

# Re-casting The Triple Bottom Line

Introducing the *Quotients Approach* to  
Sustainability Reporting and the *Social Footprint*

A Working Proposal Prepared by  
Center for Sustainable Innovation

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# Foreword

- What are we talking about?
  - What's the best way for a Corporate Sustainability Management (CSM) function to measure and report on its non-financial, multi-bottom line impacts?
  - 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))

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# 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
  - And no combined approach that would integrate measures from all three bottom lines into a unified value, or score, has yet been developed
- We agree with the ontological commitment implied by the TBL, but we see *many more than three* bottom lines, or areas of impact, involved in non-financial reporting by organizations
- 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 tool ([www.footprintnetwork.org](http://www.footprintnetwork.org))
  - And as formulated by Herman Daly in his 3-part definition of sustainability

# Introduction (cont.)

- Before sharing our ideas for re-casting the TBL and taking it one step closer to a practical form, here are some key principles we have relied on:
  - Sustainability, the concept, entails dyadic operators<sup>1</sup> in which objects dynamically interact with one another in symbiotic ways. As long as symbiosis prevails, the system remains sustainable. If the system gives way to parasitic behaviors, however, the integrity of one or more objects in a dyad are liable to be compromised, in which case the system may become unsustainable and fail
  - In human systems, dyads always involve people and various types of capital, especially natural (or ecological), social, human, and constructed capital
  - Thus, non-financial reporting is really Multi-Bottom Line reporting (MBL), not TBL
  - Importantly, some forms of capital can be constructed or built, not just used
  - The dyadic nature of humans and various forms of capital can be expressed as ‘quotients’ (‘A’ over ‘B’, where A is the capital used or produced through human activities and B is the capital available or needed to/by the same people).
  - This is the theoretical basis of the quotients approach to sustainability explored further in this presentation (sustainability as ‘symbiotic dyads’)

1. See [http://www.sustainableinnovation.org/Concept\\_of\\_Sustainability.pdf](http://www.sustainableinnovation.org/Concept_of_Sustainability.pdf)

# What Is 'Sustainability'?

- World Commission on Environment and Development (WCED) definition:

A sustainable society is one that *“meets the needs of the present without compromising the ability of future generations to meet their own needs.”*

- Discussion:
  - Also known as the Brundtland Commission definition of sustainability – final report published in 1987
  - Leaves open the question of how to achieve the condition that it refers to
  - Does not, in particular, explicitly address resource consumption issues, much less the important distinction between renewable resources and non-renewable resources
  - Doesn't really answer the question of what sustainability means for these reasons, and also leaves it to our imagination to determine which “needs” are legitimate and which ones aren't

# Our Preferred Definition

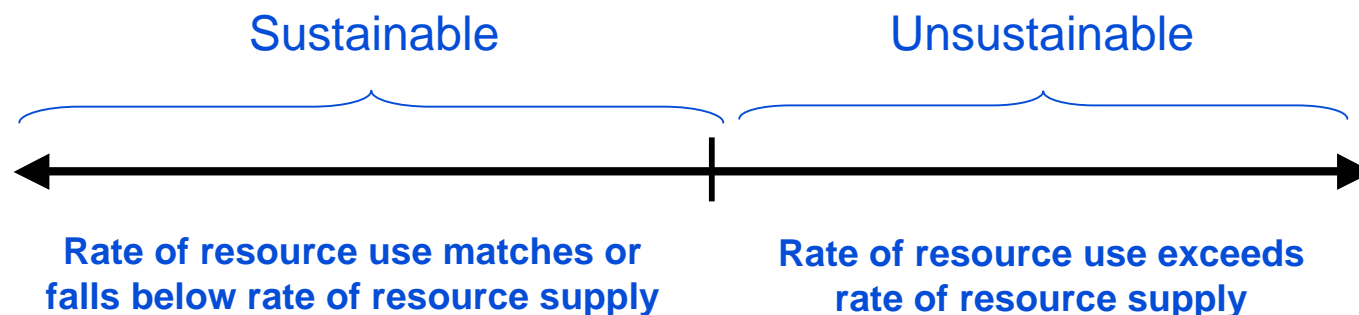
- Starts with Herman Daly's work
- Arises from three questions:
  - Is it possible for the rate of human use of renewable resources to exceed the rate at which such resources are renewed or replenished?
  - Is it possible for the rate of human use of non-renewable resources to exceed the rate at which renewable replacements for such resources are developed?
  - Is it possible for the rate of waste emissions by humans to exceed the rate at which the environment can assimilate such wastes?
- 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 definition 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 on corporate sustainability, too – *we must have a sound theoretical foundation!*

# Some Comments on Our Theory

- 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 at least implicitly with ecological sustainability; 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
  - 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
  - There is no “more” or “less” sustainable in this conception of things

## Some Comments (cont.)

- Faber et al, in “The Sustainability of ‘Sustainability’ ”<sup>1</sup>, suggest that a scale for measuring sustainability can either be :
  - Absolute (there are two poles on the scale: sustainable and non-sustainable)
  - Relative (behaviors can be more or less sustainable relative to other behaviors)
- Our perspective suggests a third possibility — *binary* — although we admit that the demarcation point between sustainable and unsustainable is a moving target, since elements in the systems involved are always in flux; e.g., for *ecological* sustainability measures, we can say.....



1. See <http://www.sustainableinnovation.org/Sustainability-of-Sustainability.pdf>

# What We Propose

## Quotients as Measures of Sustainability

### Ecological Bottom Lines<sup>1</sup>

$$\frac{\text{Total Ecological Imprint}}{\text{Own Share of Supply Limits of Natural Capital}} =$$

Ecological Quotient (EQ)

- The lower the better
- EQ  $\leq 1$  is sustainable
- EQ  $> 1$  is *unsustainable*

### Social Bottom Lines<sup>1</sup>

$$\frac{\text{Total Social Imprint}}{\text{Own Share of Supply Needs for Anthro Capital}^2} =$$

Societal Quotient (SQ), or what we call *The Social Footprint*

- The higher the better<sup>3</sup>
- SQ  $\geq 1$  is sustainable<sup>3</sup>
- SQ  $< 1$  is *unsustainable*<sup>3</sup>

### Organizational Sustainability Defined

Ecological Quotients are  $\leq 1$  **AND**

Societal Quotients are  $\geq 1$ <sup>3</sup>

- If true, then sustainable
- If untrue, then *unsustainable*

<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 ecology and/or society, 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 underlie the well-being of humankind.

<sup>3</sup> There are also hybrid Societal Quotients, where ecological performance stands as a proxy for social performance, as in the case of our Global Warming Footprint, which measures performance against ecological goals as defined by social plans of action. In those cases, the scoring of social footprints follows the logic of the Ecological Quotients, as in the lower the better ( $\leq 1$  is sustainable, etc.).

# Ecological Bottom Lines

# Ecological Bottom Lines

$$\frac{\text{Total Ecological Imprint}}{\text{Own Share of Supply Limits of Natural Capital}} = \text{Ecological Quotient (EQ)}$$

- The numerator reflects a organization's rate of some natural capital use (or its services), such as the Ecological Footprint's notion of ecologically productive land (in global hectares) used per annum by a society
- The denominator reflects an organization's proportionate share of the rate of the same natural capital/services production and/or renewal in the ecology, also expressible in terms of global hectares per annum, or some other measure
- Quotients less than or equal to 1 ( $\leq 1$ ) are sustainable because usage rates either match or fall below natural capital/services production and/or renewal rates (i.e., the use of natural capital falls within its bounds of renewal)
- Quotients greater than 1 ( $> 1$ ) are unsustainable because usage or impact rates exceed the production and/or renewal rates of natural capital/services, thereby diminishing, and possibly depleting, stocks of natural capital/services over time (i.e., the use of natural capital exceeds its bounds of renewal)

# Social Bottom Lines

# Social Bottom Lines

$$\frac{\text{Total Social Imprint}}{\text{Own Share of Supply Needs for } \textit{Anthro Capital}} = \text{Societal Quotient (SQ), or what we call } \textit{The Social Footprint}$$

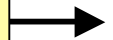
- The numerator is a measure of total organizational impacts (positive and/or negative) on anthro capital and related “appropriable functions” (or services) people require in order to meet basic needs
- The denominator expresses an organization’s proportionate share of needs for anthro capital and “appropriable 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 needed to sustain 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 needed to sustain human well-being

<sup>1</sup> There are also hybrid Societal Quotients, where ecological performance stands as a proxy for social performance, as in the case of our Global Warming Footprint, which measures performance against ecological goals as defined by social plans of action. In those cases, the scoring of social footprints follows the logic of the Ecological Quotients, as in the lower the better ( $\leq 1$  is sustainable, etc.).

# “Anthro Capital”

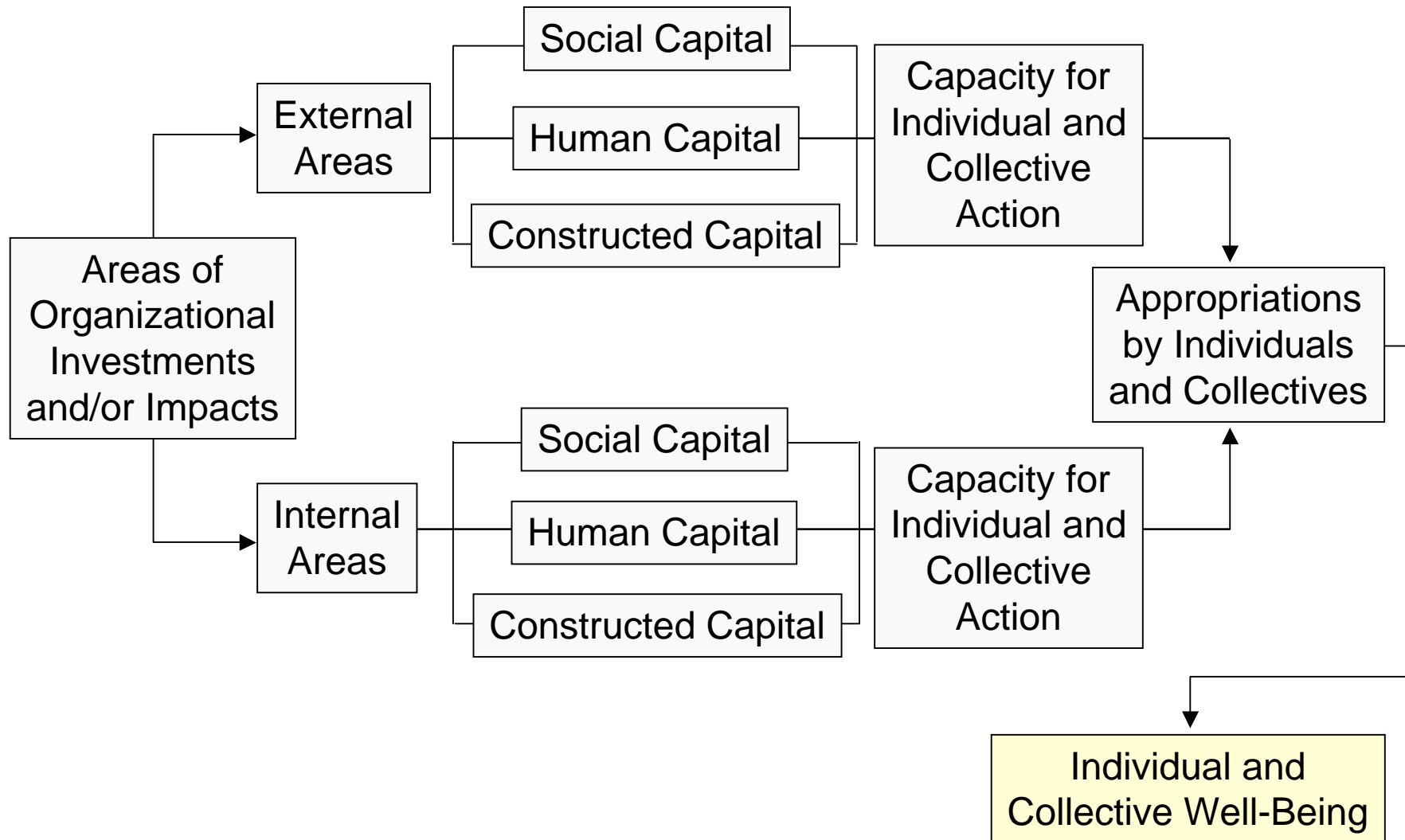
- We take the position that social bottom lines express the impacts of organizational activities on three types of anthro capital that people rely on to help meet basic needs:
  - Social Capital
  - Human Capital
  - Constructed Capital
- Social capital consists of social networks and mutually-held knowledge required to take effective collective action
- Human capital consists of individual health, knowledge, skills, and other personal resources (including human rights and other ethical entitlements) required to take effective individual action
- Constructed capital consists of built infrastructures in society such as roads, utilities, etc.

More details on anthro capital



# Social Footprint Reference Model

## Social Footprint Reference Model



## Social Footprint Reference Model

Appropriations by individuals and collectives in need of....



<sup>1</sup>Contributions made to third parties in society

### External Areas of Investment and/or Impact

#### ▪ **Social Capital (Contributions to Social Programs and Resources)<sup>1</sup>**

- Food, Water, and Nutrition
- Health
  - Via Monetary Means
  - Via Indirect Product and/or Service Impacts When Consumed
- Child Care
- Education
- Exercise and Physical Recreation
- Clean Environment
- Housing
- Material Necessities
- Infrastructure
  - Power
  - Water
  - Sanitation
  - Roads
  - Transport Services
  - Telecommunications
- Jobs at Livable Wage
  - Workers at Other Firms
- Commerce and Trade
  - Impact on Local/Regional Businesses
  - Impact on Minority/Women-Owned Businesses (MWOBs)
  - Commerce with Fair Trade Suppliers

## Social Footprint Reference Model (cont.)

Appropriations by individuals and collectives in need of....



<sup>1</sup>Contributions made to third parties in society

### External Areas of Investment and/or Impact (cont.)

#### ▪ **Social Capital (Contributions to Social Programs and Resources)<sup>1</sup> [cont.]**

- Bank Services and Credit
- Safety and Security
  - Local
  - National
- Government
  - Social Services Administration
  - Trade Regulation
- Justice and Rule of Law
- Ethics
  - Human Rights
  - Labor Rights
  - Anti-Corruption
  - Transparency
  - Stakeholder Inclusiveness
  - Gender Equality and Empowerment
  - Diversity
  - Work/Family Balance
- Information
- Aesthetics
- Religion and Spirituality

#### ▪ **Human Capital (Direct Contributions to Individuals in Society)<sup>1</sup>**

- Food, Water, and Nutrition
- Health
  - Via In-Kind and Supportive Monetary Means
  - Via Direct Product and/or Service Impacts When Consumed

## Social Footprint Reference Model (cont.)

Appropriations by individuals and collectives in need of....



<sup>1</sup>Contributions made to third parties in society

<sup>2</sup>Contributions made to second parties in society

### External Areas of Investment and/or Impact (cont.)

#### ▪ **Human Capital (Direct Contributions to Individuals in Society)<sup>1</sup> [cont.]**

- Child care
- Education and Personal Enrichment
- Exercise and Physical Recreation
- Housing
- Material Necessities
- Jobs at Livable Wage
- Ethics
  - Human Rights
  - Labor Rights
  - Anti-Corruption
  - Transparency
  - Stakeholder Inclusiveness
  - Gender Equality and Empowerment
  - Diversity
  - Work/Family Balance

#### ▪ **Constructed Capital (Direct Contributions to Social Resources)<sup>2</sup>**

- Infrastructure
  - Power
  - Water
  - Sanitation
  - Roads
  - Transport Services
  - Telecommunications

## Social Footprint Reference Model (cont.)

Appropriations by individuals and collectives in need of....



### Internal Areas of Investment and/or Impact

#### ▪ **Social Capital (Contributions to Social Programs and Resources)<sup>2</sup>**

- Food, Water, and Nutrition
- Health
  - Via In-Kind and Supportive Monetary Means
- Child Care
- Education (Social Learning and Innovation)
- Exercise and Physical Recreation
- Housing
- Justice and Rule of Law (Policies and Programs)
- Ethics (Policies and Programs)
  - Human Rights
  - Labor Rights
  - Anti-Corruption
  - Transparency
  - Stakeholder Inclusiveness
  - Gender Equality and Empowerment
  - Diversity
  - Work/Family Balance
- Information
- Safety and Security
  - Enterprise Level
- Aesthetics
- Religion and Spirituality

<sup>1</sup>Contributions made to second parties in society

<sup>2</sup>Contributions made to third-party programs internal to the enterprise

## Social Footprint Reference Model (cont.)

Appropriations by individuals and collectives in need of....



### Internal Areas of Investment and/or Impact (cont.)

#### ▪ Human Capital (Direct Contributions to Workers)<sup>2</sup>

- Food, Water, and Nutrition
- Health
  - Via Direct Impacts of Products and/or Services When Produced or Applied
- Child Care
- Education (Individual Training and Personal Enrichment)
- Exercise and Physical Recreation
- Housing
- Material Necessities
- Jobs at Livable Wage
  - Workers at Own Firm
- Justice and Rule of Law (Actual Behaviors)
- Ethics (Actual Behaviors)
  - Human Rights
  - Labor Rights
  - Anti-Corruption
  - Transparency
  - Stakeholder Inclusiveness
  - Gender Equality and Empowerment
  - Diversity
  - Work/Family Balance
- Information
- Safety and Security
  - Enterprise Level
- Aesthetics
  - Religion and Spirituality

<sup>1</sup>Contributions made to second parties in society

<sup>2</sup>Contributions made to first and second parties internal to the enterprise

## Social Footprint Reference Model (cont.)

Appropriations by individuals and collectives in need of....



<sup>1</sup>Contributions made to first and second parties internal to the enterprise

### Internal Areas of Investment and/or Impact (cont.)

#### ▪ **Constructed Capital (Direct Contributions Within Own Enterprise)<sup>1</sup>**

- Infrastructure
  - Power
  - Water
  - Sanitation
  - Roads
  - Transport Services
  - Telecommunications

# What The Categories Mean

- **External Areas of Investment and/or Impact\***
  - Social Capital (Contributions to Social Programs and Resources)
    - These are contributions to (or impacts had on) third-party programs in society external to an organization which, in turn, constitute or have impact on social capital resources and services available to individuals and collectives in society
  - Human Capital (Direct Contributions to Individuals in Society)
    - These are direct contributions to (or impacts had on) individuals in society external to an organization, which in turn constitute personal human capital resources available to such individuals
  - Constructed Capital (Direct Contributions to Social Resources)
    - These are contributions to (or impacts had on) the presence or quality of human-made infrastructures in society external to an organization

(cont.)

\**External* means external to a reporting organization

# What The Categories Mean (cont.)

- **Internal Areas of Investment and/or Impact\***
  - Social Capital (Contributions to Social Programs and Resources)
    - These are contributions to (or impacts had on) programs internal to an organization, which in turn constitute, or have impact on, shared social capital resources and services available to its inhabitants, workers, or stakeholders
  - Human Capital (Direct Contributions to Workers)
    - These are direct contributions to (or impacts had on) individuals internal to an organization, which in turn constitute personal human capital resources available to its inhabitants, workers, or stakeholders
  - Constructed Capital (Direct Contributions Within Own Enterprise)
    - These are contributions to (or impacts had on) the presence or quality of human-made infrastructures internal to an organization

\**Internal* means internal to a reporting organization

# The “Economic Bottom Line”

# 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
  - Impacts on community economic affairs (taxes paid, grants made, etc.)
  - Etc.

# Multi-Bottom Lines

# Multi-Bottom Lines

- In the non-financial reporting arena, there are many social, economic, and environmental “bottom lines”, not just one for each
- According to our taxonomy, there are as many as 50 or more discrete areas that organizations can have impact on or make investments in, and the effects go on from there
- So what can we say about the “triple bottom line” concept?
  - A wonderful start to a powerful new movement!
  - Greatly oversimplifies human/organizational impacts on the world
  - Should be quickly abandoned in favor of a multi-bottom line view
  - Leaves open the question of what the *best* multi-bottom line view is
  - Forces us to be clear about what questions we’re asking that triple- or multi-bottom line reports are supposed to answer
- What we need, then, is a general-purpose calculus for measuring the non-financial impacts of organizations in society, and on their own workers and other stakeholders, in ways that meet our needs → *Enter the Social Footprint!*

# Calculating A Social Bottom Line or 'Social Footprint'

# Calculating A Social Bottom Line

- A 5-step Process:
  1. Determine overall amount of anthro capital needed, and divide by total population in geographical area of interest (i.e., to arrive at a per capita share of what it would cost to create or supply the required capital in a particular geography) – expressible in dollars ‘per person’ or per ‘People Foot’<sup>1</sup>
  2. Calculate number of People Feet<sup>1</sup> associated with the social system under analysis (e.g., an adjusted employee headcount that reflects the proportion of time workers spend in their lives actually working, or at work)
  3. Multiply the per capita share of the supply need calculated in Step 1 by the number of People Feet in the social system of interest per Step 2. This is the social system’s (e.g., an organization’s) ‘Own Share of Supply Needs for Anthro Capital’ (i.e., the denominator in the Societal Quotient for the anthro capital area of interest) – often expressible in monetary terms
  4. Measure the size of the social system’s actual contributions or impacts in the anthro capital area of interest. This is the entity’s ‘Total Social Imprint’ (i.e., the numerator in the Societal Quotient) – also expressible in monetary terms
  5. Divide the numerator by the denominator. This results in the Societal Quotient (SQ), which is a social system’s Social Bottom Line in the anthro capital area of interest

1. See slide 37 for explanation of ‘People Feet’ metric.

# Calculating a Social Footprint

- Step 1 - Determine overall amount of anthro capital needed
  - This would apply to one or more areas of basic human needs as portrayed in our reference model
  - For illustrative purposes, let us consider a study performed in 1999-2001 at Humboldt State University in California, in which students there attempted to measure the state of social capital for a seven-county region known as the Klamath-Siskiyou region (<http://www.humboldt.edu/~envecon/Indicators/>)
  - Among the indicators of the status of social capital in the region were several that fit neatly into our framework, including:
    - Teen pregnancy rates in 2000 (relates to our 'Health' area of human need, since the issue is how well society is equipped to meet the contraceptive needs of teenage girls in the region)
  - What the Humboldt study did was to identify and measure the social services or capabilities *needed* in the region
  - Let us examine this example further to see how it would be handled in our method for calculating a Social Footprint

# Calculating a Social Footprint

- Step 1 (cont.) -
  - *Teenage Pregnancy Rates*: Here is what the Humboldt study had to say about the quality of social services in place relative to teenage pregnancy rates:

## ***How are we doing?***

The teen pregnancy rate of the U.S. is the highest in the developed world. California is ranked 39th in the country for meeting the needs of teenage girls with contraceptive services. This is 32% of those in need. Oregon is slightly better, ranking 31st in the country, meeting the needs of 45% of the teenage girls. The best state in the country for meeting the contraceptive needs of teenage girls is Montana, which still provides for only 75% of those in need. In 1998, California's pregnancy rate for girls aged 15-19 was 159/1000. About 47% of these ended up in a live birth. In Oregon, the rate was 99/1000 girls, of which 54% were born. It is estimated that 80% of these were unplanned. Of the children born to teen mothers, 25% were their second child. On a more positive note, the rate hit its peak in 1987, and is now declining. In Humboldt County in 1998, there were 1496 children born. Of this number, 13% (190) were born to girls under the age of 20. In 1996, this number was 197 births to girls under the age of 20.

(cont.)

# Calculating a Social Footprint

- Step 1 (cont.) -
  - The Humboldt study (cont.):

## ***Why is this important?***

High teen pregnancy rates reduce the ability for the mothers to further their education. This impacts human capital because their job skills will tend to be lower. They will usually work lower wage jobs, and many live in poverty for several years. Their children are less likely to receive adequate prenatal care, will be more likely to have a low birth weight, childhood health problems, and to be hospitalized during their childhood. This impacts constructed capital by increasing public spending on health care. Every \$1 spent on preventing teen pregnancy saves \$3 on public spending for prenatal and newborn health care. This impacts social capital, because people in poverty are concerned with meeting their own needs, and will not be likely to have time to spend on other people through civic activities and volunteerism. Teen pregnancy impacts natural capital for the same reason (meeting daily needs) because they will not have the time or money to choose to do things that are better for the environment. Their ability to plan for the future will be impaired. For all these reasons, teen pregnancy is a negative indicator for sustainability.

# Calculating a Social Footprint

- Step 1 (cont.)
  - Looking at the California data alone, we see that the social services available to meet the contraceptive needs of teenage girls falls sixty-eight percent (68%) short of the need
  - Since no dollar figure was given for what it would cost to meet the total requirement (and to close this gap!), let us use a hypothetical figure of \$5 million per year
  - Now let us assume that the geographical region addressed by the Humboldt study was populated with 500,000 people (that's 500,000 whole 'People Feet' according to our method)
  - Thus, if we were to equally divide the financial need for what it takes to meet the contraceptive needs of teenage girls among all of the citizens of the Humboldt region, we would get a per person share of \$10; this is what it would take to satisfy a need in *Health* (i.e., to meet the contraceptive needs of teenage girls in the Humboldt region by expanding the scope of available healthcare services) if everyone in the region made an equal contribution towards doing so

# Calculating a Social Footprint (cont.)

- Step 2 - Calculate number of People Feet associated with the social system (e.g., organization) under analysis
  - This would be done for a specific social system or organization involved in calculating its Social Footprint (let's call it 'XYZ Corporation')
  - The purpose of this step is to determine what an organization's proportionate share-basis could be for helping to close gaps in the supply of anthro capital
  - It is computed based on adjusted headcount
  - Let us assume XYZ Corporation has 10,000 employees, who are all full-time
  - If each employee is paid for 2080 hours per year, their total percentage of time in their lives they spend as employees of XYZ Corporation is roughly 24 percent
  - 24 percent of 10,000 employees = 2400 'People Feet'

# Calculating a Social Footprint (cont.)

- Step 3 – Multiply the per person share of the supply need calculated in Step 1 by the number of ‘People Feet’ determined in Step 2:
  - The per person share of the supply need in *Health* services available for coping with teenage pregnancy rates in the region was \$10
  - The number of People Feet calculated in Step 2 was 2400, thus...

$$\text{\$10} \times \text{2400} = \text{\$24,000}$$

- This is XYZ Corporation’s ‘Own Share of Supply Needs for Anthro Capital’ (i.e., the denominator in the Societal Quotient for Health-related anthro capital).
- Step 4 - Measure the size of the social system’s actual contributions or impacts in the anthro capital area of interest:
  - This step calls for information about how much an organization is already doing or spending to help meet the supply need in the anthro capital area of interest (i.e., *Health*, in this case)
  - Let us assume that XYZ Corporation is already contributing \$25,000 a year to healthcare programs aimed at coping with teenage pregnancies
  - That, then, is XYZ Corporation’s ‘Total Social Imprint’ (i.e., the numerator in the Societal Quotient) in the anthro capital area of interest

# Calculating a Social Footprint (cont.)

- Step 5 - Divide the numerator by the denominator:

$$\text{\$25,000} \div \text{\$24,000} = 1.04$$

- This is XYZ Corporation’s Societal Quotient (SQ) for Health, which is its Social Bottom Line, or ‘Footprint’, for the *Health* category of anthro capital, only
- If this were the only form of anthro capital, XYZ Corporation’s Societal Quotient would be “sustainable” (according to our method), because its score of 1.04 is equal to or greater than 1.0
- Another way of saying this is that at an annual contribution level of \$25,000 for helping to cope with teenage pregnancy problems, XYZ Corporation is exceeding its own proportionate share of what it will take to meet the overall need for *Health*-related anthro capital, based on its ‘People Feet’ size
- In response, XYZ Corp. could take the surplus scored on the *Health* front and shift it to making contributions in other areas of deficient anthro capital
- Or it could take the surplus and apply it to gaps found on the *ecological* front (i.e., gaps found in its Ecological Footprint)
- This, in turn, could enhance its overall *Multi-Bottom Line* score per our method!

# Social Footprints: Summary

- What's so interesting about the Social Footprint idea is the reversal in logic that it 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 *suppressing* them
  - 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 *provoking* them
- This reversal is possible in the case of anthro capital because we *can* control supply – when anthro capital is low, we can just make more of it
- Controlling supply in most cases of natural capital, however, is arguably impossible, except in the sense that we can repair damaged ecologies
- Raising the supply of anthro capital, then, is entirely possible because it is a purely human artifact....
- Increasing its supply is facilitated by the Social Footprint, in that the Footprint provides the reporting system needed to inform us of how much additional anthro capital is required, and who (in theory) is making or owes it

# Social Footprints: Summary (cont.)

- Next comes the issue of a scale for the Social Footprint
- In the case of the Ecological Footprint, a proxy metric for natural capital is used: “biologically productive land” measured in “global hectares”
- Global hectares, in turn, is a composite metric that represents different land types:
  - Energy
  - Garden
  - Pasture
  - Degraded
  - Crop
  - Forest
- Turning to the Social Footprint, we can take a similar approach. As long as building anthro capital can be measured in terms of investments required to create and maintain capacities for collective and individual action in areas of human need, we can use monetary units as proxies for anthro capital as we did in our example. Thus, we can measure social systems’ impacts on anthro capital in terms of:
  - External Impacts in Society at Large
  - Internal Impacts on Workers

# Discussion

# Discussion (1 of 4)

- 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 closing gaps between, say, 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 ecological 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
- Thus, the gaps that must be closed in the case of anthro capital 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

## Discussion (2 of 4)

- In the case of ecological 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* that we have too much demand to contend with, *it is that we have too little supply*. So we must focus on measuring supply and *raising* it!
- So in the case of ecological capital, the problem boils down to closing demand gaps; for anthro capital, it boils down to closing 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 closing demand gaps (which the *Ecological Footprint* does)
  - The social bottom line, by contrast, must be tied to impacts organizations are having on closing supply gaps (which our proposed *Social Footprint* does)
- Thus, an organization's proportionate *socialshare* is not its prorata share of available limited resources, it is its 'burden share' of resources not yet sufficiently produced!

# Discussion (3 of 4)

- Thus:
  - In the case of ecological capital, people have an obligation to constrain their demands, so that total resources available for everyone will be sufficient
  - In the case of anthro capital, people have an obligation to contribute their supplies, so that total resources available for everyone will be sufficient
- This is why in the quotients discussed earlier:
  - We focused on gaps between resource use and resource supply in the case of ecological capital, and
  - We focused on gaps between resource needs and resource production in the case of anthro capital
- So what do we mean by ‘sustainability’ in the Triple Bottom Line?
  - In the case of ecological capital, an organization’s behaviors are unsustainable if its resource *consumption* exceeds its proportionate resource *entitlement*
  - In the case of anthro capital, an organization’s behaviors are unsustainable if its resource *production* falls below its proportionate resource *obligation*
  - Thus, our simple quotients provide us with a measurement framework for operationalizing these ideas in Corporate Sustainability Management settings

# Discussion (4 of 4)

- Some comments here about the Global Reporting Initiative (GRI) are warranted:
  - While the GRI approach does an adequate job of focusing on the numerators in both social and ecological capitals (and economic ones, too), it arguably fails to address the denominators in either case
  - Thus, there are no gaps measured or reported in GRI
  - And without gaps to work with, we can never really say whether our behaviors are sustainable or not – e.g., *sustainable relative to what?*
  - The best we can do with GRI data (and this is helpful, we agree) is to show the direction of top-line impacts from one year to the next
  - But even that may be misleading, because if the values of the denominators shift radically from one year to the next, what appears to be a step forward in the numerator could actually turn out to be a step backwards

We think the overall approach we have proposed here is a very promising one, and we invite others to join us in promoting it for widespread use

# Revisiting “Sustainability”

# Revisiting “Sustainability”

- We started out by defining sustainability and by noting the eco-centric nature of most definitions
- But now that we have addressed the specific meaning of anthro capital (i.e., in the expanded 4-part definition we gave to it), is it possible for us to extend the 3-part definition of sustainability we proposed earlier? – i.e., that a human social system 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.
- This clearly needs to be re-cast in order to take social impacts more fully into account
- What we need, then, is a second definition of sustainability that takes non-financial impacts into account

# Revisiting “Sustainability” (cont.)

- So here’s what we propose....A human system is socially sustainable if and only if:
  - Its net impact on available anthro capital (i.e., social, human, and constructed capital) in the world meets or exceeds its proportionate share of contributions required to close related gaps between *capital or resources available* and *capital or resources needed* in order to meet basic human needs
- We need this second definition because:
  - Unlike natural capital, we are dealing with types of capital that humans can create
  - The ecological definition stresses impacts that either meet or fall below *supply*; the social definition entails impacts that either meet or rise above *demand*
- Note that despite the differences between the two definitions we advocate, both comply with the goal state envisioned in the Brundtland definition of sustainability
  - Brundtland defined the end without discussing the means
  - We, in turn, are attempting to fill that gap!

Comments Most Welcome!

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