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Sustainability Quotients and the Social Footprint

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ABSTRACT
We argue that most of what passes for mainstream reporting in corporate sustainability management fails to do precisely the one thing it purports to do – which is make it possible for organizations to measure and report on the sustainability of their operations. It fails because of the lack of what the Global Reporting Initiative calls sustainability context, a shortcoming from which it, too, suffers. We suggest that this missing context calls for a new notion of sustainability (the binary perspective), which can be conceptualized in the form of sustainability quotients. We provide specifications for such quotients in ecological and social contexts, and suggest that sustainability is best understood in terms of the impact organizations can have on the carrying capacity of non-financial capital, or what in the social case we call *anthro* capital. We conclude by introducing a quantitative quotients-based method for measuring and reporting on the social sustainability of an organization, the social footprint method. Copyright © 2007 John Wiley & Sons, Ltd and ERP Environment.

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Introduction

WE BEGIN THIS DISCUSSION BY CALLING THE READER'S ATTENTION TO A DISTURBING TREND in the field of corporate social responsibility, or corporate sustainability management (CSM), as we prefer to call it. Either of these terms refers to the new management discipline by which an organization can take steps to measure, manage and report its impacts on society and the environment. While it is true that with the passing of time more and more companies around the world are embracing CSM, it is also true, we believe, that the leading tools used to do so, such as the Global Reporting Initiative (GRI) and other more self-styled approaches, fail to do precisely the one thing they purport to do, which is make it possible for organizations to measure and report on the sustainability of their operations. Gray and Bebbington (2005, p. 7) describe the situation as follows:

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> Within those reports identified as 'sustainability reports' [. . .] even those that are 'in conformance with' the *Global Reporting Initiative Sustainability Reporting Guideline* provide only the most superficial data on the extent of the organisation's sustainability or otherwise. Indeed, sustainability is much more likely to be entirely ignored; it is rare to see any corporation address it all. No reasonable person could make any sensible judgement on the basis of an organisation's reporting in their 'Sustainability Reports' on whether or not the organisation was un-sustainable.

To us this amounts to nothing short of a crisis in CSM. It is a crisis because as long as mainstream sustainability measurement and reporting tools are being used *as if* they are addressing sustainability – when, in fact, they are not – the possibility will exist that the actual sustainability performance of organizations will never be known, even as their impacts in the world potentially worsen (i.e. in the form of increasing social and environmental harms).

Such unintended consequences are possible, we argue, simply because most CSM reports, including those prepared according to GRI, fail to include what GRI itself refers to as *sustainability context* in their scope (GRI, 2006). In the absence of such context, it is impossible to tell whether an organization's operations are sustainable. GRI defines *sustainability context* as follows (GRI, 2006, p. 13):

> The underlying question of sustainability reporting is how an organization contributes, or aims to contribute in the future, to the improvement or deterioration of economic, environmental, and social conditions, developments, and trends at the local, regional, or global level. Reporting only on trends in individual performance (or the efficiency of the organization) will fail to respond to this underlying question. Reports should therefore seek to present performance in relation to broader concepts of sustainability.

That said, most GRI reports omit sustainability context altogether, and GRI itself provides no specific guidance on how to include it. What we most often see, then, are reports that are, at best, top-line trend or efficiency reports, some of which amount to little more than 'greenwashing' (Tschopp, 2005), and few of which tell us anything about the true sustainability of an organization's operations. How could they? The background state of the social and environmental conditions they have impact on (i.e. the sustainability context) is missing. This, however, need not be the case. By simply adding context to a CSM report, the true sustainability of an organization's operations can be determined.

Methodology

The central problem we set out to address, then, was how to incorporate sustainability context in a sustainability report. Ultimately, the project would take the form of a design effort aimed at producing a design specification for a measurement model that would make context-based sustainability reporting possible. The social footprint method we describe below was thereby developed in accordance with a standard design methodology (Simon, 1977, 1996; Verschuren and Hartog, 2005). Initially, however, we did a literature search to determine whether or not any such methods already exist, notwithstanding the prevailing use of GRI, which has problems if its own as noted above.

What we found, as further discussed below, is that context-based measurement models exist only for environmental reporting. The *Ecological Footprint* (EF) tool, in particular (Wackernagel and Rees, 1996), and a comparable set of guidelines put forward by Herman Daly (Daly, 1977, 1990, 1996) assess impacts on environmental resources against ecological states of the world. Even so, the use of such methods in business or organizational settings is quite rare (Holland, 2003).

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What is conspicuously missing, then, is any sort of context-based measurement model for determining the social sustainability of a human collective (e.g. a business). We thereby set out to close this gap by developing a context-based measurement model for determining the social sustainability of a human collective, analogous to the manner in which the EF functions for ecological concerns. Here we should be clear that our intent was not to develop an index or a set of indicators for social sustainability. Rather, our intent was to develop a general design specification for a measurement model that could be utilized in conjunction with whatever specific indicators might be of interest to practitioners.

Sustainability Theories

What the crisis referred to above suggests is that the prevailing theory of sustainability in business, for purposes of sustainability reporting, is fundamentally flawed. What, then, is the prevailing theory of sustainability reporting, and how might it be in error?

To address this question, let us begin by acknowledging that real differences exist in what people mean by the term *sustainability*. Faber *et al*. (2005) provide a useful conceptual framework through which we can view such historical and competing schools of thought. We will use their framework here in our analysis of current practices, but will also expand it as we offer our own perspective on what sustainability means, and what its practical measurement and reporting implications are at an organizational level of analysis.

According to Faber *et al*. (2005), all sustainability theories, or perspectives, that involve a concept or notion of sustainability can be described in terms of three aspects or attributes: (1) sustainability always has a referent (or artefact), (2) it has a goal orientation and (3) it entails a type of relation with an environment.

- **Artefact.** Regarding artefacts to which sustainability can be attributed by a theory, a distinction can be made between artefacts that are concrete versus artefacts that are abstract. The former are referred to as *entities*, and the latter as *constructs*. A manufactured product, such as an automobile, would be a case of an entity, whereas a process or activity would be a construct. Either of these could be more or less sustainable according to one theory or another.
- **Goal orientation.** This aspect of sustainability theories deals with 'the point of reference that is used in determining whether an artefact is sustainable' (Faber *et al*., 2005, p. 8). A distinction can be made, accordingly, between *absolute* versus *relative* lines of reasoning. 'The absolute approach to sustainability identifies a continuum [or a scale] with two extremes: non-sustainable and sustainable [at opposite ends]' (Faber *et al*., 2005). By contrast, a 'relative approach starts with the present state of affairs and identifies existing problems, which people subsequently attempt to solve. It is an approach of small steps instead of a grand design. In contrast to the absolute approach, the focus of this relative approach is not the [absolute] good, but the less worse or the better' (Faber *et al*., 2005).
- **Behavioral interaction.** This third aspect of sustainability concerns whether the dynamics of the interplay between the artefact and the social and/or ecological environment are accounted for by a theory. In a *static* perspective, 'the artefact is dynamic, whereas the environment is only static' (Faber *et al*., 2005, p. 9). By contrast, in the *dynamic* perspective, 'the artefact tracks changes in its environment continuously and adapts to these changes to keep the equilibrium intact' (Faber *et al*., 2005). Organizations, for example, seek to 'adapt to their environments continuously; for the organization to ensure its sustainability, adaptation to these exogenous forces is necessary' (Faber *et al*., 2005).

Based on the conceptual framework above, we conclude that the predominant CSM theory in use today – best illustrated by GRI – can be described as follows.

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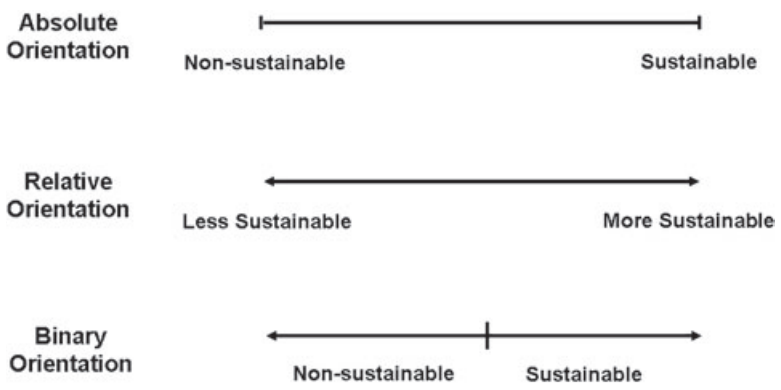

Figure 1. Alternative Goal Orientations for Sustainability Theories

- **Artefact.** Most organizational sustainability reporting systems have as their focus the *activities* of an organization. In other words, the *thing* in, or about, an organization that can be sustainable or not, including for GRI, is its operations: it is 'the sustainability of organizational activities' (GRI, 2006, p. 4) that matters most in sustainability reporting. Thus, with GRI serving as the exemplar of sustainability reporting today, we can say that the prevailing artefactual orientation to sustainability reporting is of the *constructs* kind.
- **Goal orientation.** With regard to the goal orientation aspect of sustainability theory and practice, we take the position that most of what passes for current thinking today (in CSM) is rooted in the *relative* school of thought. This is borne out by the fact that the dominant reporting systems in use, including GRI, are completely devoid of any sort of standard or reference for what constitutes sustainable performance. Thus, what we most often see is performance expressed in relative terms, couched in phrases like 'more sustainable' or 'less sustainable'.
- **Behavioral interaction.** With GRI as the exemplar of sustainability reporting, most of what passes for mainstream thinking in today's world is decidedly *static*. This is perhaps not so much a result of GRI's inherent structure or orientation as it is a reflection of how far it (GRI) has to go in fulfilling its own vision of CSM reporting. Indeed, while it is true that GRI advocates for *sustainability context* in the preparation of reports, it completely fails to provide guidance for doing so, thereby ensuring that most GRI reports will be virtually context free!

A Binary Theory of Sustainability

We propose a new *goal orientation*, in the Faber *et al.* sense, which we call the *binary* orientation. According to the binary orientation, an artefact is sustainable, or not, depending on which side of a demarcation point it falls on a scale of *sustainability performance* (see Figure 1). Thus, the binary conception of sustainability is, in a sense, a variant of the *absolute* goal orientation, in that it is completely anti-relativistic. According to the binary orientation, an artefact is either wholly sustainable or not – there is no in between. Instead, there are only higher or lower scores for *sustainability performance*, some of which fall on the *sustainable* side of a line, and others of which fall on the *non-sustainable* side.

While similar to the absolute orientation, the binary orientation differs from it in one important way: it rejects the notion that an artefact can be *more or less* sustainable without being entirely one or the other in the first instance (*sustainable* or *non-sustainable*). In our view, the absolute orientation may at least implicitly suggest and encourage the opposite *more or less*, or relativistic, interpretation

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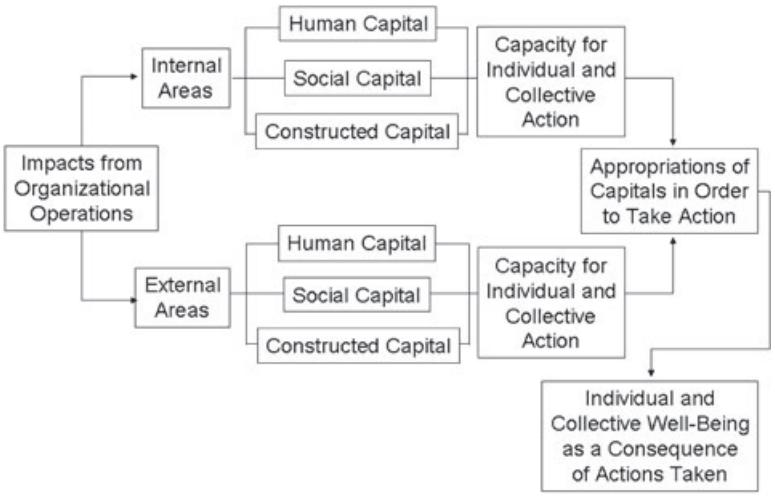

Figure 2. Organizational Impacts on Anthro Capital

of sustainability, given the territory that lies in between its *sustainable* pole at one end and its *non-sustainable* pole at the other. Presumably, the closer an artefact is to the *sustainable* pole, the more sustainable it is, and vice versa. The binary orientation has no such ambiguity.

Let us take our binary theory to the next level, then, and endeavor to explain how a pattern of behavior can come to occupy one side of a demarcation point or another on the kind of sustainability performance scale we have in mind. To do this, we must first explain the concept of *sustainability performance*.

Anthro Capitals and Their Carrying Capacities

As previously stated, we contend that the sustainability of an organization's operations is a function of its impacts on the world in and around it. But what is it in the world, specifically, that an organization's operations can have impact on? And in what way can such impacts be sustainable on the one hand, or unsustainable on the other?

Our response to the first question is *capital* – non-financial capital, that is. In order to assess the social or environmental sustainability of a particular activity (such as the operations of an organization), one must first understand its impact on non-financial capital. To the extent that such operations can have the effect of preserving or building required levels of such capital, we can say that they are sustainable; if they have the opposite effect, we can say that they are unsustainable. This is the capitals-based theory of *sustainability performance*, and we subscribe to it (Chambers *et al.*, 2000; Daly, 1996; Elkington, 1998; Georgescu-Roegen, 1971; Hawken *et al.*, 1999; McElroy *et al.*, 2006; Meadows *et al.*, 1992; Mulder *et al.*, 2006; Porritt, 2005; Soddy, 1922; Stern, 1997; Vemuri and Costanza, 2006; Wackernagel and Rees, 1996).

What specific non-financial capitals, then, are we talking about in our binary theory of sustainability as things that organizational operations can have impact on? In total, there are four: natural (or ecological) capital, human capital, social capital and constructed (or built) capital. Our focus for the remainder of this paper will be on only three of them: the three non-ecological capitals, in particular. We will refer to these capitals collectively as *anthro* capitals, as in anthropogenic or human-produced capital (i.e. social, human, and constructed capital) (see Figure 2).

Here, briefly, is what we mean by each of the three anthro capitals of interest to us.

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- *Human capital*. Human capital consists of *individual* knowledge, skills, experience, health and ethical entitlements that enhance the potential for effective individual action (Becker, 1964; Mincer, 1958; Schultz, 1961).
- *Social capital*. Social capital consists of *shared* knowledge and related organizational networks (e.g., governments, judiciaries, militaries, healthcare systems, banking systems, education systems, charities etc.) that enhance the potential for effective individual and collective action in human social systems (Coleman, 1990; McElroy *et al.*, 2006; Ostrom and Ahn, 2003; Putnam, 2000).
- *Constructed capital*. Constructed capital (or 'built' capital) consists of *material objects and shared physical systems or infrastructures* created by humans for their benefit and use. This includes tools, technologies, buildings, highways, public utilities, transportation systems, etc.

Here we take the position that anthro capital consists of resources that people rely on – *and appropriate* – in order to take (what is hoped to be) effective action, with the intent of either preserving or producing well-being (again, see Figure 2). In some cases such action is taken individually; in others it is collective. In all cases, though, it is action taken using what is perceived to be useful human, social, and/or constructed resources, with the enhancement of human well-being in mind.

Our contention, then, is that organizational operations can have impact on anthro capital, and that we can assess the social sustainability of such operations in terms of whether or not they result in the preservation and/or production of sufficient levels of human, social and constructed capital. Here we declare our commitment to the notion of *carrying capacity* as an attribute of capital (Odum, 1983; Sterman, 2000). It is the sufficient *carrying capacity of capital*, in particular, that must be maintained or created in order for activities that affect them to be sustainable. Here we use the term *carrying capacity* in an inverted sense (Rees, 1992, 2003; Wackernagel and Rees, 1996). Rees (2003) explains this as follows (p. 124):

> Eco-footprint analysis . . . [inverts] . . . the standard carrying capacity ratio: rather than asking how large [a] population can live in a given area, eco-footprinting estimates how much area is needed to support a given population . . .

This interpretation of carrying capacity is even more apropos when dealing with anthro capital, because unlike natural or ecological capital the supply of anthro capital can almost always be increased when supplies fall short, since humans are the source of it.

In general, then, we can say that all three forms of anthro capital are *produced by and for humans*; their purpose is to help satisfy basic human needs (again, see Figure 2). Organizations, in turn, can have impacts on the sufficiency of such capitals, by helping to either produce, maintain or diminish them. This can comprise a basis for determining the *sustainability performance* of an organization. If an organization produces or helps maintain the carrying capacity of anthro capital at required levels, we can say that its operations are sustainable; if it diminishes such capital, we can say the reverse. Moreover, to the extent that such impacts can be expressed in quantitative terms (just as the capitals themselves can be), the makings of a corporate social sustainability measurement and reporting system come rushing into view.

Sustainability Quotients

Organizational impacts on the carrying capacities of capitals can be either positive, negative or neutral, insofar as their effects on the sufficiency of related resources are concerned. Thus, the ability to

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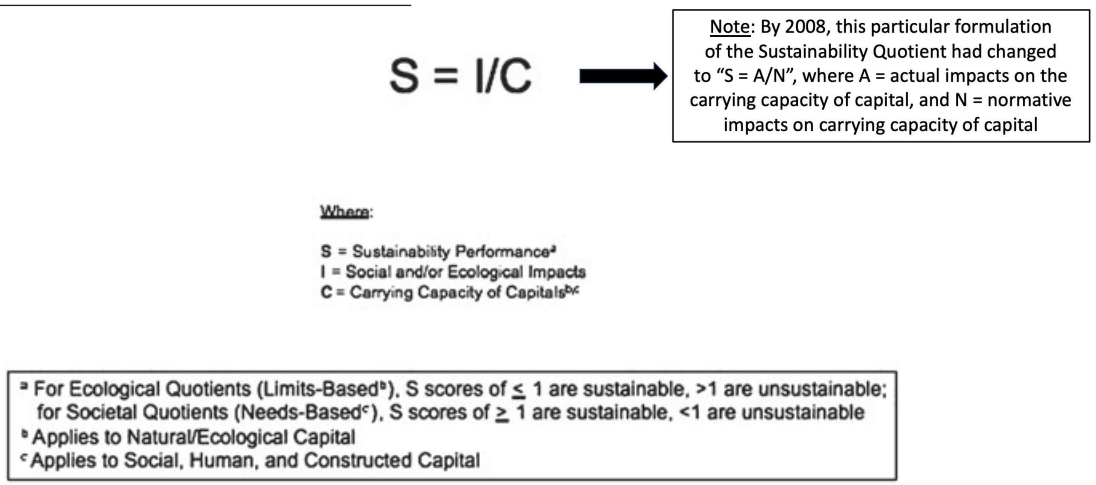

Figure 3. The Sustainability Quotient

quantitatively measure and express such impacts arises. To do this, we need only compare the rate of capital resource consumption and/or production by an organization with the corresponding rate of capital resource supply, or need, proportionately allocated to the organization in some way. This relationship can be represented in the form of a *sustainability quotient* as shown in Figure 3.

In this formulation, the numerator is the net quantitative *impact* of an organization's operations on capital, and the denominator is the net quantitative impact on *capital* that an organization is entitled or expected to have. Thus, the quotient of an organization's *impacts* on capital and its proportionate share of the supply of, or need for, such *capital* can either be equal to one (1.0), meaning impacts match such a share, greater than one (>1.0), meaning impacts exceed such a share, or less than one (<1.0), meaning impacts fall below such a share.

Here we acknowledge that this idea entails normative propositions in the denominator, and that different people will disagree on such things as social duties and entitlements, who ought to have them and in what form. It is not our intent, however, to address these concerns at this time. Let us simply agree that such propositions can be made, and that the question before us now is how to measure actual performance against them. Let us further agree that some of these norms, or values, will relate to impacts on ecological capital, whereas others will relate to anthro capital; the construction and interpretation of our quotient will vary accordingly, as discussed below.

In the ecological case, capital resources are quantitatively fixed and must be shared; if an organization uses more than its proportionate share, its operations can be seen as unsustainable. Why? Because if everyone, or every company, had impacts of the same kind on ecological capital, global supplies of related resources would be exceeded, and ultimately depleted. This, of course, is already happening on earth, as many studies involving the Ecological Footprint method have shown (Porritt, 2005; Wackernagel and Rees, 1996; WWF, 2006). Humanity is exceeding its earthly entitlement of natural capital. Thus, quotients in the case of ecological impacts involve measuring the effects of behaviors against fixed-capital *entitlements*, or shares of natural capital.

In the social case, the interpretation of our quotient takes a very different turn. Anthro capital, unlike ecological capital, does not consist of constrained or limited resources which must be shared via entitlements; rather, it consists of resources that humans produce, and which they can usually produce more of at any time. Thus, for impacts on anthro capital, the sustainability dynamic represented by the

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quotient above is not a quotient of operational impacts over *fixed* supplies, it is a quotient of operational impacts over *non-fixed* supplies. Instead of asking whether a company has *appropriated* more than its proportionate share of limited natural capital, a social sustainability calculation should ask whether a company has *contributed* its proportionate share towards the production or maintenance of non-limited anthro capital. It is a company's contribution, or not, of at least its proportionate share towards the production or maintenance of anthro capital, as required by a population, that makes its operations socially sustainable, or not, as the case may be.

The principles discussed above, then, provide us with a theoretical and practical basis for establishing scores on a sustainability performance scale, according to which (see, again, Figure 3).

> *For impacts on ecological capital*, quotients of greater than 1.0 (i.e., where S > 1) signify unsustainable operations, and quotients of 1.0 or less (i.e. where $S \leq 1$) signify sustainable operations. *For impacts on anthro capital*, however, the logic reverses. Quotients of 1.0 or greater (i.e. where $S \geq 1$) signify sustainable operations, because it means that contributions towards producing or maintaining sufficient levels of anthro capital are at least equal to an organization's proportionate share of what such contributions ought to be. Quotients of less than 1.0 (i.e. where $S < 1$), in turn, signify unsustainable operations, because it means that an organization has failed to contribute its proportionate share.

Thus, in the ecological case C refers to a proportionate share of fixed, natural capital *supplies*, whereas in the social case it refers to a proportionate share of non-fixed, anthro capital *needs*. Taken generically, the entire equation in Figure 3 can be read as follows:

> *The sustainability performance (S) of an organization is a measure of either its social or ecological impacts (I) relative to its proportionate share of the supply of, or demand for, carrying capacity of related capitals (or C).*

Let us now examine two forms of our sustainability quotient further using a simple example of each. First we will address the ecological context, and then the social one.

Ecological Quotients

Our conception of ecological quotients is heavily based upon the work of Herman Daly and his three conditions for a sustainable society (Daly, 1977, 1990, 1996; Meadows *et al.*, 1992). According to Daly, a society is ecologically sustainable if and only if it meets the following criteria:

- its rates of use of renewable resources do not exceed their rates of regeneration;
- its rates of use of nonrenewable resources do not exceed the rate at which sustainable renewable resources are developed;
- its rates of pollution do not exceed the assimilative capacity (in rates) of the environment.

By referring to rates of regeneration, development and assimilation in his three conditions, Daly provides us with a quantitative model for ecological sustainability measurement and reporting. He does this by making reference to two rates in each of his conditions. One is a rate of resource use, and the other is a rate of resource supply. As we see it, the first rate can be configured as a numerator in a quotient, and the second as a denominator. The numerator reflects an organization's impacts on natural capital

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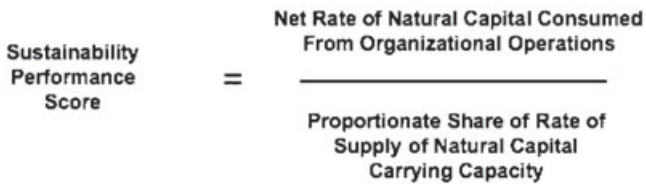

Figure 4. Sustainability Quotients for Ecological Impacts

(i.e. through its use), and the second rate (the denominator) reflects the background level of related supplies. What results is a quotient calculation that can be used to describe the ecological sustainability of a society, or in our case, of an organization's operations (see Figure 4).

Perhaps the most familiar ecological quotient is the one earlier mentioned by another name: the Ecological Footprint (EF) (Wackernagel and Rees, 1996). Unlike the manner in which ecological impacts are measured and reported by popular CSM methods, such as GRI (a numerator-only scheme), the EF actually compares human impacts with associated ecological conditions on earth (denominators). Thus, it is a quotient in concept, which makes it possible for us to assess the true (ecological) sustainability of human activities.

In ecological quotients, denominators are always composed of ecological or natural capital resources that are finite and limited. In general, they consist of energy and material resources, including waste assimilation functions, that are constrained and that must be shared. Thus, natural capital must be carefully allocated so as not to be depleted or unduly monopolized by one part of society or another.

Our own approach to addressing this allocation issue is to express such entitlements in the form of what we call 'people feet'. A 'people foot' is merely a variant of a *per capita* metric that carefully takes actual time spent by employees at work into account. A whole people foot can be thought of as a whole 24-hour person-day. Thus, a company with 1000 employees, for example, might receive an ecological entitlement of 240 people feet, since most people only spend (or are paid for) 24 percent of their lives at work. Relying on such a 'performance per people foot' metric also allows us to compare sustainability performance from one year to another, since organizational size and/or scope of activity rarely stand still.

Societal Quotients

The second sustainability quotient is the social one, a new conception of our own that involves impacts on anthro capital. Its construction is shown in Figure 5.

Here things change dramatically because of one important fact: unlike ecological capital, which humans do not create and which is found in fixed, limited supplies, anthro capital is anthropogenic; it is created by humans in whatever amounts we like in order to meet our needs. Thus, in the case of societal quotients, the primary question of interest to us is not *To what extent is an organization consuming no more than its proportionate share of the supply of capital?* Rather, it is *To what extent is an organization producing at least its proportionate share of the demand for capital?*

This change in orientation from natural capital to anthro capital – and the fact that we can produce the latter but not the former – results in a (slightly) different application of Herman Daly's three conditions. Instead of measuring consumption patterns relative to fixed resources, societal quotients measure production patterns relative to non-fixed resources. Either way, the issue involves a measure

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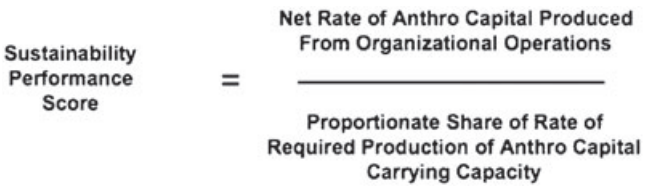

Figure 5. Sustainability Quotients for Social Impacts

of anthropogenic impacts on the sufficiency of non-financial capitals required for human well-being. This is the general implication of Daly's formulation, as we see it, which we, in turn, have been able to apply to the social domain, just as Daly did himself in the ecological domain.

The fixed versus non-fixed difference between ecological and anthro capital, respectively, is further highlighted in Figures 4 and 5. Notice in particular, in Figure 5, the manner in which both the numerator and the denominator have been re-worded (as compared to Figure 4) to reflect the special nature of anthro capital. In the case of ecological quotients, the numerators are always expressed in terms of *consuming* capital, because ecological capital can only be used but not produced by humans; at best, we can restore, remediate or repair it, but we cannot create it anew. In the case of societal quotients, however, the ability to *produce* capital clearly comes into play.

Let us now briefly take up the question of how a societal quotient for a company (any company) might be calculated. Here we consider a simple example involving achievement of the United Nations (UN) Millennium Development Goals, or MDGs (UNDP, 2006). These goals are as follows.

1. Eradicate extreme poverty and hunger.
2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. Reduce child mortality.
5. Improve maternal health.
6. Combat HIV/AIDS, malaria and other diseases.
7. Ensure environmental sustainability.
8. Develop a global partnership for development.

Specific quantitative targets for at least partial achievement of these goals have been set by the UN for 2015. Plans of action and corresponding budgets have also been prepared. These budgets, in turn, have been allocated to individual countries around the world, whose annual contribution levels to help fund the UN and its programs have been defined accordingly. At a country level of analysis, then, we can conceptually allocate a share of required contributions to every citizen thereof. If a nation fulfills its commitments in a given year, we can say that each of its citizens' obligations to help achieve the UN's MDGs for that year have been met. In general, this might be facilitated by the payment of taxes, which are then used by a nation's government to make grants to the UN.

In many cases, however, governments fail to live up to their commitments to fund the UN's programs at specified levels. This is certainly the case for the United States, and it also holds for many European countries. At a personal level of analysis, then, we can say that every man, woman, and child in the United States has also failed to meet its commitments to the UN, and that human well-being is compromised because of it. People in their individual (and occupational) identities, and not just their governments, also bear responsibility for human well-being on Earth, especially in cases where their governments will not (Welford, 2002).

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Indeed, individuals in their corporate or organizational identities can make contributions to the UN above and beyond the personal taxes they pay. They can do this in the form of corporate taxes, a portion of which ultimately goes to the UN, just as it does in the case of personal taxes, but they can also make contributions in other ways – e.g. by compelling their employers (or themselves in their collective workplace identities) to make additional financial donations or contributions of other kinds towards achievement of the MDGs (Nelson and Prescott, 2003; Lyon, 2004). In this regard, companies can make contributions on behalf of their employees towards the improvement of social conditions in the world, and especially towards achievement of formal goals established by institutions such as the UN.

Some companies have already declared their commitment to help achieve the MDGs. Green Mountain Coffee Roasters, for example, a publicly traded company in the United States, recently disclosed the following policy in its latest *Corporate Social Responsibility Report*, as one of several notable accomplishments it made in FY2005 (Green Mountain Coffee Roasters, 2006, p. 10):

> *A new social and environmental bottom line*: We made the decision to align the work of our social responsibility initiatives and programs with the United Nations' Millennium Development Goals (MDGs). We have committed to measuring ourselves based on how well we support MDG #1 – reducing poverty and hunger – and #7 – ensuring environmental sustainability.

Another company, Philips, in its 2006 *Sustainability Report*, made a similar pronouncement:

> At Philips we firmly believe sustainability offers a world of opportunities to improve quality of life and create value. Taking into account the MDGs that relate to our company's know-how and capabilities, our greatest asset as a partner for development lies in leveraging our innovations to improve the lives of those living at the base of the economic pyramid, focusing on health and energy (Philips, 2007, p. 30).

Exactly how Green Mountain Coffee Roasters and Philips will measure the sustainability of their impacts on achieving the MDGs is unspecified and remains to be seen. We, however, believe that the approach we suggest above is entirely workable. We can analytically allocate obligations to make contributions to the UN to individual citizens, who, in turn, retain their citizen identities in their working lives. Organizational contributions can then be credited to their workers accordingly, and measured against the same obligations as a sustainability standard of performance. Here it should be clear that the type of anthro capital impacted in such cases is social capital. It is social capital being constructed in and by the UN for application towards alleviating some of the world's worst human problems.

The Social Footprint

We would now like to turn our attention to the practical application of the quotients we have been discussing, and in particular to a corresponding methodology for how to produce societal quotients. We propose a new management tool, the *social footprint method (SFM)*, that will make it possible for organizations to quantitatively measure and report on the social sustainability of their operations. This method will rely on the capitals-based theory of sustainability, and will calculate performance in terms of quotients. All resulting scores will then be interpreted on a binary scale of sustainability. The basic steps in the method are as follows.

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1. Societal quotients can be constructed for any type of anthro capital that an organization's operations can have impact on. A first step, then, is to select such an area for study (e.g. impacts on achieving the MDGs).
2. The next step is to specify the denominator. Denominators always express normative propositions or standards of performance in quantitative terms, allocated to an organization. In the MDG example above, the denominator expressed a specific *per capita* obligation for the citizens of a country to make contributions to the UN. We simply interpret the activities of people at work, and the people themselves, as being subject to any normative proposition that may be applicable to people in general.
3. The third step is to specify the numerator. In the MDG example, the numerator would consist of a descriptive statement of actual contributions made by a company to the UN, expressed on a *per capita*, or per people foot, basis. The numerator must be expressed in quantitative terms using the same units of measurement used for the denominator.
4. The fourth step is to compute the quotient and plot the result on a binary scale. As earlier noted, societal quotients with scores of greater than or equal to one will indicate sustainable performance; scores of less than one will not.

From the description above, we can see that sustainability quotients, and the concept of *sustainability* itself, arguably rest on an epistemological foundation. The sustainability of an organization's operations is determined by comparing its actual impacts on capital of some kind (descriptive assertions) with what its impacts ought to be in order to enhance or maintain human well-being in the world (normative assertions). Thus, sustainability performance is the quotient of 'is' over 'ought'.

Here we take the position that normative propositions are socially constructed in the sense that they – and descriptive statements, too – are cultural artefacts. Particularly in organizational and social settings, such normative and descriptive claims are collectively formed, even negotiated. To say that extreme poverty should be halved by 2015, for example, is to merely express a goal about a possible state of the world that some human collective or network of individuals has decided is desirable. There is no truth or legitimacy with certainty, much less ultimate definitions, in such matters, only consensus or some other basis for agreement.

Nor is certainty or universal agreement required. Even competing claims can serve as standards of performance against which actual behaviors taken by organizations can be measured. Let the competing claims compete! All that is required is that thoughtful choices be made by individual organizations as to what their own standards of performance should be. Indeed, if certainty of knowledge or universal agreement were required in order to take effective action, nothing would ever get done. Tentative theories and propositions will have to do, but only in conjunction with a consistent and theoretically compelling measurement model that can work for any one of them. The *social footprint method* is the solution we propose.

Conclusion

We have argued that a crisis exists in corporate sustainability management (CSM), consisting of the failure of mainstream non-financial reporting methods, such as the Global Reporting Initiative (GRI), to properly reflect the social and/or environmental sustainability of organizations. When viewed from the *quotients perspective* we have proposed, we can see that this failing is largely due to the absence of denominators, or what GRI calls *sustainability context*, in related reports.

Also missing has been any kind of measurement model for context-based *social* sustainability reporting, in particular. For us, it is impacts on the carrying capacities of anthro capital that should form

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the basis of such a model, with actual organizational impacts (numerators) measured against norms of behavior (denominators). Thus, we have produced a design specification for a social sustainability measurement model that can fill this gap: the *social footprint method*.

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