faith investigation or to make a Corrective Public Statement where one is required, such failure to investigate or make a correction may be used to infer the requisite state of mind. If an Issuer commences and is diligently and in good faith investigating an allegation of a false or misleading statement made in a notice to sue under this Act, and an action is commenced after expiration of 30 days from the date of notice, an Issuer may make an application to the court in which such action has been commenced for a stay of the proceeding for a reasonable period of time to continue such investigation, provided that it sets forth in detail, supported by one or more sworn affidavits, all facts necessary to determine whether the Issuer

is diligently and in good faith investigating such claim. If at the earlier of the conclusion of the investigation or the expiration of the term of the stay the Issuer reports to the court that it has confirmed an inaccuracy in the statement at issue, and if it has on or before that date filed an adequate Corrective Public Statement, the court may enter judgment in favor of the plaintiff, impose the minimum statutory penalty and award the prevailing party reasonable costs and attorney fees. If instead the Issuer either fails to meet the aforementioned deadlines or concludes that it has not made any false or misleading statement, the action will proceed as if no stay had been entered on an expedited basis. No investigation that is the basis for a stay under this section, nor any documents or communications relating thereto, shall be deemed privileged, constitute attorney work product or be otherwise treated as confidential material not subject to disclosure to the plaintiff except on a showing of exigent circumstances by the defendant.

In no action brought pursuant to this Act may any records of the proceedings, including any filings or supporting materials of any party or any orders or decisions of the court or any transcripts of any hearings or other proceedings, be sealed or otherwise withheld from the public record except on a showing of extraordinary and exigent circumstances, in which event the court shall tailor the seal order to be as narrow as is required to provide the necessary protection and no further. Should any person file a motion or otherwise make an application to the court to lift the seal order, the court shall decide such application on the moving papers as rapidly as is practicable, giving due consideration to the purposes of this Act.

Duty to Correct Misleading Statements and Omissions

Any person who makes a false or misleading statement with respect to a significant ecological impact shall be under a continuing duty to correct such statement. Any plaintiff who prevails in any action hereunder may petition the court to reopen an action should the defendant fail to correct the false or misleading statements at issue in the manner directed by the court in its final judgment and order, and if such plaintiff prevails in such reopened action the court shall, in addition to any further penalties imposed upon the defendant, award additional costs and attorneys' fees to the plaintiff.

Agency Action

The Commission or the Department of Justice may commence an action against any Issuer or other person who makes a false or misleading statement in or concerning an Ecological Impact Disclosure. Should the Commission or Department do so, its action shall be in *parens patriae* on behalf of all persons with rights to the information at issue under this Act, and no other action by any other person concerning the same statement or statements shall be permitted. Should the Commission or Department of Justice commence an action pursuant to this section after the Commission receives from any person a filed notice of intent to sue under this Act, the Commission or Department must disclose to the court such notice upon commencement of the action. Should the Commission or Department prevail in an action commenced after receipt of a person's notice of intent to sue, the court shall award not less than ten percent of the penalties imposed to the person or persons who filed the notice unless the court finds that the Commission or Department would have commenced the action in the absence of such notice. Should the Commission or Department fail to commence an action before the expiration of the thirty day period after the filing by any person of a notice of intent to sue, the person who filed the notice of intent to sue may commence an action and no subsequent action, or motion, by the Commission or Department shall be permitted to deprive such person of the right to maintain an action under this Act.

Criminal Action

Title 18 of the U.S. Code is hereby amended to add this new Section __: any person who knowingly makes a false or misleading statement concerning a significant ecological impact or an effect of such impact in any report or other filing required by Section __ of Title 15, and who makes such false or misleading statement with the intent to deceive, mislead or avoid action by any government agency, shall be fined, or imprisoned for not more than 10 years, or both. Any person who conspires with another person to make a false or misleading statement, or who aids and abets a person in the making of a false or misleading statement, shall be punished to the same extent as if such person was found guilty of knowingly made such false or misleading statement.

Multidistrict Litigation; Consolidation of Actions

Should more than one action be commenced concerning the same statement or statements, all such actions shall be designated related actions and shall be consolidated before an appropriate court of competent jurisdiction. Should there be any question or dispute concerning which court is most appropriate, the actions shall be submitted or referred to the Judicial Panel on Multidistrict Litigation for determination and transfer to an appropriate court. In the event of consolidated multiple actions, should the plaintiffs prevail any attorneys fee award shall be proportionate and not more than is reasonable under the circumstances to compensate counsel for the skillful litigation of the matter. No objection to an award of attorney's fees under this or any other section of this Act on account of such award being excessive shall be permitted unless the objecting party demonstrate that the basis for such award is disproportionate in relation to the basis on which its own attorneys have been or are to be compensated.

Limitations

A false or misleading statement is made continually for so long as it is publicly uncorrected.

Evidence

[We need to consider a possible rule to undercut the anti-science, pro-industrial biases of some courts and some regulators. We should consult with some good people knowledgeable in the fields of environmental law, public health law, product liability and other relevant areas. This is a very real problem and it could easily gut whatever we're trying to accomplish. Point: we don't want anyone to wait until there is "certainty," nor even necessarily when there is some compelling body of evidence or science, but neither do we want to induce over-inclusiveness in disclosures or hyper-aggressive enforcement. We need to find an appropriate, sane, reasonable science-based balancing point for admissible evidence that will maximize disclosure and minimize junk and pseudo-science because there may be a feedback between what is admitted in litigation for false or misleading disclosures and standards for what has to be disclosed in the first instance.]

Record Keeping

Every Issuer shall maintain a complete and accurate set of records with respect to its Ecological Impact Reports. All such records must be maintained in the custody, possession or control of the Issuer for a period not less than ten years after the Issuer is no longer under a duty to disclose the ecological impact such records concern or reflect. The Commission shall consult with the Librarian of Congress and such other agencies or departments as may be appropriate to develop the systems and infrastructure necessary to house all ecological

impact disclosure reports, public statements and records pertaining thereto, to be preserved in perpetuity for the benefit of society. An Issuer that determines that records relating to its ecological impact reports are no longer required to be maintained in its custody, possession or control must deposit such records at such location as required by the Commission for the preservation of such records. In the event such records contain communications, documents or other materials an Issuer claims to be subject to an applicable legal privilege or claim of proprietary and confidential information, such privileged or confidential materials shall be segregated in such manner as to maintain the integrity of the records, maximize public access, and facilitate ready disposition should any person challenge such claim of privilege or confidentiality.

Foreign Prohibitions

No Issuer may withhold information from disclosure on the basis of any alleged foreign prohibition. Should any Issuer be under threat of actual penalty, or in good faith believe it to be probable that it shall be subject to such penalty, by reason of the disclosure of any of the information required under this Act by reason of a law, regulation, power or authority of any foreign government, such Issuer must disclose as much information as it can disclose with respect to the impact or impacts at issue, disclose that it is prohibited by foreign law or authority from disclosing additional information, identify the foreign state prohibiting disclosure and with particularity describe and furnish a copy of the specific prohibition concerning the disclosure, and describe the good faith efforts it has made to obtain permission to disclose the information or to obtain an exemption or waiver of penalties from the foreign state. Should an Issuer determine that it faces a genuine risk of penalties if it discloses such information that is subject to such foreign legal prohibition, it shall as soon as practicable after making such determination file with the Commission a notice of foreign law prohibition against disclosure, and it shall transmit a copy of such notice to the Secretary of State along with a formal request for assistance in obtaining a waiver or exclusion from application of such prohibitive law.

The Secretary of State shall establish a process or procedure for receiving and responding to such requests for assistance. The Secretary of State shall, on an annual basis commencing 180 days after the date on which Issuers are required to file their first Ecological Impact Reports, submit to the appropriate Committees a report concerning all claims of foreign disclosure prohibitions and requests for assistance pursuant to this Act that it has received, including efforts undertaken, progress and results achieved by the Department of State in obtaining permissions, exclusions or waivers from foreign governments necessary to facilitate disclosure by Issuers of information concerning their ecological impacts.

IX. Certification and Audit

Board of Directors' Certification

Every Ecological Impact Report shall be certified as true, accurate and correct by all of the members of the Issuer's Board of Directors, and by its Chief Executive Officer.

Independent Third-Party Audit and Certification

[What follows is a rough description of some of the more important elements of a section of the law governing independent third-party audit of ecological impact disclosure reports. We believe such a component to be critical to ensure high levels of compliance and reliability and for the delivery of high quality information.

However, much work remains to be done to provide all of the necessary detail and put it into statutory form, because we are deciding on how to shape and govern an entirely new licensed profession and industry. This will be fully developed as we progress through the consultative process with all of the relevant experts with whom we will engage in perfecting this statute prior to advancing it in Congress.]

There shall be established as an independent non-profit corporation, an Ecological Audit and Accounting Standards Board, governed by persons of high integrity and standing who possess such educational and training credentials and experience that make them best suited for establishing, maintaining and enforcing standards concerning the qualification of independent third party ecological impact auditors, their licensure, their independence, an ethical code, the standards by which they shall conduct audits and examinations of Issuer's ecological impact disclosure reports and the records, policies, procedures, processes and systems pertaining thereto, and the rules governing the rendering of opinions and certifications concerning the integrity of such matters and the fairness and accuracy of such reports.

No Issuer may file an ecological impact report without an accompanying auditor opinion letter and certification unless it provide a written explanation why it cannot do so.

An ecological impact auditor's certification shall be a public statement concerning an ecological impact disclosure report and, pursuant to the foregoing provisions of this Act, shall not be made knowing or having any reason to know, or even having any reasonable basis to believe, that any statement in an ecological impact report is false or misleading, or that any of the Issuer's records, policies, procedures, processes or systems are inadequate, fail to meet applicable standards, are poorly designed or administered, or are in any other way at risk of being unreliable. Any certification made in violation of this provision shall subject the auditor and such auditor's firm to all of the actions and penalties set forth in section ___ of this Act. If an auditor cannot in good faith make such certification, it may certify those matters that it believes in good faith it can certify, in which event it shall state its reasons why it cannot certify any remaining matters.

No group of persons licensed and authorized to perform ecological impact audits may organize their business in any form of limited liability organization. The acts of an ecological impact auditor with respect to the provisions of this Act, including matters concerning ecological impact audits, examinations and certifications shall be imputed to such auditor's firm unless it be proved that such auditor intentionally falsified and misled the firm in such a manner as to make it unreasonable to hold the firm jointly liable for such auditor's violations of this Act.

The Commission shall by rule establish such processes and procedures as are necessary to enable the Board to discharge its duties, to work with the Board in enforcing rules concerning the conduct of ecological impact audits and auditors, to ensure the full and complete cooperation and compliance of Issuers with respect to ecological impact accounting, disclosure and auditing, and otherwise to secure the maintenance of the highest professional standards for ecological accounting and auditing.

Any person who knowingly makes a false or misleading statement to a licensed ecological impact auditor concerning an ecological impact audit or examination, or falsifies any records, documents, or other materials or information relating thereto, with intent to deceive or mislead such auditor, shall be penalized.

No Issuer shall be permitted to delay or forego the preparation or filing of an ecological disclosure report by reason of the lack of final rules concerning ecological impact auditing or of the lack of final standards applicable to such audits or the lack of a licensed ecological auditing profession. Before that element is complete and final, Issuers shall use best efforts to secure the services of qualified professionals to

perform the audit function in accordance with what they believe to be high standards, such as those used or recommended by GRI or ISO. Such auditors shall provide opinion letters and certification consistent with this Act, except that any such auditor may include in such opinion letter or certification a statement specifying the standards pursuant to which the audit was conducted and that the auditor made independent judgments, acted independently, and made all determinations and formed all opinions independently and believes the entire process to have been fairly designed and implemented consistent with the purposes of this Act.

X. Miscellaneous

Other agencies' work

[Congress will need to direct other agencies with relevant expertise to work with the SEC in developing all of the requisite rules for this system to function properly. There will need to be very clear details on what constitutes an ecological impact, what constitutes an effect of an ecological impact, what kinds of impacts are typically associated with certain kinds of activities, etc. It will almost certainly be necessary to develop a classification system for impacts and effects, as well as one for ecosystems and related processes and features. There may be need to draw up maps and indexes of ecosystems and regions to ensure uniformity among and between disclosure reports. We need to maximize the utility of the information in the system, and that requires an extremely well-considered system design, including everything necessary to ensure that disclosures contain as much useful data as possible with as little noise as possible.

This work could be done by agencies consulting with the SEC, or it could be done independent of the SEC – for instance an agency or team of agencies could develop maps, indexes, classification systems, etc., that could be incorporated by reference by the SEC in its rules. We will need to research the extent to which this can be done outside of the APA or whether and to what extent there may need to be a Federal Register notice and comment process for some or all of it. We also intend to develop these resources ourselves and take the lead in proposing them once the law has been enacted.

Congress could also establish a possibly permanent commission or council, perhaps composed of representatives from appropriate agencies, including EPA, NOAA and others. This might enable the evolution of a more universal system for a broader set of companies, as well as for the development of databases and other resources for the protection of the earth system and planetary boundaries. Scientific knowledge is continually advancing so we do not want Congress to establish a one-time static action. This should be a process that continues over time, so that the rules and consequent disclosures always keep pace with science and knowledge. Related to that subject, Congress should direct some body to undertake a study of planetary boundaries, and to develop methodologies for connecting discrete ecological impacts and various kinds of activities to these various boundaries, processes and systems. Over time, as the science and models are well-established, additional disclosure obligations might be imposed on companies to more directly associate their impacts with these larger scale effects. Climate change, for example, is a boundary around which the science could not be clearer, and so it would be appropriate for the rules immediately to obligate companies to frame greenhouse gas emissions in terms of impacts that are affecting the planet's climate.

Because these things will take time to develop, Congress should provide that they may be phased in, and that the SEC should not extend the date on which Issuers' first ecological disclosure reports are due because any of these pieces are still in development unless such piece is essential to the proper operation of

the disclosure system. If Issuers' are due to file any disclosure report before one of these pieces is complete, an Issuer shall use best efforts to comply with the statute in preparing its disclosures, and may rely for guidance on any of these pieces that have been made public in preliminary form. As these pieces are finalized, they shall become binding on Issuers for subsequent reports.]

¹ Ultimately, several other statutes will need to be amended as well. Overall, this will be structured so that first come all of the provisions amending the Securities Exchange Act, and then provisions amending other statutes.

² Findings are not binding statutory provisions, but they provide background that some courts may take into consideration in construing a statute. They are also a for hearings and other proceedings on which Congress may base these findings. They also offer in the specific document itself a concise statement of the justifications for the proposed law. They often, but not always, drop out of the final bill.

³ Millennium Ecosystem Assessment; Staudinger, M.D., et al, *Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment*, Cooperative Report to the 2013 National Climate Change Assessment (2012), at 3-1.

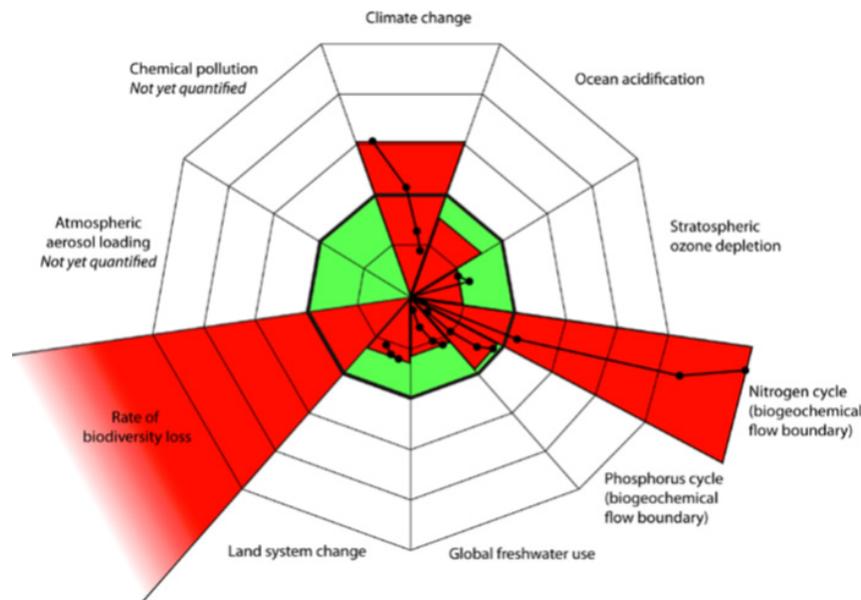
⁴ Impact classification would be something like: land use (includes development, conversions, deforestation); water consumption/use/diversion; water pollution (includes toxic chemicals, nitrogen and phosphorus, etc.); land/soil pollution; air pollution; GHG emissions; waste generation; resource consumption (for instance, fisheries or timber harvests)

⁵ It would be far too exhaustive and complex to set forth a complete list of all these in a statute. But the statute can list categories of ecosystem, for example: marine; island; forest (boreal, temperate, and tropical); grasslands and savannah; desert; inland water; coastal.

APPENDIX II

PLANETARY BOUNDARIES

Understanding human impacts on natural systems requires an understanding of how these systems function and interact on local, regional and planetary scales. Absent this knowledge, our ability to understand the needs of these systems and the level of stress they can tolerate will always be incomplete. Those working in earth sciences have long understood that the conditions necessary to support life are the result of interactive systems and processes. This complex interactivity becomes clearly evident in the data generated by increasingly sophisticated computer modeling of earth's atmospheric conditions and the immense problem of climate change. Understanding the need for a more comprehensive framework in 2009, a group of scientists led by Johan Rockstrom used their knowledge of the earth systems and ecological sciences to propose the idea of nine “planetary boundaries,” organized around processes they identified as most critical to earth's life support functions. These boundaries are the limits of stress earth systems can tolerate before these processes break down and conditions deteriorate beyond what is necessary to support life. Overly stressing these processes is referred to as “overshooting” the boundaries, and human drivers are far and away the greatest sources of overshoot. Interconnected and interdependent human and ecological systems can thrive together within these boundaries, but even resilient systems have limits and tipping points. Long periods of stability in natural systems followed by abrupt, chaotic periods of instability are a clear sign that natural systems are losing their resilience to recover from the damage.¹



Note: The **Green Zone** is the “Safe Operating Space” as currently calculated.

Three earth science systems are already outside the safe area and four others are on the march.

Because the planetary boundaries framework is a means for understanding both the overall earth system and human drivers of change, they are cast in terms of human activities. The nine boundaries are:

- Stratospheric Ozone depletion;
- Rate of Biodiversity loss;
- Chemical pollution;
- Climate change;
- Ocean acidification.
- Global freshwater use;
- Land system change;
- Nitrogen & phosphorus cycle;
- Atmospheric aerosol loading;

Science has already quantified certain boundary limits, most notably the threshold beyond which atmospheric carbon loading causes and accelerates climate disruption, but much work remains. It is crucial to fully develop the models and to gather and input the data necessary to establish definite boundaries for other processes. Developing each threshold requires a deep understanding of how earth's myriad systems function, interact and mutually influence each other. Necessary also are robust sets of data concerning the impacts and effects of human activity on these natural systems. The greater knowledge and understanding promised by the development of the planetary boundaries framework is critical to a sustainable future. Central to that undertaking by thousands of scientists around the world is a continual and robust flow of reliable, accurate, comprehensive and timely data on human drivers of ecological damage. Boundaries simply cannot be established without this information. A global systems perspective is necessary to transcend our often ad hoc approach to solving local ecological problems as and when they become too evident to ignore and to adopt a proactive global approach. While the criticality of preventing and remediating local problems cannot be diminished, the most critical problems we are facing operate on a planetary scale. Only by understanding fully the consequences of human impacts at interconnected local, regional and planetary scales can we develop policy solutions commensurate with ecological impairments that are greater than anything we have ever previously imagined. Because the earth system is an interconnected set of nested systems, subsystems and feedbacks, it is important to remember that disruptions to any element of these systems can have ripple effects across the other systems. These processes are highly complex and non-linear, and it requires a more holistic (and scientifically accurate) approach to understand how seemingly discrete localized impacts can have planetary effects. This is scientific knowledge, and our future depends upon embracing and acting wisely upon it.

Climate change is the most widely recognized boundary, and while there is clear scientific consensus on the phenomenon and many of its underlying causes, very little has been done to address it. The famous "350" parts per million of carbon dioxide is generally accepted as the right boundary value, but we have already overshoot it. Closely linked to climate change is the planetary boundary of **ocean acidification**. Oceans absorb excess atmospheric CO₂, which is converted into carbonic acid that alters ocean pH. These changes devastate coral and plankton populations, as well as shell formation of invertebrates, all of which are critical to healthy oceanic ecosystems. This shift serves as a powerful example of how the indirect and cumulative effects of human activity to one set of boundary processes can disastrously affect another, resulting in widespread systems change at various levels of scale.

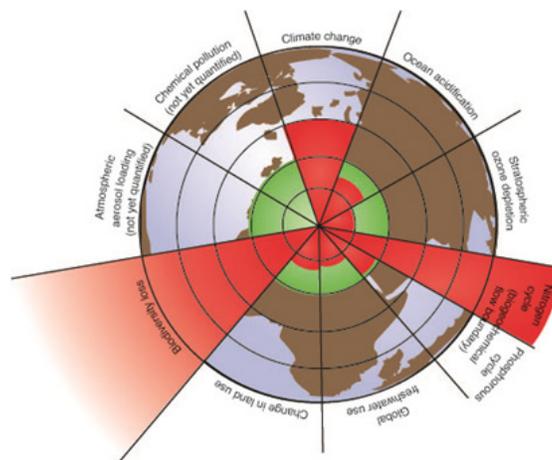
Freshwater consumption and **land use change** are two boundaries which are entirely driven by human activity. Both have been heavily influenced by modern agricultural practices. There are a growing number of water stressed regions in the world, and it is estimated that by 2050 approximately half a billion people will suffer directly from lack of access to freshwater. This will clearly also negatively affect global food supplies. Conversion of tropical and temperate forests for agriculture endangers numerous species and the loss of carbon sequestration from the conversion of forest biomass is another major factor contributing to climate change. To date, neither of these boundaries has an established threshold. While agriculture is not the only driver contributing to the overshoot of these boundaries, it is an excellent example of how one sphere of human activity arising from economic imperative, can disrupt many natural systems functions across all levels of scale. **Nitrogen and phosphorus cycling** is yet another boundary that is under intense pressure from human drivers. Over-application of phosphorus fertilizers can have huge regional impacts; such as killing off shrimp populations in the Gulf of Mexico.³ Agricultural activity converts exorbitant amounts of atmospheric nitrogen into reactive nitrates, which further pollute waterways, coastal zones and critical estuaries.

Transgressing planetary boundaries will ultimately decrease human well-being, both directly and indirectly. We have ignored our interdependencies with nature to this point, but our impacts to earth's natural systems each year directly claims human victims. **Atmospheric aerosol loading**, another planetary boundary, causes an estimated 800,000 human deaths annually. Aerosols impact natural systems by interacting with water

vapor and affecting cloud formation and regional atmospheric circulation. The same is true for **stratospheric ozone depletion**, which majorly contributed to the Antarctic ozone hole. This damage raised the incidence of human skin cancer, and damages terrestrial and aquatic ecosystems by allowing solar ultraviolet radiation to reach the ground.

Some planetary boundaries are incredibly widespread and yet very poorly understood. For instance, **chemical dispersion** into the environment results from the long history of corporate and industrial activities around the world. But yet we know very little about the more than 75,000 chemicals produced, used and released by global industry. Heavy metals, synthetic organic pollutants, and radioactive materials are a few examples of chemicals that persist in the environment for years, often accumulating in the food web and causing potentially irreversible damage to entire systems and the human communities.

Just as ocean acidification is directly related to another planetary boundary, human-driven atmospheric carbon loading, **biodiversity loss** is a direct and indirect consequence of a number of human activities. Biodiversity is critical to human well-being across many dimensions, beyond the enormous potential it holds for human medicine and food supplies. The healthy functioning of ecological systems is directly related to biodiversity, and the less biodiverse a system becomes the less resilient it is, which can lead to systems collapse. The rate of biodiversity loss has escalated in the past 50 years, both resulting from and causing species extinction and ecosystem damage. Species extinction rates are now estimated to be 1000 times the pre-industrial level, which is truly alarming since in important respects it is the backbone of the planet's capacity to support life. Systems complexity makes biodiversity loss the most difficult planetary boundary to model and understand, without comprehensive knowledge of human drivers, including perhaps most notably chemical dispersion, it is essentially impossible to develop appropriate metrics necessary to clearly define a boundary for biodiversity loss. If we cannot precisely identify and map chemical releases into natural systems, we have no hope of developing the models necessary to understand complex, non-linear networks of cause and effect. Without that, it is near impossible to understand how specific chemicals affect specific organisms and also, even more significantly, the importance of those effects on whole systems at local, regional and planetary levels of scale. Right now, science cannot tell us whether earth's natural systems can compensate long term for continued species losses due to chemical dispersion and other human activities. We simply do not have anywhere close to adequate data. But existing data suggests it cannot. It is imperative we construct a solid, reliable and expanding knowledge base so that we can clearly understand how we can more safely live within the limits of earth's finite life support systems.



¹ Rockstrom et al., *Planetary Boundaries: Exploring the Safe Operating Space for Humanity* (2009) *Ecology & Society* 14(2):32, available at <http://www.ecologyandsociety.org/vol14/iss2/art32/main.html>.

² *Id.* at 3.

³ David Whitall, *Historical Nitrogen and Phosphorus Loadings to the Northern Gulf of Mexico*, NOAA Technical Memorandum NOS NCCOS 85 (November 2008).

APPENDIX III

SHORTCOMINGS IN SELECT CORPORATE SUSTAINABILITY REPORTS

The lack of uniform standards and empirical data makes it difficult to compare and contrast corporate sustainability reports. Nevertheless, some observations are worth mentioning in the context of actual reports to understand better some of the key issues. Below are just a few select highlights, examples of what we see as relatively better or worse practices that might further underscore the critical need for the kind of information disclosure we are advocating. One common thread worth noting: no company provides a working definition of sustainability; instead, its meaning is assumed.

Puma

Nearly alone in the sea of sustainability reports, Puma in 2011 published for the first time an “EP&L” for its 2010 fiscal year. Although it has not followed this up with any subsequent report, and although it is just one subsidiary of a larger German holding company, Puma’s experiment in corporate environmental reporting was nevertheless notable because it attempted a more methodical approach to identifying and discussing five specific categories of environmental impacts that it estimated were its most significant drivers of ecological harm: greenhouse gas emissions; water use; land use; air pollution; wastes. The company’s report breaks down figures by region, product line, and operational levels from the company’s own operations through four tiers of supply chain. Adopting the economic valuation approach developed by UNEP’s TEEB project, Puma disclosed internal price valuations intended to serve as indicators of the company’s impacts in these areas, rather than reporting progress against any more or less arbitrarily established benchmarks. In this way, Puma endeavored to publicly report some of the external costs of its business to society in a way that, if replicated by itself over time and by other companies in its (and perhaps other) industry, might lend itself to easy comparison and digestion of the information and, given the right sets of market and public policy responses, internalization of at least some ecological externalities. Puma also acknowledged at least some of its shortcomings with respect to data gaps and inaccessible information, particularly with respect to its supply chain. We’ve chosen water impacts to try and understand one dimension of each company’s ecological impacts, and on this front Puma gets a fair-but-middling score. We did learn about the company’s aggregate volume of annual water “use,” and we found figures for each tier of its supply chain, each region in which it or its suppliers operates, and each of three product categories, but nothing more specific.

We’re not altogether sure what it means by water “use,” although we understand the company to consider this primarily a matter of consumption. Disappointingly, we did not learn anything about specific water impacts to specific systems, even though the company observes that “Specific impacts are highly location dependent but include reduced availability of water . . . loss of habitat for other species, changes to local climate . . .” and other more human-oriented impacts.

Although not at all as informative as company reports need to be to truly serve society’s needs, Puma’s effort is nonetheless a radical departure from business as usual if for no other reason than its honest acknowledgement that there are significant externalities in its business that it must account for.

Patagonia

The Patagonia brand has long been associated with strong environmental values, and the company’s sustainability efforts are laudable. Patagonia does not publish a sustainability report, per se, but it does provide some relevant information on its website, some of it in downloadable form. Its primary medium for communicating this information is its “Footprint Chronicles,” which recounts some detail concerning its various sustainability efforts, programs and initiatives. It also provides a comprehensive interactive map of its entire supply

chain, although the information is heavily oriented toward social rather than environmental issues. Unfortunately, although the company's values are unquestionably progressive, its website and other materials completely lack any meaningful details on its ecological impacts. There are no disclosures on water use, waste generation, land use impacts, greenhouse gas emissions or any other impacts. Thus although a reader who studies the website will be fairly well informed about the company's sustainability programs, there is no information against which one could either understand the company's actual impacts or gauge its year-to-year progress in reducing them.

Unilever

One of the world's largest consumer brand companies, Unilever is also well known for taking a progressive approach to sustainability across business units and product lines. While its Ben & Jerry's ice cream brand may be an outlier in corporate social responsibility, Unilever brings at least some of that same sensibility to many of its businesses. Its report reflects at least some degree of sincerity, and in some ways is one of the more informative reports we have reviewed. It establishes a clear baseline for measuring its sustainability performance (2008), compares recent (2012) data with that of a previous period (2010), and it provides considerable analysis of both the numbers and the methods by which it collects and analyzes those numbers. Unfortunately, although it takes a disciplined empirical approach, its focus is reporting performance rather than impacts, so while we understand a considerable amount about its progress on certain fronts, we have no means of understanding the actual ecological effects of its operations, supply chain or products. It does deserve credit for offering partial life cycle analyses of some of its products, but some of that is a result of its decision to frame much of its sustainability performance analysis in normalized form in terms of product units (typically offered as single use, portion or serving of a given product). Although informative this can also make it difficult to understand how the company is impacting ecological systems.

With respect to water, we know that the company's overall water use/impact per ton of production for 2012 is 2.23 cubic meters, but because we are also told that most of its water intensity is in product use (think soaps, shampoos), we have no way of really understanding precisely how unsustainable or sustainable the company's operations or suppliers might be in any given place. Presumably the company and its suppliers require water inputs, and they may well have other water impacts as well, but it seems as a consumer products company Unilever felt it more important to put the onus on its customers, and so really only speaks to us in terms of the impacts of products at the end of their life cycles.

Ford

We chose water use as a good indicator for understanding how informative (or not) a sustainability report might be because it is something everyone on some level understands, because without water there is no life. So we were at first quite pleased that Ford's most recent sustainability report has an entire section devoted to reporting the company's water impacts. Unfortunately, although we have a very good idea of how much progress Ford calculates it has made in reducing its aggregate water impact (overall it reduced its water use in its operations and supply chain by 10.6 billion gallons between 2000 and 2012, and it reduced its water use per vehicle by 8.5% between 2011 and 2012), we have only a superficial understanding of the company's actual water impacts (including that 10% of its operations are in water stressed regions, a number that it expects to increase to 26% by 2025). Ford does earn points for providing vehicle life cycle water consumption data and breaking it down in general categories from materials and parts production through vehicle assembly through total use of the vehicle. But since freshwater impacts are a local, or at most regional, phenomenon, we don't really know what to make of all this aggregate data other than to know that the company is thinking about this critical planetary boundary and undertaking some efforts to reduce its impacts by some measures. Clearly, to do all of this analysis, Ford collects and processes substantial amounts of data. It would be truly exciting to see

a company like Ford actually start to disclose its impacts more precisely, so that people interested in or concerned about particular ecosystems or bioregions (or planetary processes) could understand more clearly how Ford's business affects these important systems and processes.

Because automobiles and trucks are such resource intensive goods, we also examined Ford's disclosures concerning the raw materials that go into its products. Sadly, we found virtually nothing except discussion of a few ways the company is trying to improve some aspects of the sustainability of its raw material consumption. Although most cars and trucks contain thousands of pounds of metal, the only metals coverage in Ford's report concerned: generic disclosure of conflict mineral content, as required by the Dodd-Frank Act; generic disclosure of forced labor and human trafficking issues as required by California law; vague discussion of Ford's "approach" to rare earth elements; and a brief discussion of steps Ford took to eliminate pig iron from the supply chain that had been produced with charcoal made by slave labor. There is no information provided on any impacts of the mines or smelters providing Ford and its suppliers with metals because, according to the company, virtually all metal content is recycled at the end of a vehicle's life, so Ford doesn't really focus any of its sustainability efforts on the materials constituting 75% of a vehicle's content. We do know that Ford has a number of programs and plans to increase recycled and alternative content to its vehicles, such as soy based foam cushions, but it tells us nothing except for rough generic percentages, about the plastic content of its products, including the many ecological impacts of the sources of those plastics such as well-sites, pipelines and plants.

Of course, no discussion of vehicle production would be complete without a word on the most obvious of motor vehicle life cycle impacts: air pollution. After reviewing 16 pages of discussion on vehicle emissions, we can tell you that Ford meets all applicable air quality standards in the different regions of the world where it sells its cars and trucks, that it is improving its fleet fuel efficiency, that it has an innovative and efficient "Ecoboost" engine, that it is investing in electrification and biofuel technologies, that it is investing in teaching people how to drive better, and other wonderful things. But don't ask us the quantities of greenhouse gases or other pollutants Ford vehicles emit each year, because we simply could not find the data. In general, for a company that has positioned itself as a sustainability leader in its industry, Ford seems stubbornly resistant to giving us an accurate picture of the global ecological impacts of its business.

Exxon Mobil

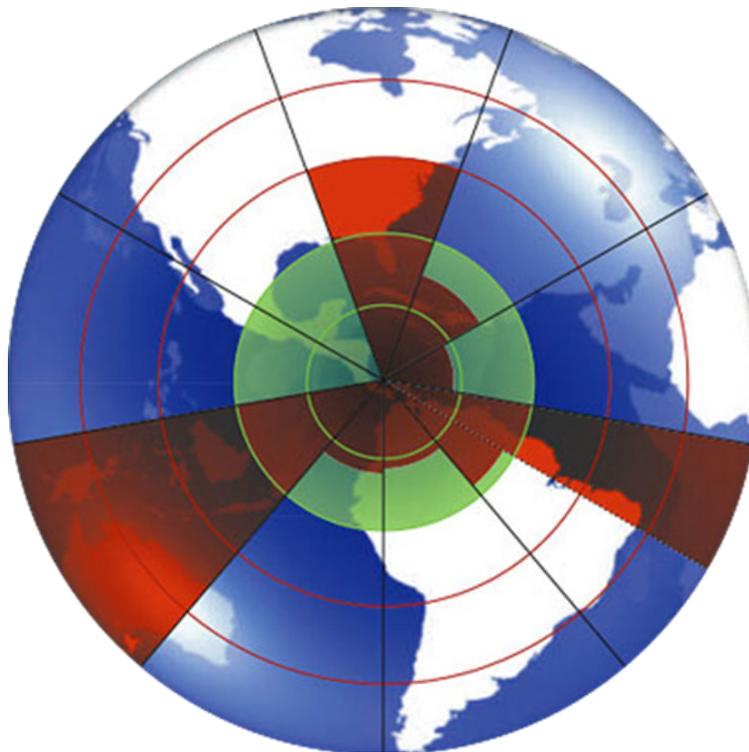
In some respects, Exxon's Corporate Citizenship Report is an incredibly informative document. Following GRI standards, the company breaks out and discusses its performance across a number of "material" areas, including environmental matters such as spills, hydrocarbon discharges, hazardous wastes, sulfur dioxide, nitrogen oxide and VOC emissions, greenhouse gas emissions, and freshwater consumption. We find it almost refreshing to see a company recognize and discuss various dimensions of water impacts including consumption, spills and wastewater discharges. The report provides readily comprehensible tables of aggregate data so, for example, we know that in 2013 the company consumed 280 million cubic meters of water, down from an at least recent peak of 370 million cubic meters in 2011. But that is almost all we can learn. We discern from what it says (and doesn't say) that it only includes its "major" operations in calculating these figures, and we know there are 86 of those somewhere around the globe out of which approximately 25% are located in water stressed regions, but that is about all we know about its impacts. There is considerable discussion about it using the most up to date methodology for understanding its water use, and about various programs and initiatives to reduce its water use, but we cannot locate any information that would enable us to truly understand how the company is affecting local, regional and planetary freshwater systems. (Again, we are only discussing freshwater use; we acknowledge the company provides some additional information on spills and waste discharges, which is more than most others). Mostly, throughout its 84 glossy pages, we come to understand that the company thinks about a fair number of its more significant ecological impacts, likely gathers voluminous data on them, and invest some limited resources in designing and implementing sustainability programs to reduce or mitigate some

of these impacts. We would, however, like to know first what these impacts are before we start thinking about how meaningful (or not) the company's sustainability performance might be.

And a tip of the hat to this company for honesty on one dimension of the climate change front: although it does disclose its own greenhouse gas emissions (in absolute and normalized figures), and some of its efforts and progress in reducing them, it does not disclose any data on the impact to this critical boundary of its own products – without which, we might not even have a serious climate change problem. More enlightening, however, is its recent acknowledgement in public statements to shareholders that it has no intention of reducing the amount of petroleum it extracts, processes, refines and transports for combustion and other uses around the planet. According to Exxon, the world is decades away from getting its act together and weaning from fossil fuels, and in the meantime it intends to drill, extract, transport and sell as much of the stuff as it can. This may be one of the most ecologically unsustainable businesses in the world, but at least it proudly owns that fact.

Summary:

And that really sums it up nicely: these are not outliers chosen for the ease by which we could criticize them. Some of these five companies might be considered good guys in some respects trying to get it right. But we've reviewed stacks of sustainability reports and learned precious little about corporate ecological impacts except that quite obviously they don't like to talk about them. And for companies like Ford and Exxon Mobil, perched atop the greatest ecological catastrophe in the history of the human species, to fail utterly to disclose hard numbers on greenhouse gas emissions from combustion of petroleum fuels is a profound statement on the tragedy of our times.



APPENDIX IV

TABLE: GLOBAL SUSTAINABILITY REPORTING LAWS

COUNTRY	DISCLOSURE EFFORTS BY GOVERNMENT
Argentina	2008 Local and international companies in Buenos Aires with over 300 employees are required to generate annual sustainability reports.
Australia	2010 Australia introduces its new ethical disclosure requirements under the Financial Services Reform Act (FSRA). Issuers of financial products are obliged to disclose the extent to which "labor standards or environmental, social or ethical considerations are taken into account in the selection, retention or realization of an investment."
Belgium	2003 Under Loi Pensions Complementaires (Occupational Pension Law), pension fund managers are required to disclose the extent to which they take into account ethical social, and/or environmental criteria in their investment policies in publically available annual reports.
Canada	2007-2008 Canadian Standards Association (CSA) GHG Registries is created to assist companies to manage, measure and report GHG emissions. 1999 The Environmental Protection Act requires companies to provide information on specific pollutant emissions.
China	2008 The government's "Green Securities" policy requires listed companies to disclose more information about their environmental record.
Denmark	2009 Companies are required to disclose their ESG performance and use of environmental resources. 1996 Companies with "significant environmental impacts" are obligated to publish green reports.
Ecuador	2009 Mining companies are to maintain records on consumption of materials and resources and to present an annual environmental audit. 2001 Companies undertaking hydrocarbon activities must publish an annual report of environmental activities.
Finland	2011 The Finnish government adopted a resolution asking non-listed state-owned companies and state majority-owned companies to report their sustainability performance.
France	2010 Effective 2012, with phase-in by company size over several years, Grenelle II requires all companies with more than 500 employees and 100 million euros in assets to include certain ESG information in their annual financial reports, following flexible guidelines such as GRI or ISO 26000. 2009 Companies with more than 500 employees in high emitting sectors are required to publish greenhouse gas emissions. 2001 Public pension funds are required to disclose how their investment policy guidelines have addressed social and environmental considerations.
Germany	2011 The German Council for Sustainable Development (GCSD) developed a German Sustainability Code. It includes 20 criteria and 27 GRI Performance Indicators. 2002 Pension fund trustees must inform beneficiaries how ecological, ethical and social needs have been considered in investments.
Greece	2006 EU Modernization Directive 2003/51/EC, requiring material ESG factors to be included in annual corporate reporting, is transposed into national legislation.
Hungary	2004 EU Modernization Directive 2003/51/EC, requiring material ESG factors to be included in annual corporate reporting, is transposed into national legislation.
India	2008 Under The Companies Act board of directors' reports must contain information on conservation of energy. 1986 Specified corporations shall submit an annual environmental audit.
Indonesia	2010 The government adopts a law requiring listed companies to report on the effects of their activities on society and the environment on a "report or explain" basis. 2007 Companies involved in operations that affect natural resources are obligated to create, implement, and disclose CSR programs.
Ireland	2008 Financial institutions supported by the government guarantee scheme are required to issue a bi-annual corporate responsibility report.

Italy	2007 EU Modernization Directive 2003/51/EC, requiring material ESG factors to be included in annual corporate reporting, is transposed into national legislation. 2002 Pension funds are required to disclose non-financial issues used in their investment decisions.
Japan	2004 Specified companies and government agencies are required to produce annual reports on their activities related to the environment.
Malaysia	2007 Listed companies are required to publish ESG information on a "comply or explain" basis.
Mexico	2004 It is mandatory to register the releases of toxins and pollutants at federally regulated industrial plants.
The Netherlands	2010 The government states its intention to have 100% sustainable procurement. 1999 Listed companies are required to publish annual environmental reports. 1993 The Environmental Protection Act includes a section on environmental reporting for the 'largest polluters.'
Norway	2013 The Norwegian government passed legislation requiring large companies to disclose information on how they integrate social responsibility into their business strategies.
Singapore	2011 The Code on Corporate Governance provides principles and guidelines for corporate governance, under which companies are required to disclose compliance.
South Africa	2009 The Mineral Resources and Petroleum Bill requires certain companies to disclose to the government how they will address the impacts of their operations.
Spain	2011 Government-sponsored commercial companies and state-owned business enterprises are directed to file annual corporate governance and sustainability reports.
Sweden	2007 The Swedish government announces that by 2009 all state-owned companies will be required to produce an annual sustainability report in accordance with GRI G3 guidelines.
Taiwan	2008 The financial markets regulator required all public listed companies to disclose their ESG performance, including measurements the company has adopted with regards to environmental protection, community participation, contribution to society, social and public interests, consumer rights and interest, and the state of implementation.
United Kingdom	2013 Amendment to the Companies Act of 2006 requires disclosures on certain environmental, social, and diversity issues. On environmental issues, greenhouse gas emission disclosures are mandatory, while other environmental issues are voluntary. 2010 Companies that use more than 6,000MWh per year are to report emissions related to energy use.
United States of America	2010 The EPA's Mandatory Reporting of Greenhouse Gases rule, 40 CFR Part 9, requires large emitters of greenhouse gases to collect and report data with respect to their greenhouse gas emissions. 1986 Emergency Planning and Community Right-to-Know Act (EPCRA) is enacted to inform citizens of toxic chemical releases and waste management activities in their areas, to be reported into a national Toxics Release Inventory (TRI).
Europe	2014 On April 15, 2014, the European Parliament amended Directive 2013/34/EU to require disclosure of certain non-financial and diversity information by European-based "Public Interest Entities" (listed on public exchanges) as well certain other large companies on a "report or explain" basis. 2013 The European Parliament requires oil, gas, mining and logging companies to disclose the payments they make for access to natural resources. 2010 Large emitters of greenhouse gases must collect and report data with respect to their greenhouse gas emissions.

Source: Initiative for Responsible Investment, Global CSR Disclosure Requirements, available at <http://hausercenter.org/iri/about/global-csr-disclosure-requirements> (updated and revised by authors of this paper)

APPENDIX V

Q&A ON REQUIRED CORPORATE DISCLOSURE OF ECOLOGICAL IMPACTS (EXTERNALITIES)

Q: How much do we know about the harms companies are causing to the planet?

A: It depends on where the company and its suppliers operate, but in general remarkably little. Even here in the U.S. companies are only required to disclose estimates of environmental releases of a few hundred chemicals out of the roughly 75,000 chemicals they handle. Climate change is a global catastrophe we know is being exacerbated by emissions of a number of gases, but only recently have some companies in some places begun to disclose any details on what they, their suppliers or their products are emitting. Companies say little to nothing about most of their ecological impacts, from land use changes like deforestation to nutrient, pesticide and herbicide runoff to depletion and diversion of water supplies to the many other ways they alter and impair the healthy functioning of the planet's ecosystems and life support systems. We're playing cat-and-mouse, with far too many mice ever to catch up.

Q: But don't companies publish sustainability reports to tell us about these things?

A: While thousands of companies now publish sustainability reports, they tell us almost nothing about their actual ecological impacts. The focus instead is on coverage of the ways each company considers itself to be becoming more sustainable, which is a vague concept. Most sustainability reports focus on the things companies want to boast about, areas where they might want to claim some sort of progress in their environmental "performance," but polluters don't want to talk about their pollution and largely they don't.

Q: Aren't companies doing their best to inform us about things they are perhaps just beginning to understand?

A: We don't think so. We actually think that companies are telling us as little as possible about many things they know plenty about. To prepare a typical sustainability report, a company has to gather, process and analyze a lot of data. Today's corporation knows incredible detail about every aspect of its business, and what it doesn't know is quite readily knowable if it wants that information. Either its environmental management and supply chain management systems already have this information, or they can be adapted to gather it. Or at the very least, in some cases, pretty good estimates can be made using established methodologies applied to data that does exist. Companies know their businesses, and they are by far in the best and most cost-effective position to gather and report this information.

Q: But why are you focusing on public companies?

For one thing, because they are among the largest and there are good reasons to believe they are causing a very significant percentage of the planet's ecological woes. For another thing, they typically have robust information systems in place and are already subject to fairly intense levels of mandatory disclosure about their finances and operations. They are privileged to access capital in the largest and most liquid capital markets in the world, and they agree to provide considerable transparency in exchange for that valuable benefit. And although they rarely comply, they are already subject to rules that require them to disclose certain kinds of environmental problems. We have to start somewhere, so we are starting where we think it makes the most sense, trying to harness an extremely effective and public information disclosure system to get some critical information that these companies are in the best position to provide.

Q: Does the SEC care about ecological impacts?

A: Not quite, but it might be slowly heading in that direction. The SEC has traditionally cared about short term “material” financial risks more than long-term future prospects and challenges. But some investors are pointing out that at least some ecological impacts should be considered material risks. In 2010 the SEC responded to these investors and issued voluntary guidelines for companies to consider in deciding what climate change related risks they need to disclose in their annual filings. It’s a very small, inadequate first step, but it is nevertheless a start.

Q: What are the economic consequences of ecological impacts?

A: Recent and highly conservative estimates of the unpaid economic costs of ecological impacts (externalities) are \$6.6-\$7.6 trillion annually, which is in the range of 10-15% of global GDP. At least 1/3 or more of these externalities come from public companies.

References: See Why Externalities Matter to Institutional Investors, UNEP-PRI (2012) (estimating monetary value of total global externalities at \$6.6 trillion to \$7.6 trillion per year); Natural Capital At Risk: The Top 100 Externalities of Business, TEEB-TruCost (2013) (valuing total business externalities at \$7.6 trillion).

Note: In 2012, global GDP was somewhere in the range of \$72 trillion and \$85 trillion. The lower figure is nominal value from the CIA’s The World Factbook. The latter figure is a calculation based on purchasing power parity. By either figure, the economic implications of runaway systemic externalities are extraordinary.

WHAT MOTIVATES THIS ACTION?**Q: What problem are you trying to solve?**

A: A lot, really. But problems cannot be solved without information, and the bigger and more complex the set of problems, the more information that is needed to solve them. We know some things about some of the kinds of activities that cause some kinds of ecological harm. We could probably list some of the most significant kinds of ecological impacts. But we don’t know all the different kinds of ecological impacts, we don’t know everything we ought to know about the effects of all those impacts, and most important of all we don’t know who is creating what impacts in what places around the world. Without knowing that, it’s hard to imagine we’re going to be able to solve the challenges from overshooting multiple planetary boundaries, which is what we are facing.

Q: Is this the solution?

A: It’s how to start. We want to maximize the flow of high quality information about ecological impacts and, where known, their ecological effects. There are a lot of smart people in the world who care about these things, and there will be more in the years to come. They are going to need information. We intend to make it possible for them to have that information readily available at low or no cost.

Q: Why use such a broad brush? Why not just focus on the ones we know are causing the most impacts?

A: This is not a small set of isolated problems, it is systemic. Every business has ecological impacts. Some may be worse than others, but the entire system is set up to reward externalizing activities. We don’t think it’s wise to pick and choose worst cases and leave in place a very poor set of incentives and disincentives. Without systemic

constraints and unambiguous pressure to internalize or eliminate such problems, many firms will continue to routinely shift costs outward to society and the planet's biosphere, profiting inordinately from the resulting damage.

HOW WILL THIS WORK IN PRACTICE?

Q: How will companies disclose their ecological impacts?

A: They will file annual disclosures electronically with the SEC.

Q: How will companies know what to disclose?

A: Once Congress enacts the necessary legislation, the SEC will work with other agencies that have expertise in environmental sciences to develop and adopt a very detailed set of rules giving companies very clear direction about what they have to disclose and how they have to disclose it.

Q: Are there people with the right expertise to help companies comply with these disclosure rules?

A: Just as companies have financial accountants and auditors to help them maintain accurate books and records and prepare annual statements and reports, they will need to ensure they have teams in place to help them with ecological impact disclosure. There is already a burgeoning sustainability consulting industry, there are trained ecologists and earth scientists who do consulting work, and there are economists and others who also focus on issues concerning ecological impacts. There are even schools with people studying, writing about and developing systems of environmental and ecological accounting.

This will take time, but it could be done in phases. Meanwhile, there is no reason to believe that public companies face any actual obstacles to getting the ball rolling and beginning the disclosure process even as these pieces are developed and refined. We have to start somewhere.

Q: CPAs do financial audits, but how will Ecological Impact Auditors (EIAs) help with this disclosure work?

A: In an ecological impact audit, a company would present the EIA with its prepared ecological impact disclosure statement, along with company records reflecting what each ecological impact is, such as quantitative and/or objectively verifiable qualitative data and descriptions, and information on what ecological system(s) is impacted. For example, a company might disclose that 2000 pounds of nitrogen fertilizer was applied to its corn fields, and state that while it cannot quantify precisely it does know that it is probable that some of it entered into the groundwater system or some of it was taken up in rainwater runoff and was thereby discharged into streams feeding the Mississippi river system. Part of the EIA's job would be to obtain from the company records of information concerning soil, geological and hydrological conditions in and around that farm, perhaps obtain rainfall and other related data, and apply established methodologies to ascertain whether the company's statements are truthful and accurate, including whether the information disclosed can be made more precise, perhaps by calculating probable quantities of nitrates or phosphorus that either leached into the groundwater or ran off into surface waters. The EIA would also ascertain if the company knows of the effects of this impact on surrounding ecological systems and species and, if so, whether the information is of a kind and quality that might require the company to disclose more about what it knows. Just as with a financial audit, this would not be done for each and every possible impact. Rather, the EIA would independently select a random but representative sampling of operations and impacts to audit, and those would be checked by examining the company's

systems and records. Because companies would not know which operations or impacts an EIA might choose to audit, they would have strong incentives to maintain accurate records and prepare complete disclosure reports.

Q: How would an EIA know he could rely on a company's records?

A: Another part of the audit process will be an examination and testing of the company's environmental management system, because the EIA will have to certify that the company's EMS is up to applicable standards. No large and complex information system can be 100% accurate 100% of the time, but we can get very close, certainly close enough for reasonable people to consider the systems reliable.

Q: Why do you want the ecological impacts made public?

A: This is extraordinarily useful information, of incalculable value to society. Transparency is a powerful tool, not only because it provides valuable information with innumerable uses, but also because it alone can change some behavior for the better. Obviously in some companies, managers will be motivated to act out of fear of more direct regulation, but there are some well-intentioned managers and directors who might feel more empowered to improve company practices when everything is out in the open. Companies that today compete on sustainable images might actually start competing on sustainability – or really to be more accurate, reducing unsustainability. We also want scientists, journalists, ordinary citizens, policy makers, consumers, customers, and investors, really anyone who has a stake in the planet's well-being, to have easy access to the information. In the end, we are all stakeholders.

Q: Some of the pollution problem comes not from the mining and manufacturing part of the process, but the use and disposal end of the products' entire lifecycles. How will your disclosure law address that?

A: Product life cycle analysis will be required so that product life cycle impacts can be accurately disclosed. Many companies already do some form of product life cycle analysis, and some report part of that information in their existing sustainability reports. We simply want to make this process uniform and universal.

Q: How would a company that is a distributor of something like fire retardant used in furniture making disclose that product's impacts?

A: It would inquire about production impacts from its suppliers and try to learn what it can about product life cycle impacts from its customers. It would then disclose what it learns, and describe its good-faith efforts to engage in that learning process.

Q: Why do you think this is a meaningful step?

A: This vast, multi-trillion dollar planetary subsidy is highly concentrated within a few thousand public companies who are estimated to be responsible for one-third or more of all externalities. Starting with them is an incredibly meaningful way to reveal massive amounts of information about a huge swath of threats to planetary life support systems.

Q: Why address these environmental issues in an economic arena? Should this be done at the EPA?

A: These are the true costs of production, not found in corporate balance sheets and not factored into the prices

of goods and services. The magnitude of the problem of externalities is immense. We need for the entire process of considering these ecological costs to be part of the decision process for each and every participant in the economic system, so that there is a systematic reflection of these true costs in the price of all goods. In a True Cost Economy fewer ecological impacts will mean lower prices.

Q: Is this a market solution?

A: In part, yes, in part maybe, in part probably not. If we are to shift to a much-needed deeply sustainable society, we must ensure that economic markets do a much better job of optimizing our collective well-being, which is inextricably intertwined with and completely dependent upon planetary well-being. And that means that economic actors must more fully internalize and eliminate their ecological costs, from their supply chains through their own operations and throughout the entire life-cycle of their products. To the extent markets respond to these increased flows of accurate ecological impact information in ways that correct some of the problems, our job will be done. To the extent that more is required for some problems, perhaps taxes, fees, subsidies and the like can be used with greater precision to influence markets to be more ecologically responsible. But to the extent the information indicates more direct intervention is necessary, again, robust and high quality data sets will enable policy makers to more efficiently and effectively target those direct regulations, possibly at the lowest economic cost. The entire point of liberating all of this information is so that we can collectively make the best informed decisions we can make about what needs fixing, how to fix it and – just as important – whether our chosen fixes are actually working in the way we need.

RESPONDING TO CRITICS

Q: The cost burden is too great for the corporation, isn't it?

A: There will be winners and losers. The process is intended to ensure that those who rely on cheater economics are the losers, and those whose business practices demonstrate ecologically and socially responsible values will be the winners, as will we all. Unless we all win, in the end we all lose.

Q: I think you are just trying to expand a federal agency's jurisdiction and I'm against that.

A: This does not expand the SEC's jurisdiction. It already has jurisdiction over issuers to compel disclosure of whatever information it deems important. In the Dodd-Frank Act, Congress added two new non-financial disclosure rules to the Commission's plate, but that wasn't a change in its jurisdiction. This law does expand the scope of the Commission's duties, and it does expressly authorize and direct it to do things it might rather not be doing, but that's no different than any new law empowering or directing an agency to do something it previously did not do.

Q: Who benefits from ecological impact disclosure?

A: We all do. Those investors, procurement specialists, and consumers who are motivated by values other than short-term profits or lowest prices will have better opportunity to make more informed investment and spending decisions. Those investors and customers who don't care about these things will remain entirely free to ignore them. The people who have been bearing the costs of ecologically irresponsible practices will find some relief in both improved health and lower financial burdens. Researchers, analysts, governmental policy makers, and corporate strategists will all have access to exceptional data pertinent to everything from day to day activities to a future none of us will ever live to see. It's our grandchildren's grandchildren whose lives are really

at stake here, so ultimately they are the beneficiaries of this system. And the norms of ecological transparency, ecological honesty and ecological clarity will serve humanity well even beyond that generation.

Q: Aren't we suffering from information overload in this Information Age?

A: Yes, this involves a lot of data. But this information is truly invaluable and we aim to liberate it for the greater good.

We want to tailor rules to maximize the flow of reliable high quality information while excluding lower quality information. We're trying to emphasize disclosure of objective data, qualitative descriptions according to scientific norms, and analytical or evaluative information only where it has been prepared according to established scientific methodologies. That will help filter out a lot of extraneous noise. But the bottom line is nobody is going to force this information on anyone. We only want to systematize free and ready access to the information. Whether anyone gets overloaded on it is entirely up to them.

Q: Won't this kill jobs?

A: To the contrary, a lot will be created. It might result in shifts in work forces, and there might be some job losses as a result, but right now there are economic actors who are killing the planet and the people who inhabit it. We want nothing other than the truth. Certain extractive industries have eliminated the regenerative capacities of ecosystems and all the jobs associated with or dependent on those ecosystems.

Q: What detrimental effects does this kind of reporting have on the company?

A: There will be some increased cost burden, just as there have been with financial audits, but reporting standards and procedures can be developed that will minimize the costs while meeting the goals of the program. Of course, there may be more consequences for polluting, but right now we are all bearing that burden while the polluter pays nothing. We shouldn't put a price on truth.

FINANCE & PROFIT ISSUES

Q: How will companies deal with the shifts involved if they are forced to address all the externalities they disclose?

A: There are no panaceas, and the brutal fact is that some companies are not going to survive the transition. However, in many cases companies are already finding that reducing ecological impacts can actually save them money and make them more profitable, like zero waste programs. And there are a lot of creative solutions, and the more information we can get hold of, the more opportunity that very smart people will have to come up with even more smart ways to solve huge planetary problems. For example, there are places (Australia and Oregon) where markets have developed so ecological damage can be packaged and offset against ecological repair packages in comparable sites. "No Net Loss" policies and risk multipliers are applied to ensure that the net ecological change is positive. Under the right conditions, similar markets will spring up around the world, where entrepreneurs can provide environmental damage mitigation and reversal offset services to corporations whose expertise lies elsewhere. This can't work everywhere, but it is one example of how companies might contend with the consequences of their own irresponsible behavior without completely self-destructing.

Q: What possible help would this kind of reporting be for stockholders and investors?

A: The longer-term their investment horizon, the more they will benefit. Most stockholders and investors are aware that there needs to be a big sea change in business practices. Severe storms and droughts in recent years have brought the message home. But lack of information is a huge obstacle to positive change. This is why growing numbers of investors are demanding that companies start disclosing a lot more about their climate change problems. The disclosures we're proposing will give some stockholders and investors the opportunity to put their money where their conscience tells them to put it, while others will shift their investment strategies simply because it makes good business sense. Things are changing, and those who want to make well-informed decisions will have ready access to all the information they need.

Q: Won't the consequences of disclosing their ecological impacts hurt some companies that provide jobs?

A: This proposal is just about obtaining information on impacts, effects and risks, which logically should precede any considerations of equities and costs. Imagine you lived in a small community where homes rely on well water, and people fish and swim in the streams and ponds. There are a number of businesses in the area that might handle or store chemicals. The community doesn't really know much about these companies' practices, but they have heard of communities where businesses take short cuts like having leaky storage tanks or secretly running lines through the woods to run spent solvents into streams. Your community just wants to know what their businesses are doing to the surrounding ecosystem, so the town council sends a letter to all businesses asking them to provide accurate information about their waste disposal methods and the integrity of their storage tanks. It assures them that no decisions have been made on what to do if information concerning possible risks is disclosed. Businesses respond that they won't provide that information because there could be costly consequences, and they might even have to lay off people to cover the expense of adding protections or paying for remediation. They say that could hurt the tax base and the community, and nobody has brought forward any evidence to justify this intrusive request. How would you feel? The letters from town council expressly state that they just want to know the facts, and will be happy to consider issues of balancing equities and creative solutions if any problems arise. Shouldn't the community have the right to know?



APPENDIX VI

GLOSSARY OF TERMS (with comments)

CSR – (1) corporate social responsibility; (2) corporate social report. Its use causes some confusion in the literature.

ESG – Environmental, Social, Corporate Governance – also known as the “Triple Bottom Line.” Most commonly used in EU. Interchangeable with “sustainability” or “sustainability report” or any other variation.

SRI – Socially Responsible Investment.

Corporate Social Responsibility – a general term for taking more into account than bottom-line financial and traditional investor concerns. Often tied to “stakeholders,” or groups of interested people other than shareholders. It is considered good CSR practice to “engage” with stakeholders.

Environmental Performance – measures of progress on environmental issues against a benchmark or indicator or other baseline value; not an expression of actual impacts.

Benchmark – a baseline value or measure against which progress or performance is measured or estimated.

Indicator – a numerical value or ratio indicating performance against a benchmark.

Footprint – an indicator used to reduce the complex sets of values to a single reference value; an ecological footprint translates sets of data concerning a range of human ecological impacts into land use, which is offered as a relative proxy for the overall planetary impact of those activities in terms of land used.

Sustainability – most commonly thought of as attending to our own well-being while ensuring conditions so that future generations can do the same; the key element is the balancing of environmental needs and economic development. A better way to think about it is providing satisfying lives for all people while living within planetary boundaries, meaning that people do not overuse the earth’s ecological abundance or impair its functions beyond the planet’s capacity to regenerate and sustain the conditions necessary for all life to flourish.

Sustainability Report – any publication or communication discussing or relating in whole or in part to a person’s ecological impacts or effects.

Sustainable – something that can be sustained, nourished, nurtured – a sustainable society ensures that ecological systems can maintain their integrity, well-being and healthy functioning over a long period of time.

Impact – the action of one object coming forcibly into contact with another; event or occurrence where one object or force intersects, joins or contacts another; a point of contact.

Effect – a change that is a result or consequence of an action, impact or other cause.

System – a complex network of relationships, processes, cycles and feedbacks among and between components, constituents and features, each of which may also be a system (or sub-system), existing in highly complex nested, interconnected, interdependent relationships.

Earth system – the planetary meta-system consisting of all systems, relationships, processes and cycles, including the nine key sets of processes necessary to provide conditions for life to be sustained.

Planetary boundaries – limits or ranges of limits to human impacts beyond which the nine critical planetary life support processes can no longer provide conditions necessary to sustain life; exceeding a planetary boundary is known as “overshoot.” 350 ppm atmospheric CO₂ load is considered the boundary for climate systems, beyond which climate disruptions occur and accelerate. Most planetary boundaries do not yet have well-established values to measure their limits. Planetary boundaries are affected by ecological impacts in varying local, regional and planetary scales, all interconnected as nested systems and sub-systems.

Ecological – relating to or concerning the relation of living organisms to one another and their physical surroundings.

Ecological System (also Ecosystem) – A dynamic complex of biotic and abiotic components interacting as a functional unit within a defined boundary and with other adjacent ecological systems. Ecological systems include features, processes and components and the spatial and temporal relationships and flows of material and energy stocks among and between them. The earth system is an ecological system.

Web of Life – the myriad direct and indirect interconnected and interdependent relationships among and between all organisms subsisting in the earth system; every organism is part of the web of life.

Biodiversity – the variety of living organisms in the earth system or in any ecological system or bioregion; sometimes synonymous with web of life; one of the planetary boundaries because the viability and carrying capacity of an ecological system is related to its biodiversity.

Ecological Impact – any extraction, removal, withdrawal, elimination or subtraction from, any insertion, deposition, discharge, emission, release or other addition to, onto

or into, or other activity resulting in a change to, of or in any ecological system or any feature, process or component of an ecological system.

Ecological Effect – any change, impairment or alteration of or to any ecological system, or any feature, process or component thereof, resulting in whole or in part, directly, indirectly or cumulatively from an ecological impact.

Mitigation – the action of reducing the severity, seriousness or harmfulness of something so as to make it less serious, severe or harmful; in the context of this paper, mitigation includes measures, equipment, systems, or other actions taken to prevent, eliminate or correct an ecological impact or effect, including measures to restore an ecological system; mitigation can in some circumstances also include measures taken to offset an ecological impact or effect through improvements to another ecological system.

Issuer – a company that registers for trading on U.S. securities exchanges any security, such as a stock, bond or option. Issuers are regulated in part by the Securities Exchange Commission.

SEC – the Securities Exchange Commission, the U.S. principal regulator of securities exchanges, participants and issuers.

10K – the annual report of financial and operational performance every Issuer must publicly file with the SEC each year; generally confined to material information.

Materiality – a subjective assessment of one thing's relative importance in relation to other things; in securities law, the relative importance of a statement or fact to a hypothetical "reasonable investor's investment decision" and thus the importance of the fact or statement to a fair understanding of the company's financial condition or performance; non-financial matters such as environmental problems are rarely material unless they pose a significant risk of very large financial liability to the company.

Input-Output-Throughput – in ecological economics, the principal model for understanding all economic activities, operations and systems. For any given operation, there are inputs of renewable and non-renewable resources, water and energy, outputs of by-products and wastes, and throughput which are processed materials or finished goods going to market. By understanding the economic and ecological values of all inputs and outputs (including supply chain inputs and product life cycle outputs), considering also the I-O-T values of each step along the way to the operation, one can ascertain the extent to which costs have been adequately assumed and accounted for by the operation (internalized) or have been shifted out or spilled over onto planet and society (externalities). This is a method for evaluating the ecological impacts and costs the operation fails to account for, instead imposing them on others.

Externalities – shifted costs; those economic and ecological costs passed along from an operation or company to society and the planet, like pollution; externalities are market

failures, because when a company can shift or avoid costs, it can price its goods lower, selling more than it otherwise would, outcompeting other companies that account for those costs, ultimately distorting entire markets so that scarce resources (raw materials, water, energy, land and waste-sink capacities) are misallocated, and overconsumed.

Cost – usually a monetary valuation, although physical and intangible costs are real and, because they don't always have a market or monetary value, they are often left out of economic cost equations. Human cultures, spiritual values, species in the web of life, indeed the web of life itself are among many non-monetary values that ought to be considered priceless.

Asymmetric Information – Conditions under which one party possesses superior information, leading to outcomes different from what would be the case were both parties equally well informed. This is a classic market failure, and the law has long had mechanisms to prohibit or prevent these imbalances and to remedy circumstances where someone unfairly gains because of asymmetric information. Hidden information concerning externalities such as ecological impacts are conditions of asymmetric information, disabling from making the kinds of well-informed decisions that are necessary for well-functioning markets and healthy ecological systems.

Cheater Economics – economic systems that are not transparent with respect to “side effects” like externalities. Unregulated free-market economics often privatizes the profit and socializes the costs onto future generations of humans and other parts of the web of life.

True Cost Economy – an economy that operates within the earth's carrying capacity, especially by recognizing and avoiding ecological impacts (also known as shifted costs or externalities). One that doesn't surreptitiously shift impacts or costs (i.e. cheat) the earth's natural systems, species in the web of life, or future generations.

Waste Sink – the earth's limited capacity for absorbing and processing wastes deposited into its air, land and waters; considered a fundamental resource, including for economic operations; also considered an “ecosystem service.”

Ecosystem Service – benefits to humans from ecological systems; usually broken into categories: provisioning; regulating; supporting; and cultural. One of the bases for economic valuation of ecological systems. For many, service implies “in service to humans,” like a flight attendant, even though ecosystems render “services” to all species and, in fact, to the systems themselves. Ecosystem function might be a better phrase, emphasizing the fundamental and universal utility of processes themselves to the whole web of life and the earth system.

Natural Capital – views aspects of nature and natural systems as non-financial “assets” to be accounted for in corporate and national accounts; another basis for monetary valuation of nature. This raises much the same objections as the concept of an ecosystem “service,” and for good reason.

ABOUT US

FOUNDATION EARTH is a national, non-profit, public interest advocacy organization founded in 2011. Our focus includes: economic models, technology, biospheric education, and earth jurisprudence. We call for a rethink of society from the ground up. We envision more self-reliant communities embedded in a continental network of bioregional economies. Time is not on our side. A rapid shift from an industrial society that ignores nature's carrying capacity limits and irresponsibly pollutes (cheater economics) to a True Cost Economy will require examining the dimensions of a deeply resilient economy, arguing for it, and providing advisory services to social movements concerning systems change. Our mission is to bring an earth-centered "True Cost Economy" into reality.



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