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Sustainability Ethics and Metrics: Strategies for Damage Control and Prevention

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Abstract

It is generally and increasingly believed that humanity's survival depends on adoption of sustainable development practices, which are based on adequate satisfaction of quantitatively defined and interrelated economical, environmental and social criteria. One can then argue that sustainable development has a meta-ethical foundation, a definition of right and wrong paths stemming from what one might consider a Universal Truth that is humanity's desire to survive. One finds that "sustainability" is very much in vogue as a positive attribute, and more and more extensively used erratically and often improperly and even fraudulently over the entire social spectrum. Since sustainability is of vital importance to our survival, using its terminology in vain diminishes its vitally important value by desensitizing society and sowing distrust. Importantly, unethical usage of sustainability concepts causes much harm to the development of credible sustainability science. This paper briefly defines sustainability and its quantitative metrics, presents examples of ongoing ethical and unethical use of the concept, and recommends a path towards damage control that includes the development of internationally acceptable standards for that vital concept.

1 Introduction and motivation

1.1 The sustainability imperative and definitions

It is generally and increasingly believed that humanity's survival depends on adoption of sustainable development practices, which are based on adequate satisfaction of the quantitatively defined and interrelated sustainability "pillars" of economics, environment and society, within appropriate space and time

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boundaries[1]. "Sustainability" is therefore very much in vogue as a positive attribute, but the properly and strictly defined sustainable path often clashes in many of its aspects, in at least the short term, with human nature and corporate/institutional/governmental leadership "single bottom line" (or, a minimal number of bottom lines…) preferences. "Sustainability" is consequently more and more extensively used erratically and often improperly and even fraudulently over the entire social spectrum, by governments, institutions, business, industry, schools and individuals; e.g., a recent study stated that 98% of the 2,219 companies surveyed failed in at least one of the sustainability metrics applied [1]. A thorough study of 13 companies positioning themselves as being "Green" and considered to be environmental leaders concluded that they "are in fact exploiting green issues, through communications, policies, and reports to benefit themselves and to portray a favorable corporate image—green con-panies!" [2].

The ivory (or ivy) towers of academia are not guiltless either. As one general example, a few years ago many have started initiatives for more sustainable campuses (e.g., American College & University Presidents Climate Commitment (ACUPCC), [3]), considering it as a total win-win endeavor: on the one hand encouraging reduction of use of energy, water, materials and goods that inherently reduce operational costs and tend to construct new buildings that should be cheaper to operate, and on the other hand improve the academic institutions' appeal to current and future students who are also interested in learning more about sustainable development because it indeed is a desirable career path. Unfortunately, not unlike many corporations, there is much engagement and publicity but very little solid investment ("There is no financial obligation associated with signing the ACUPCC") and quantitative accomplishment in becoming more sustainable. The goals and metrics also tend to be selective in addressing some but not all aspects of sustainability and there is much confusion between the commitment to climate-neutrality objectives and between often repeated but not observed sustainability objectives. The ACUPCC 2009 report [3] starts with "The American College & University Presidents' Climate Commitment (ACUPCC) is making a tremendous impact on the nation and the climate.", but the only quantitative metric of accomplishment is the large number of schools that signed the "Commitment", without any clear quantitative evidence of meeting climate neutrality goals. Perhaps it is too early to see progress, but the enthusiastic picture-splashed report of happy climate neutralizers and devices would have been more realistic if made appropriately (academically?) accurate and humble.

Coming down to sustainability statements by individuals, we (including idealistic students) are quick to criticize businesses, but are the root of the problem: product appeal and price rather than its sustainability dominate, and for a small example, based on ecological footprint (EF) calculation by some 150 of my students, their average current lifestyle requires about 4.5 earths if everyone on earth used the same (this is 10% lower than for the average US citizen), with a predicted 11% reduction after they start their post-graduation life. Without arguing the accuracy of the EF metric, this is a very unsustainable lifestyle by individuals anyway, directly affecting corporate conduct.

One of the key arguments in this paper is that in view of the vital importance of sustainable development to human progress and even survival, the use of the concept and its terminology in vain or fraudulently diminishes its vitally important value by desensitizing society and sowing distrust, and decisive steps must therefore be taken soon to treat its fraudulent use in a much more serious way than ordinary fraud.

Rational sustainable development requires the development of quantitative sustainability science, which is indeed evolving through the efforts of the multi-disciplinary sustainability science community. Unethical usage of sustainability concepts, even just the commercial and political ones, also damages the utility and progress of the science.

A serious obstacle to proper use of sustainability concepts, which also serves as a subterfuge for trans-

[1] In view of the popularity of this perception, even those who are not convinced would be reticent to state otherwise if their activities and benefits thereof depend on popular good will.

gression, is the difficulty of establishing rigorous and easy-to-use definitions of the sustainability metrics, especially in the environmental and social pillars. The various path-breaking sustainability statements, such as those by Thomas Jefferson: "Then I say the Earth belongs to each generation during its course, fully and in its right no generation can contract debts greater than may be paid during the course of its existence" (September 6, 1789) and much later the UN Brundtland Commission's [4] of "Meet the current needs without destroying the ability of future generations to meet theirs." are very qualitative and tolerate any population growth and unsustainable behavior by future generations, and excludes concern about destruction of the ability of the less fortunate members of the current generation to meet their reasonable needs (e.g., [5,6]). Work is progressing rapidly to characterize sustainability as a science, and to that end quantitative scientific definitions of its metrics and their mathematical development, aggregation, and use are evolving and gradually becoming a part of standards and regulations (e.g., , [5,7-12]). Since there are many definitions of sustainability indices and metrics, work is underway to establish usable, appropriate and commonly accepted criteria but much remains to be done, which also constitutes an exciting challenge for all stake holders, from the global public, to users and scholars.

It is particularly very difficult to quantify environmental and social metrics. One (but only one of many) classical problem for the former is how to monetize biodiversity [13,14], and with the latter the tight relation to human values, which also vary widely by geography, customs, religion, etc. if there are no regulations that monetize them. For example, it is stated that corporate social responsibility attempts to achieve *"*commercial success in ways that honor ethical values and respect people, communities and the natural environment*"* [15], or "A sustainable corporation is one that creates profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts" [16], and many others in the same vein, but these statements are extremely qualitative and not a metric yet. At the same time progress towards development of social sustainability understanding and metrics is progressing (e.g., Szekely and Knirsch's [17], and Ehnert's [18] work on quantifying the link between sustainability and human resources management, and the work by Azapagic and Perdan [19] on managing corporate sustainability). It is noteworthy that the social pillar is not only for the society external to the entity but also for treatment of its own employees. An incidental but good example of the ambiguity of even the simplest qualitative social sustainability understanding and definitions is that the acronym CSR is arbitrarily used to mean Corporate Social Responsibility, or Corporate Social Reporting or Corporate Sustainability Reporting, three very different concepts, where, for example the second is actually only a part of the third.

The large body of literature on sustainability definitions (to some extent this paper included…) is dominated by much qualitative prose describing the situation, complaining about the complexity of the problem, and often stating the obvious, and recommending additional research, rather than providing some quantitative solutions. It is noteworthy for example, that LCA (Life Cycle Analysis) is an important tool and component of sustainability analysis, especially in that it provides the manufacturer useful long-term information about a product or activity, but it is not a substitute to sustainability analysis. It should also be realized that LCA is fraught with uncertainties, stemming mostly for uncertainties in predicting the future, and is best used to develop and compare scenarios with a range of assumptions about future characteristics.

It is noteworthy that even in the imperfect and unstandardized form, sustainability criteria were and continue to be used in a number of important analyses (e.g. [20-22]).

To make sustainable paths more economically acceptable, i.e. to change the "single bottom line" (or, a minimal number of bottom lines…) preferences to the "triple bottom line", the literature and folklore are replete with attempts to convince that sustainable paths bring real value to those who take them, even in the short term and that in the long term they reduce future risk/problems with such as depletion of resources, eligibility for loans, impending regulation, loss of reputation/customers and impairment of ability and understanding of self-evaluation of progress towards sustainability (e.g. [16,23-25]). Despite

many examples presented that this win-win concept may be so, careful examinations reveals that many of these benefits have little to do with sustainable activities per se, but are simply steps to reduce costs or increase income activities that would have, or should have, been taken even if the concept of sustainable development did not exist at all. It also is becoming very clear that at this time most of the benefit for specifically sustainable approaches is in the intangible assets, such as reputation, popularity, recognition, etc. (Savitz and Weber [16] state that on average 75% of the assets of Fortune 500 companies are intangible). Such assets, especially of the transgressors themselves, are, at least in the longer term most vulnerable to transgressors' misrepresentations and false sustainability claims.

1.2 The ethics foundation

Adopting the premise that sustainable development is of vital importance to humanity's survival, we can argue that the concept and associated activities have a *meta-ethical* foundation, a definition of right and wrong paths stemming from what one might consider a *Universal Truth* that is humanity's desire to survive, which includes the parentally instinctive drive to protect our descendants and work towards their happy existence. The *normative* form of this principle can then be expressed in the practical task of employing *universal* moral standards (different from classical business morality definitions as the obligation to increase profits without deception or fraud [26]) that regulate right and wrong conduct in this complex area. It would involve the scientific definition of the *good* habits that should be acquired and employed to that end, as well as the avoidance, prevention and condemnation of the *bad* habits that typically accompany each moral drive, spawned by those who do not have the long term moral motivation but try to take advantage of the situation for personal benefit instead. Desirable normative moral behavior would provide all specific information about the product/process that allows the customer to be assured that it is actually truly sustainable based on the *customer's truth*, without requiring that the customer should conduct the testing and validation: the *Caveat Emptor* doctrine should be replaced by the *Caveat Venditor* one. The ethical foundation of sustainability in the corporate context is receiving much attention (e.g. [27-31]).

Observing the human condition, and realizing that legal measures to control false and fraudulent advertising, with associated punitive measures, exist worldwide, but that sustainability claims are largely not controlled, the University of Pennsylvania's motto "*Leges Sine Moribus Vanae*", unfortunately should be accompanied in this context by its flip side, approximately phrased "*Mores Sine Legibus Vani*", intending here to state that it is useless to expect morality or ethics without appropriate laws and regulation. At the same time, a vulnerability of regulation without ethics is that the unethical would spend most of their effort in finding ways to bypass the regulation instead of working towards sustainable development. Building of universally ethical character and investment into Ethical Value Added is the long-term sustainable way to adopt if minimal regulation and most effective sustainable development are wanted (e.g. [29]),

1.3 Transgressions categorization and risks of excessive penalization

Literally innumerable examples of transgressive use of sustainability, as well as examples of how such improper use may (or may not…) have had negative impact on the transgressors, are available and rising. Much of the evidence can be found under "Greenwashing", a practice to falsely promote or exaggerate the environmental friendliness of a product or service. It is noteworthy that Greenwashing is only a subset of false sustainability claims, since it addresses only the environmental pillar, but not the social or economical. There are many types of sustainability transgressions (e.g., TerraChoice [1] cites "the seven sins

of Greenwashing" and states that 98% of the 2,219 products it examined committed at least one of these sins), and it is useful to paraphrase some of the common ones: absence of proof, vagueness, irrelevance (claim of features where their absence would have been be illegal anyway, or touting an accurate representation of the content of some ingredient in a product that in fact doesn't, however, improve its effect on the user), partial truth that hides other important issues that offset the claimed advantages, false labeling, false claims of third-party certification, and…outright lying. Due diligence must be applied in examining sustainability claims, without forgetting to consider also the manufacturing location/country, whether the emissions and energy and resource use and depletion were outsourced together with the manufacturing, the supply chain's sustainability, and the transportation distance and associated energy use and emissions. Furthermore, the social aspects may need to include attention to loss of jobs due to work outsourcing.

False sustainability claims are sometimes subject to "punishments", legal or otherwise. Apart from the legal ones, the other "punishments" include negative customer or general public reaction directly or via social media, negative evaluation by NGO-s that are professionally involved in judging veracity, such as EcoLogo [32], Green Seal [33], Blue Angel [34], the Dow Jones Sustainability Indexes [35], Ftse4Good [36], GRI [37], and by bloggers. Excessive negative actions by non-legal bodies is, however, likely to create reactions that are counterproductive, one of which is that the subject of criticism becomes less forthcoming about its sustainability performance. For example, Lyon and Maxwell [38] show that mandatory disclosure rules offer the potential for better performance than NGO auditing, but that the necessary penalties may be so large as to be politically disagreeable, and that the best approach is a mix of mandatory disclosure rules, NGO auditing and environmental management. A futility of voluntary rather than mandatory disclosures and compliance was demonstrate in the careful analysis by Lyon and Kim [39] of the consequence of the USDOE Guidelines for Voluntary Greenhouse Gas Reporting, who discovered a negative relationship between environmental performance and environmental disclosures: overall, participants in the Voluntary Registry increased emissions over time but reported reductions, while non-participants decreased emissions over time. Simply stated, since there was no effort to validate the voluntary disclosure, companies that participated tended to exaggerate performance rather than improve it.

Another problem is the qualification of the NGO to make evaluations and judgment. Since a framework to certify or validate such NGO-s does not seem to exist, it is possible that the evaluating NGO may be incompetent or swayed by popular prejudices. Inappropriately conducted evaluations damage sustainable development as much as Greenwashing does, and a certification and assurance frame should be put in place (e.g., [40]). Further, there are many examples of entities that honestly undertake activities to advance some, but not all, aspects of sustainability. As long as the advancements are not annulled by simultaneous engagement in new unsustainable activities, they should be applauded rather than ridiculed. This would hopefully further positive steps.

1.4 Damages, risks, and dangers of false claims

As stated in the Introduction, the rising tsunami of false claims that products, and technological, governmental, social and environmental processes and activities are "sustainable" creates great damage to sustainable development. Apart from desensitizing society and sowing distrust, false sustainability claims frustrate customers and investors who seek socially responsible buying and investing, diminish a company's attractiveness to its more idealistic and younger employees and potential employees, and severely diminish the value and investments of those who really engage in sustainable activities or make sustainable products and truthfully claim sustainability. There are also self-defeating circumstances in which an entity indeed invests in sustainable development with good success, but at the same time either exaggerates the claims or falsely makes unsubstantiated ones. Finally, in these era of extensive mass media ac-

cess and tools, in which the spectrum includes bloggers, Facebook, Twitter, You Tube, Wikipedia and Wiki-Leaks (a few of the sites focused on these issues are listed in the references include Greenwashing Index [41], Greenpeace [42], EnviroMedia [43], and TerraChoice [1]) puts false-claimers at a great risk, "It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you'll do things differently," as Warren Buffet is quoted to have said.

1.5 Some possible remedies

1.5.1 Regulation

Legal measures to control false and fraudulent advertising, with associated punitive measures, exist worldwide, but sustainability claims, especially in the absence of mandatory requirements for sustainability reporting, are largely not controlled. This is especially worrisome because of the much higher and global importance of sustainable development than of false advertising of, say, some commercial product, and is complicated by ongoing globalization of product, service and capital markets, which is on the one hand of vital importance to the propagation and advancement of sustainable development, but which, on the other hand, has so far left governments with inadequate tools to monitor and regulate international trade and investments, and multi-national corporations [44]. In fact, that importance of the problem should be reflected in tighter regulation and higher punishments, sort of like the differentiation in the US law between regular and hate crimes.

In the US, the Federal Trade Commission (FTC) provides guidelines for environmental marketing claims ("Green Guide"), and the guidelines are being extended in many ways, one of them being the inclusion of claims about renewable energy [45]. These guidelines give the FTC the right to prosecute false and misleading advertisement claims. The guidelines are not enforceable and were intended to be followed voluntarily. In addition, the EPA and various states have enacted numerous regulations about environmental matters, often conflicting and inconsistent, "a crazy quilt of laws and regulations" as Barnett calls it [44]. Furthermore, these regulations address only environmental issues and not all pillars of sustainability. A compendium of voluntary environmental standards and discussion of FTC activities in that area can be found in [46].

At least the economic pillar of sustainability could be regulated in the US in some of its aspects by the U.S. Securities and Exchange Commission (SEC), and in other countries by their own bodies with similar roles. Since corporate sustainability is an important part of its assets/value, it would be most appropriate if corporate financial statements would be required to present clear and transparent information about this part of the value creation for shareholders. The GRI method can be extended to introduce a system of corporate sustainability rating similar to the current system of credit rating, as currently done by rating agencies such as Moody's, Standard & Poor's, and Fitch, to be based on a ratings grid composed of acceptable sustainability metrics. More generally, the multi-faceted nature of sustainability demands, as most of the experts in the published literature agree, that some form of legislation carefully composed by all stake-holding branches and departments of a government, must be established to guide or govern sustainability claims. In the US government these would include, from the executive branch, the Departments of Justice, the Interior, Agriculture, the Treasury, Commerce, Transportation, Energy, Education, Labor, Health and Human Services, Housing and Urban Development, and State, as well as specific bodies such as the EPA, FTC, and SEC. Congress and Senate should be encouraged to formulate legislation as needed.

Clearly, uniform federal regulations to give the regulated community guidance on the representation of sustainable attributes in marketing and advertising are highly recommended. At the same time, as stated in the section on ethics in this paper, compliance with regulations only is typically an inadequate solution if it is not accompanied by an ethical foundation that rationalizes the compliance and averts undesir-

able solutions that are often focused on finding ways to bypass the regulations (e.g., [27,29]).

1.5.2 Voluntary measures and third party certification

Responsible and timely action by NGO-s and markets would reduce the need for governmental intervention. The Dow Jones Sustainability Indexes [35], FTSE4Good [36], Winslow Green Growth Fund [47], and similar are good examples of free market investment tools that focus on sustainable companies and thereby encourage factual reporting and sustainable activities. In the third party certification category are network-based organizations that conduct sustainability reporting and grade performance, of which perhaps the most widely used is GRI [34], which now addresses not just environmental performance reporting but also the social and economic (excluding financial accounting) dimensions of sustainability [37,48]. The GRI method can be extended to introduce a system of corporate sustainability rating akin to the current system of credit rating, as currently done by rating agencies such as Moody's, S&P, and Fitch, now to be based on a ratings grid composed of acceptable sustainability metrics [49].

Private organizations that evaluate, certify and grade some or all aspects of sustainability of products include the German Blue Angel (Blauer Engel, since 1978, [34]), The Global Ecolabelling Network (GEN) [50], the EU Ecolabel [51], and in the US and Canada EcoLogo [32] by the Canadian Government, and Green Seal [33] (several also consider the product lifecycle). They are typically self-governed and gain their credibility from including a wide spectrum of reputable organizations and individuals in their management group.

There are also an increasing number of voluntary standards developed by reputable professional organizations, including:

- ISO 14001 [52], which is one of the most frequently adopted standards in the area of corporate responsibility and is widely recognized as an international standard for environmental management. It was developed by ISO, a network of national standards institutes in most world countries
- AA1000 Assurance Standard [53] that covers an organization's disclosure and associated sustainability performance, by Account Ability, an international membership-based professional institute.
- SA8000 [54] is a global social accountability standard with certification, which includes supply chain labor standards, developed by Social Accountability International (SAI), based on ILO conventions and linked to UN norms.

Several private organizations, such as the World Business Council for Sustainable Development [55] are there to assist businesses in their path to sustainability.

1.5.3 Wise regulation

Any regulatory effort creates new bureaucracies, introduces expenses of money and time, and creates delays, and especially in the business world must insure confidentiality and trust.

As already stated above, unwise regulation may be counterproductive in advancing sustainable development and must be planned … sustainably.

2 Conclusions and recommendations

It is widely accepted that sustainable development is of vital importance to humanity and that false sustainability claims are universally unethical in that they are not only significantly damaging to fair business competition and trade, but also to the dire need for humanity's progress towards sustainability. Consequently, much stronger and faster action must be taken to arrest this negative phenomenon and trend.

The first step towards this goal is the development of sensible, correct, easily usable and widely (up to

the global level) acceptable definitions of quantitative indices/metrics and of ways for using them for the definition of sustainable activities, products and development in general. This should be a joint effort by corporations, professional associations, NGO-s and all stakeholders, with at least some oversight by governments. A second step, just as important, is building up an ethical foundation that would shun such transgressions and divert the energies from unethical behavior, which most often backfire in the long term anyway, to sincere engagement in sustainable development.

Regulations must be developed to extend beyond the commonly addressed environmental (green) sustainability pillar, thus also to the economic and social pillars, to address sustainability fully. Such sustainable characterization and reporting regulations must be developed by the widest and well-coordinated consortium of stakeholders, to include governments and their different departments, and the United Nations.

One specific extension towards the economic pillar would be to move towards SEC rules[2] on the materiality of sustainability data akin to rules on earnings and profits, integrating sustainability metrics and reporting into financial reporting, and requiring companies to practice accounting for sustainability in a prescribed uniform way.

There is an absolute and urgent need for strongly standardized sustainability reporting and assured independent auditing, from the national to the global level. The sustainable way to sustainable development, with minimal regulations and maximal long-term effectiveness, is the construction of a solid foundation of universally ethical behavior.

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