



# Re-casting The Triple Bottom Line

## Introducing Context-Based Sustainability Measurement and Reporting

A Presentation by the  
Center for Sustainable Organizations

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# Contents

▶ Foreword	3
▶ Introduction	4
▶ Our Theoretical Foundation	5
▶ Vital Capitals	8
▶ Operationalizing the Triple Bottom Line (TBL)	11
▶ Summary & Discussion	18

# Foreword

- ▶ What are we talking about?
  - What's the best way for a Corporate Sustainability Management (CSM) function to measure and report its non-financial, multi-bottom line performance?
  - What does 'sustainability' mean to CSM, and how can we measure and report it in practical ways?
  - Is the Triple Bottom Line (TBL) framework appropriate for use as a basis for CSM?
  - How can we resolve the confusion surrounding the TBL insofar as its relationship with financial 'bottom line' reporting and other aspects of the discipline are concerned (e.g., Corporate Social Responsibility, Business Ethics, etc.)?
- ▶ About this document:
  - Starts with theory, but is intended to end with practice-oriented ideas for CSM
  - Is a perpetual draft, a working document (version number always changing as new insights occur and progress is made)
  - Is intended to draw comments and feedback, so please contact us with your ideas (e-mail Mark W. McElroy at [mmcelroy@vermontel.net](mailto:mmcelroy@vermontel.net))

# Introduction

- ▶ The “Triple Bottom Line” (TBL) is an organizing principle for sustainability measurement and reporting originally developed by John Elkington and his London-based organization, *SustainAbility*
- ▶ Many attempts have been made to separately develop practical accounting tools for each of the ‘three’ bottom lines, but:
  - No standardized approaches for any of them have yet been adopted
  - A quantitative means of operationalising the TBL has not yet been developed
- ▶ We agree with the conceptual commitment the TBL makes, but we see *many more than three* bottom lines, or areas of impact, involved in non-financial reporting by organizations, albeit in three broad categories
- ▶ We take inspiration, as well, from efforts underway on the ecological side of the field to measure and express sustainability in true bottom-line ways:
  - Such as the Ecological Footprint ([www.footprintnetwork.org](http://www.footprintnetwork.org))
  - And as formulated by Herman Daly in his 3 rules for sustainability

# Our Theoretical Foundation



# Our Theoretical Foundation

- ▶ Starts with Herman Daly's work
- ▶ Arises from three questions:
  - Is it possible for the rate of human use of renewable resources to exceed the rate at which such resources are renewed or replenished?
  - Is it possible for the rate of human use of non-renewable resources to exceed the rate at which renewable alternatives for such resources are developed?
  - Is it possible for the rate of waste emissions by humans to exceed the rate at which they can be assimilated by the environment?
- ▶ To the extent that the answer to these questions can be yes, we can say that when such rates are in conflict (i.e., the first rate exceeds the second rate), the behaviors associated with them are unsustainable
- ▶ That is the principle of sustainability we rely on in this presentation
- ▶ It is the *theory* that sets up the question and discussion of what our *practice* should be in measuring the sustainability of human behaviors
- ▶ It is the springboard for our discussion of measuring and reporting corporate sustainability, too – *we must have a sound theoretical foundation!*

# Our Theoretical Foundation (cont.)

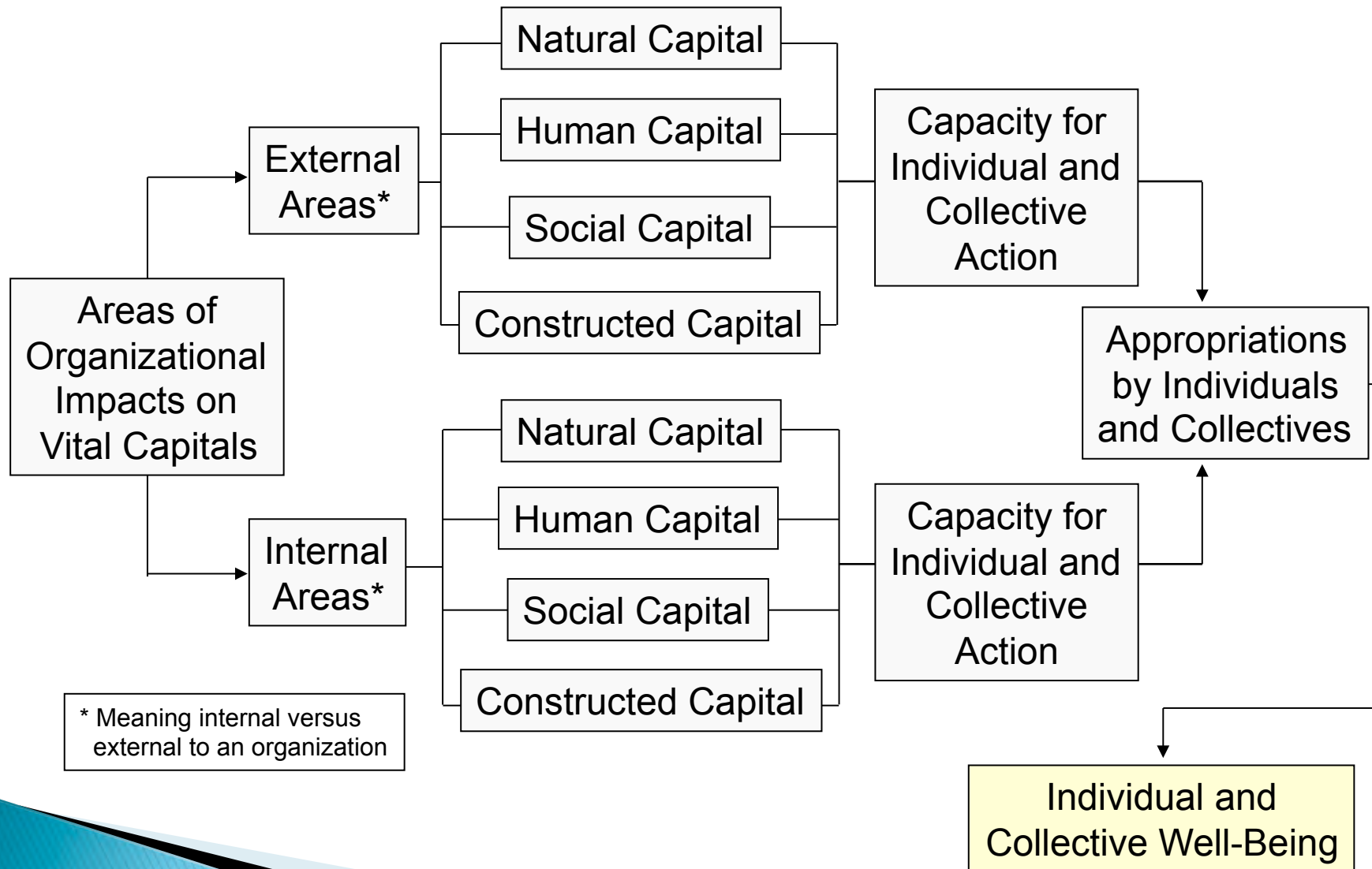
- ▶ Stated in declarative form\*, a society (or organization) is sustainable if and only if:
  1. Its rate of use of renewable resources does not exceed the rate at which such resources are produced and/or replenished;
  2. Its rate of use of non-renewable resources does not exceed the rate at which alternative renewable substitutes are developed;
  3. Its rate of waste emissions does not exceed the rate at which such wastes can be assimilated by the environment.
- ▶ Note the following:
  - All of this deals explicitly with ecological sustainability only; questions of social, economic, or other non-ecological contexts are left out
  - Sustainability, in the ecological sense at least, is arguably a binary proposition: a behavior is either sustainable or it is not – there is no in-between:
    - When comparing one rate against another, the first rate either exceeds the second rate, or else it matches or falls below it
    - In the first case, the behavior is unsustainable; in the second it is sustainable

\*Per Daly's Rules.

# Vital Capitals



## Vital Capital Reference Model



# Vital Capital Reference Model

- ▶ Shows connections between organizational operations and human well-being
  - People rely on vital capitals in the world for their basic well-being
  - They appropriate goods and/or services from such capitals in their efforts to take effective action in order to ensure their own individual and collective well-being
  - Organizations can, and do, have impact on the quality and sufficiency of such capitals
- ▶ The non-financial sustainability performance of an organization is therefore a function of what its impacts on vital capitals are
- ▶ The triple bottom line is simply a means of expressing such impacts in terms of related capitals
- ▶ We measure actual impacts on vital capitals against standards for what such impacts ought to be in order to ensure human well-being

# Operationalizing the TBL



## A General Specification for Context-Based Sustainability Metrics

$$\text{Sustainability Performance}^* = \frac{\text{A measure of impact on a vital capital}}{\text{A standard or norm for what the impact on the same vital capital ought to be in order to ensure stakeholder well-being (i.e., for the impact to be sustainable)}}$$

*\*Where:*

- For impacts on *natural* capital, quotient scores of  $\leq 1.0$  = sustainable,  $> 1.0$  = unsustainable
- For impacts on *human, social* or *constructed* capital, quotient scores of  $\geq 1.0$  are sustainable,  $< 1.0$  are unsustainable

Sustainability measures ultimately reduce to quotients of actual impacts on vital capitals over normative impacts on vital capitals. Denominators provide the context required for meaningful metrics!

## Quotient-Based Metrics for Sustainability

<b>Ecological Bottom Lines<sup>1</sup></b>	$\frac{\text{Actual Impacts on Natural Capital}}{\text{Normative Impacts on Natural Capital}} = \text{Ecological Quotient (EQ)}$	=	$\text{Ecological Quotient (EQ)}$	}	<ul style="list-style-type: none"> <li>- EQ <math>\leq 1</math> is sustainable</li> <li>- EQ <math>&gt; 1</math> is <i>unsustainable</i></li> </ul>
<b>Social Bottom Lines<sup>1</sup></b>	$\frac{\text{Actual Impacts on Anthro Capital}^2}{\text{Normative Impacts on Anthro Capital}^2}$	=	$\text{Societal Quotient (SQ), or what we call } \textit{The Social Footprint}$	}	<ul style="list-style-type: none"> <li>- SQ <math>\geq 1</math> is sustainable<sup>3</sup></li> <li>- SQ <math>&lt; 1</math> is <i>unsustainable</i><sup>3</sup></li> </ul>
<b>Conditions for Organizational Sustainability</b>	Ecological Quotients are $\leq 1$	<b>AND</b>	Societal Quotients are $\geq 1$ <sup>3</sup>	}	<ul style="list-style-type: none"> <li>- If true, then sustainable</li> <li>- If untrue, then <i>unsustainable</i></li> </ul>

<sup>1</sup> We take the position that there are many ecological bottom lines and many social bottom lines, each corresponding to impacts on some aspect of natural and/or anthro capitals, respectively. So-called economic bottom lines are merely types of social bottom lines, and the financial bottom line has nothing to do with any of this.

<sup>2</sup> We use the term 'anthro capital' to refer to the combination of *social capital*, *human capital*, and *constructed capital*. These capitals are vital to human well-being and are human-made, or *anthropogenic*.

<sup>3</sup> Ecological proxies can also be used in Societal Quotients, where ecological performance indicates or stands for social performance, as in the case of our Global Warming Footprint, which measures performance against climate change mitigation standards of performance. In those cases, the scoring of social footprints follows the logic of Ecological Quotients ( $\leq 1$  is sustainable, etc.), thanks to the inverse relationship between the proxy and the thing it stands for.

# Ecological Bottom Lines

$$\frac{\text{Actual Impacts on Natural Capital}}{\text{Normative Impacts on Natural Capital}} = \text{Ecological Quotient}$$

- ▶ The numerator reflects a organization's impacts on some natural capital stock and/or its material/service flows – usually expressed in terms of consumption
- ▶ The denominator reflects an organization's duty or obligation have impact, or not, on the same natural capital stock and/or flows – usually expressed in terms of consumption
- ▶ Quotients less than or equal to 1 ( $\leq 1$ ) are sustainable because consumption rates either match or fall below normative rates (i.e., the rate of use of natural capital falls below the rate at which it [the capital] regenerates or is replaced)
- ▶ Quotients greater than 1 ( $> 1$ ) are unsustainable because consumption rates exceed normative rates (i.e., the use of natural capital exceeds the rate at which it [the capital] regenerates or is replaced)

# Social Bottom Lines

$$\frac{\text{Actual Impacts on Anthro Capital}}{\text{Normative Impacts on Anthro Capital}} = \text{Societal Quotient, or what we call } \textit{The Social Footprint}$$

- ▶ The numerator is a measure of total organizational impacts (positive and/or negative) on anthro capital and related “appropriable functions” (or services) people rely on for their own well-being
- ▶ The denominator expresses an organization’s duty or obligation to produce and/or maintain anthro capital and “appropriable functions” required for human well-being
- ▶ Quotients greater than or equal to 1 ( $\geq 1$ )<sup>1</sup> are sustainable because related impacts meet or exceed an organization’s proportionate share of contributions required to create and/or maintain anthro capital at levels required to ensure human well-being
- ▶ Quotients less than 1 ( $< 1$ )<sup>1</sup> are unsustainable because related impacts fail to meet an organization’s proportionate share of contributions required to create and/or maintain anthro capital at levels required to ensure human well-being

<sup>1</sup> Ecological proxies can also be used in Societal Quotients, where ecological performance indicates social performance, as in the case of our Global Warming Footprint, which measures performance against climate change mitigation standards of performance. In those cases, the scoring of social footprints follows the logic of the Ecological Quotients ( $\leq 1$  is sustainable, etc.), thanks to the inverse relationship between the proxy and the thing it stands for.

# “Anthro Capital”

- ▶ We take the position that social bottom lines express the impacts of organizational activities on three types of anthro capital that people rely on for their basic well-being:
  - Human Capital
  - Social Capital
  - Constructed Capital
- ▶ Human capital consists of individual health, knowledge, skills, and other personal resources (including human rights and ethical entitlements) required to ensure human well-being by making effective individual action possible
- ▶ Social capital consists of social networks and mutually-held knowledge required to ensure human well-being by making effective collective action possible
- ▶ Constructed capital consists of material things that humans produce in order to meet their basic needs (e.g., tools, technologies, roads, utilities, buildings, transportation systems, computers, etc.)

# The “Economic Bottom Line”

- ▶ We take the position that economic bottom lines are merely variants of social bottom lines (i.e., that there can be social *economic* bottom lines)
- ▶ Thus, “economic bottom lines” are actually social bottom lines of one sort or another (or sets of them), so there are many social *economic* bottom lines:
  - Impacts on employment rates
  - Impacts on employees’ wealth
  - Impacts on owners’ wealth
  - Impacts on local commerce
  - Impacts on regional commerce
  - Impacts on global commerce
  - Impacts on trading partners
  - Impacts on customers
  - Impacts on suppliers
  - Etc.

# Summary & Conclusions



# Summary & Conclusions (1 of 5)

- ▶ Notice the reversal in logic the Social Footprint concept entails when compared to the Ecological Footprint:
  - In the case of the Ecological Footprint, humans have no real ability to modify or increase supply, so the measurement and reporting solution focuses on patterns of *demand* and lowering them, when necessary
  - In the case of the Social Footprint, humans are actually the *source* of supply, so the measurement and reporting solution focuses on patterns of supply and raising them, when necessary – norms for performance reverse, accordingly
- ▶ This reversal is possible in the case of anthro capital because we *can control supply* – when anthro capital is low, we can usually make more of it
- ▶ Controlling supply in most cases of natural capital, however, is arguably impossible
- ▶ Raising the supply of anthro capital, though, is entirely possible because it is anthropogenic – humans produce it
- ▶ Managing its supply is facilitated by the Social Footprint, in that it provides the reporting system needed to inform us of how much additional anthro capital is required, and who (normatively) ought to be producing how much of it

# Summary & Conclusions (2 of 5)

- ▶ Our approach has been to use the Ecological Footprint as a starting point, and to see if we could apply related principles to doing Social Footprints
- ▶ The Ecological Footprint (EF) is built on two key propositions:
  - Limited resources exist and must be shared
  - Any arrangement we make for sharing resources must be fair, just, and equitable
- ▶ This accounts for the 'fair earthshare' concept in the Ecological Footprint
- ▶ Thus, the EF focuses on managing gaps between a person's entitlement to a fair earthshare of ecological services and the share s/he actually takes
- ▶ Switching to anthro capital, we have an immediate difference to contend with:
  - Unlike natural capital which humans do not create, anthro capital is created by people and can be grown virtually at will. While anthro capital resources, too, are arguably limited, we are not stuck with their limits as we are with ecological resources. We can usually make more of it whenever we like.
- ▶ Thus, the gaps that must be managed in the case of anthro capital, if any, are not gaps between what we have and what we use; they are gaps between what we need and what we have decided to produce or make available

# Summary & Conclusions (3 of 5)

- ▶ In the case of natural capital, then, our problem is *not* that we don't have enough supply of resources to work with, *it is that we have too much demand*. So we must focus on measuring demand and *lowering* it!
- ▶ In the case of anthro capital, however, our problem is *not* necessarily that we have too much demand, *it is that we have too little supply*. So we must focus on measuring supply and *raising* it. Of course we could lower demand, too.
- ▶ So in the case of natural capital, the problem usually boils down to managing demand gaps; for anthro capital, it boils down to managing supply gaps
- ▶ What this means, then, is that for purposes of Triple Bottom Line measurement and reporting:
  - The ecological bottom line must be tied to impacts organizations are having on lowering or constraining demand (which the *Ecological Footprint* does)
  - The social bottom line, by contrast, must be tied to impacts organizations are having on producing and/or maintaining supply (which our *Social Footprint* does)
- ▶ Thus, an organization's proportionate *socialshare* is not its proportionate use of limited (natural) resources, it is its proportionate duty or obligation to contribute to unlimited (anthropogenic) resources

# Summary & Conclusions (4 of 5)

- ▶ Some comments here about the Global Reporting Initiative (GRI) are warranted before we move on:
  - While the GRI approach does an adequate job of focusing on the numerators for both natural and anthro capitals, it arguably fails to address the denominators in either case
  - Thus, there are no gaps measured or reported in GRI, much less quotients
  - And without gaps to work with, we can never really say whether our behaviors are sustainable or not – i.e., *sustainable relative to what?*
  - The best we can do with GRI data (and this is helpful, we agree) is show the direction of top-line impacts from one year to the next
  - But even that may be misleading, because if the values of denominators are shifting in more radical ways, what appears to be a step forward in the numerator could actually turn out to be a step backwards
- ▶ What GRI lacks, ironically, is what its own guidelines prescribe, but fail to deliver:
  - “Sustainability context” (a measure of background conditions in the world and norms for what an organization’s impacts on them ought to be that can be used to put organizational impacts into perspective)

# Summary & Conclusions (5 of 5)

- ▶ Sustainability context invariably reduces to norms or standards of performance
  - Ecological limits are clearly relevant here, but they are not the same as deciding not to exceed them in terms of normative human impacts; norms may be based on thresholds, but they are not *the same as* the thresholds
  - Social and economic considerations play a similar role — they tell us what levels of vital anthro capital people need to be in order to meet their basic needs, and what business's impacts on related thresholds therefore ought to be
- ▶ This leads us to the concept of context-based sustainability quotients as a model for measuring the sustainability performance of organizations
  - An organization's operations are sustainable if and only if they comply with norms or standards for what their impacts on vital capitals ought to be
  - The key issue is impacts on the *carrying capacities of vital capitals* relative to levels required to ensure stakeholder well-being
  - In the case of ecological quotients, sustainability entails the avoidance of *ecological overshoot*
  - In the case of societal quotients, sustainability entails the avoidance of *societal undershoot*
  - Numerators reflect actual impacts on carrying capacities; denominators reflect what such impacts ought to be in order to be sustainable

- Thanks! -

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