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**Integrating Frameworks for Sustainability**

May 1, 2000

**SoL Sustainability Consortium**

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Few areas for deep and pervasive organizational learning and change are more timely than how business corporations learn to act in ways that become more harmonious with the natural environment. The first challenge enterprises committed to the environment must face is understanding what sustainability means and what a business strategy for sustainability looks like. In response to this need, many "environmental sustainability frameworks" have been developed in recent years.<sup>1</sup> This array of sustainability frameworks can be bewildering for firms seeking to develop shared images of where they want to go and basic strategic concepts to guide decisions. There is a real danger that, rather than serving as guides for change, the multiplicity of sustainability frameworks will foster needless competition and ultimately paralysis.

In response to this need, a working group of the SoL Sustainability Consortium was formed to better show how the different sustainability frameworks relate to one another. It is not our aim to evaluate different frameworks -- indeed all that we have considered have merits and their own respective managerial advocates. Rather, we seek simply to help managers make sense of the array of sustainability frameworks so that they can make more informed choices in choosing tools to support learning and change in their organizations.

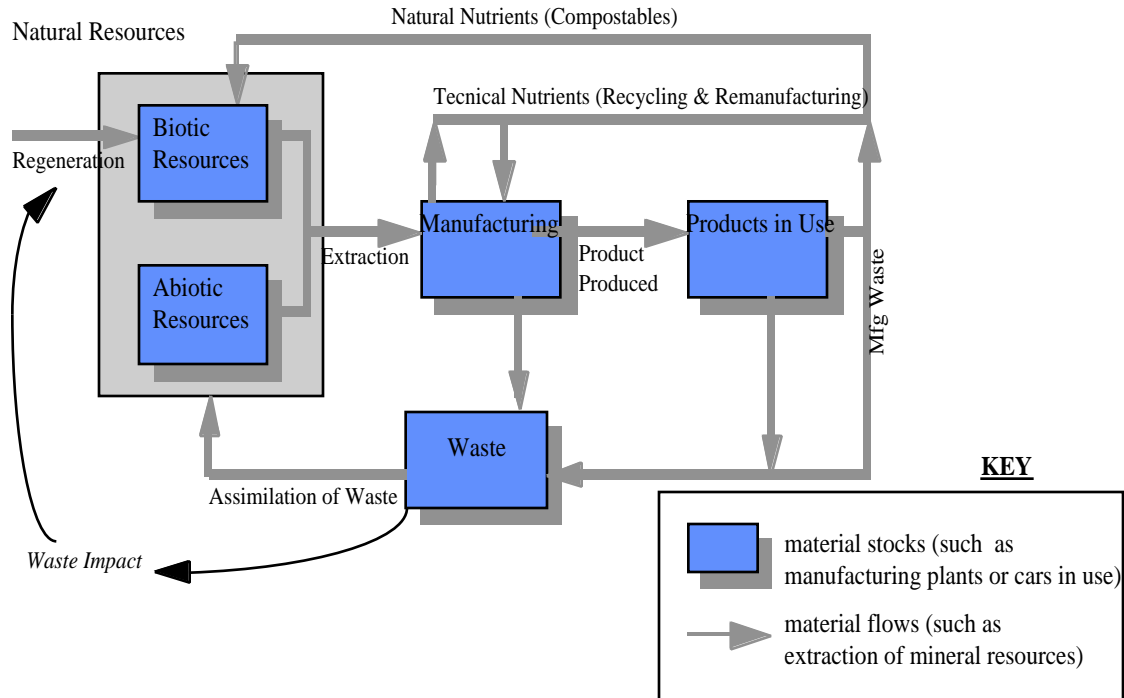
**Defining sustainability: three worldviews**

One reason that sustainability poses such an intrinsically difficult challenge is that it requires developing business strategies that embrace three distinct worldviews: rationalism, naturalism, and humanism (Ehrenfeld).<sup>2</sup> Rationalism speaks to the need for efficient utilization of resources. Humanism speaks to the need for meaning and purposefulness. Naturalism speaks to the need to recognize that human activities unfold within larger natural systems. Rationalism has long been the dominant espoused view in business, evident today in the universal emphasis on labor productivity and financial return. But, we believe that in a world of increasing environmental and social constraints, exclusive focus on rational optimization of the enterprise will ultimately limit long term viability and wealth generation. At its heart, the strategic challenge of sustainability lies in embracing the many tensions that exist between these three worldviews and finding synergies among them.

Examples of rationalistic concepts of sustainability include:

- WCED (Brundtland) definition of sustainable development:  
a form of development or progress that "meet the needs of the present without compromising the ability of future generations to meet their own needs"
- WBCSD concept of eco-efficiency  
= (Product or Service Value)/Environmental Influence
- Resource Productivity (Porter & van der Linde)  
= (Product or Service Produced)/Natural Resource input  
(for example, factor of 4 to factor 20 reductions in resource use (e.g., von Weiszacker)

One way to develop a naturalistic concept of sustainability is to consider basic stocks and flows of materials and waste by-products in the industrial system embedded within the larger natural system:



All manufacture of goods depends on material resource inputs, either resources extracted from biotic (living) or abiotic sources, or “technical nutrients” (McDonough) from recycling or re-manufacturing. Manufacturing processes produce by-products in addition to intended product output, which can be either waste (such as industrial effluents) or recycled into further production. Products produced become products in use. While in use they can also generate waste by-products (such as auto emissions). Eventually, when their useful lifetime is over, they can become a third source of waste through disposal, be recycled as technical nutrients, or be “composted” as natural nutrients (such as products that are biodegradable). Lastly, all sources of waste accumulate until they biologically degrade and are assimilated back into natural resources. Until then, their presence can affect the regeneration of biotic resources (such as the pollution of fisheries or acid rain affecting forests).

In the terms of this diagram, sustainability means (1) that the stocks of natural resources, both biotic and abiotic, must not be depleted beyond their regeneration rate, and (2) that all sources of waste generation, from production, use and discard, must be driven toward zero.

The naturalistic perspective illuminates limitations in rationalistic concepts like resource productivity or eco-efficiency. For example, if the ratio of product produced to natural resource input improves, resource extraction is reduced initially. But waste generation may continue to rise, especially waste from use and from discard. Moreover, total extraction may even increase over time, if production rises more rapidly than resource productivity. In short, resource productivity can improve and overall environmental degradation worsen.

Humanistic concepts of sustainability rest on notions of stewardship and responsibility, the basic desire of human beings to act in ways that support and preserve life, for themselves, other species, and future generations. Moreover, sustainable ways of living must nourish other intrinsic motivations, like justice, personal growth and fun.

There are a wealth of humanistic articulations of environmental stewardship, especially among native peoples. One widely known humanistic articulation of justice is the UN Universal Declaration of Human Rights. Another comes from the famous letter attributed to Chief Seattle (Campbell):

“One thing we know. The earth does not belong to man, man belongs to the earth.... Man does not weave the web of life. He is but one strand in it. Whatever he does to the web, he does to himself.”

## **Operationalizing sustainability: integrating sustainability frameworks**

All sustainability frameworks rest on one or more of the three worldviews and their respective definitions of sustainability. Not surprisingly, rationalism is the most evident worldview, but most sustainability frameworks represent syntheses of rationalism and naturalism. Humanism, by contrast, is evident explicitly in only some frameworks.

In order to see how sustainability frameworks relate to one another and to the core challenge of operationalizing sustainability, we have found it useful to distinguish strategic guidelines, organizational practices (including operating policies and metrics), and outcomes.<sup>3</sup> Virtually all sustainability frameworks relate to one of these three levels.

Strategies represent business frameworks to guide decisions. Developing strategies compatible with sustainability represents a radical departure for most Industrial Age enterprises. To do so, they require help. One source is sustainability frameworks that provide general strategic guidelines. One example is the four core strategies of “Natural Capitalism” (Hawken, et. al. 1999):

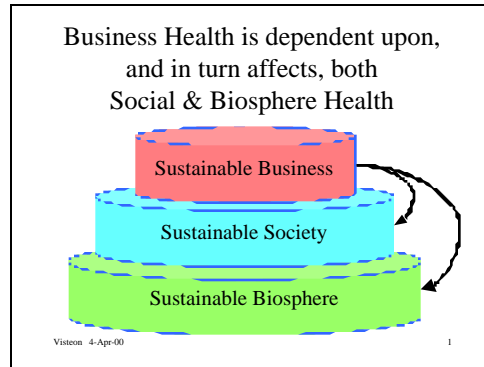
- radical resource productivity,
- biomimicry (e.g., closed loop production processes),
- new business models (c.f., “product as service”),
- restorative investments in natural capital.

The strength of Natural Capitalism framework is that it goes beyond resource productivity to require other strategies, like product as service business models, which together address all aspects of the naturalistic definition of sustainability (Senge, Seville, Lovins, Lotspeich 1999). The limit is that it neglects humanistic considerations (Ehrenfeld 2000). Other tools for developing strategy include The Natural Step’s “funnel,” which enables thinking through the timing of sustainability investments (Robert 199?) and von Weiszacker’s (19??) “Factor X,” which encourages thinking boldly about improving resource productivity.

Organizational practices are where the “rubber meets the road” for any organization. Obviously what matters is action, yet actions that are episodic or temporary mean little. Sustained change in how an organization acts occurs only when there is a shift in the underlying operating policies, the (often tacit) priorities, pressures, and habits of thought and action that shape decision making (Forrester 1961, Simon 196?, March 196?). Operating policies are inseparable from culture and evolve only gradually over time (Schein 199?). An important component of operating policies are metrics. Because metrics are more explicit than other aspects of operating policies, they represent a natural point of focus for change efforts. Most of the sustainability frameworks focus on metrics -- for example, ISO14001, CERES, ZERI, WBCSD, Ecological Footprinting, and Life Cycle Analysis.

Ultimately, every organization must develop its own practices. It is impossible to transplant practices from one organization to another. Indeed much of the knowledge base of any organization is expressed through its practices. New practices can only be grown, enacted through how people think, interact, and go about daily life. Such innovation in how organizations function takes imagination, courage, persistence, patience, and often fair amount of passion. For example, this is why new environmental metrics are, by themselves, limited. Metrics must become integrated into daily activities in order to have impact. But establishing new measurement and assessment practices is often difficult because it requires new behaviors. So, often the rationalistic tool of new metrics requires a humanistic approach to achieve implementation. This is why we conceive of the sustainability challenge as fundamentally a learning challenge, a process that requires both “outer change” like new metrics and “inner changes” in taken-for granted assumptions and ways of operating.

Lastly, all change is ultimately aimed at new outcomes. Many companies are starting to advocate the “triple bottom line”-- attending to economic, social, and environmental impacts -- which is one way to begin to embrace the three worldviews. But it is just a start. It is easy for the triple bottom line to be seen as purely a rationalistic concept, in which case, like the problems with metrics noted above, it is unlikely to achieve broad implementation. Moreover, considering all three perspectives suggests that the three “bottom lines” are not equal. Rather, there is a natural hierarchy, as conveyed by the figure below (Morris 2000):



This also suggests that business outcomes for a sustainable enterprise must rest on intended environmental and social outcomes. In other words, unlike other corporate aims, certain outcomes are specified by how nature works: these are outcomes that are required for the health of larger natural systems. For example, the first three of the four “System Conditions” articulated by “The Natural Step” (Robert 199?) represent outcomes required for maintaining natural balances in the earth’s overall ecosystem:

- substances from the Earth's crust must not systematically increase in nature,
- (harmful) substances produced by society must not systematically increase in nature,
- the physical basis for productivity and diversity of nature must not be systematically deteriorated,
- we must be efficient enough to meet basic human needs (for all).

Obviously, the fourth of the system conditions is social. A challenge for future work is to articulate further guiding principles for socially sustainable outcomes, an area under-represented, in our view, within existing sustainability frameworks.

The following figure summarizes how the different sustainability frameworks interrelate:

**Figure to be added (based on following)**



Because the challenge of sustainability requires embracing all three worldviews -- rationalism, naturalism, and humanism – we believe a diversity of frameworks is healthy. As our work through the SoL Sustainability Consortium progresses, we expect to continually utilize and test existing frameworks and, hopefully, contribute to their improvement.

<sup>1</sup>Examples include ISO14001, CERES, World Business Council for Sustainable Development (WBCSD), The Natural Step (TNS), Natural Capitalism, Gunter Pauli's Zero Emissions Research Initiative (ZERI), Factor X, Wakenagel's Ecological Footprinting, Life Cycle Analysis, and various approaches to TQEM (total quality environmental management).

<sup>2</sup> An earlier and similar frame, focused on balance among the "economic, ecological, and anthropological" was developed as part of the Thalberg seminars in Sweden in the mid-1980's.

<sup>3</sup> This way of integrating frameworks was suggested originally by Ray Anderson and relates closely to one proposed by Karl-Henrik Robert, founder of The Natural Step: who suggested four levels: principles for sustainability (outcomes), principles for sustainable development (strategic guidelines), actions, and metrics (combined in organizational practices). Henrik-Robert also identifies basic science that suggests how the

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biosphere and society are "constituted" as a fifth level. We omit basic science here because it is important to all human activities, not just sustainability.