Towards a New Vision of Social Sustainability

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Traditionally, sustainability is figuratively constructed as the area encompassing the intersection of economic, environmental, and social matters in a triangular or circular method. In previous articles we have offered some perspective on what sustainability means and discussed the environmental and economic aspects of traditional sustainability. In this article, we'll address both social sustainability in the traditional light and a paradigm shift in (social) sustainability.

Figure 1. The Universal Reality of Sustainability

In the most objective terms, social sustainability can be assessed using a series of indicators that might reflect any variety of social well-being factors: e.g. community members' access to education; an individual's access to meaningful work; community access to green space for aesthetics and recreation; opportunities to experience nature; the community's sense of public safety; the degree of cohesion and shared goals that exists within a community; the opportunities to be healthy (neighborhood walkability; high air quality; access to health care); an individual's access to nature at work (windows; natural daylighting; window views). There is a Web site called "Sustainable Measures" (http://www.sustainablemeasures.com/) that gives many other examples of social sustainability indicators.

A more sophisticated view of social sustainability might be one that tries to assess the amount of "social capital" possessed by a community. Social capital refers to the ability of a community or region to respond to change, especially negative change. If an economic downturn occurs, does the community have enough cohesion to pull together to find solutions? If a new industry wants to move to a community and it needs a technically trained workforce, are there individuals in the community who have such training or can community institutions provide such training? If a new wastewater treatment plant was to be located in a region, would the siting decisions include neighborhood stakeholders? Could those with differing views discuss those differences with civility and integrity, or does the decision-making process devolve into a battle between contentious and intractable factions?

From the engineering perspective, social sustainability considerations might arise if a highway project threatens to divide a community into two sectors; if neighborhoods are left out of decision making processes that will affect them; if transit or bike lanes are provided only to the wealthiest town sectors; if a utility is ran such that employees have little say in policy or new initiatives. On the more positive side, social sustainability is enhanced if the grounds of a new municipal building can also provide attractive green space or public art; if stormwater management results in a beautiful seep wall that adds aesthetics or shade to a site; if a new school is designed to accommodate neighborhood meetings and recreation in the evenings; if a new wastewater treatment plant is a source of community pride because it includes an educational walking trail, state of the art renewable energy features, and raised bed gardens irrigated by reclaimed water, with the food donated to local food banks.

Although social sustainability is not well understood, it is important for engineers to pay attention to whether or not their work enhances the neighborhood or community in which it exists. We also have much to learn from anthropologists, philosophers, psychologists, and sociologists about differences in what constitutes social sustainability in different cultures; how to accommodate or anticipate temporal changes in what defines social sustainability; and how to track whether communities, regions or nations are moving toward more socially sustainable conditions.

The traditional view of social sustainability, as just discussed, is very narrow as it only applies to human-designed environments, but we must apply a broader framework to recognize that the human-created environment is only one system in the larger network of the Earth. The Earth represents only one element of the larger Universe composed of the solar system and galaxies. (See Figure 1. The

Universal Reality of Sustainability for a pictorial representation of this paradigm.) Our whole Universe is composed of energy fields thus connecting all systems and networks within it. [1] This idea is not only an extension of the "butterfly effect" of chaos theory, but also encapsulates new ideas emerging in physics. It is this foundation that we must begin with to develop a new conception of sustainability.

Essentially, sustainability is a way of viewing the Universe ecologically (integrated, networked systems, complex relationships, and wholeness) and not linearly (separate, distinct parts). [2] The true essence of sustainability is doing good. Sustainability, in order to be effective, must recognize that all beings are constantly changing and evolving & thus this framework must take into account those considerations. This goes far beyond the isolating tension created in the simplistic model of sustainability as the intersection of the economy, the environment, and society. Social sustainability transcends this potentially destructive tension.

Social sustainability is the sustainability concept focusing on the social dimension of reality. The social aspect refers to the social interactions, both private and public, between humans and other human beings in addition to those of human and all other species of life. Furthermore, this focus must also examine how our actions impact social systems at all levels. As thinking creatures, we must exhibit, *noblesse oblige* to overcome the tragedy of the commons. We must ask some key questions:

Do organisms modify their behavior in response to external, negative or positive, stimuli? How are we responding– as individuals and as a larger species? If so, then how do these behavior changes further impact the greater social order of that society? How does a species' social order stimuli response affect other social systems in the networked reality? How are our decisions affecting other species– as part of the whole upon which we ultimately rely? Lastly, how can we consider these and other important questions in our sustainability deliberations?

These are big questions and the solutions will not be generated piecemeal. To further explore the issues of sustainability, ASCE is now offering a new seminar on the "Fundamentals of Sustainable Engineering." If you would like to provide feedback to this article, get more information about social sustainability, or join the EWRI Sustainability Committee, contact Helene Hilger, hhilger@uncc.edu. ▶

Works Cited

[1] "We may therefore regard matter as being constituted by the regions of space in which the field is extremely intense… There is no place in this new kind of physics both for the field and matter, for the field is the only reality."
-Albert Einstein

Quoted in M. Capek. The Philosophical Impact of Contemporary Physics. Princeton, NJ: D. Van Nostrand, 1961, p. 319. The quote was featured in Fritjof Capra. The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism. Fourth Edition, Updated (25th Anniversary Edition). Boston: Shambhala, 2000, p. 211.

[2] Embry, Irucka. Sustainability: A Paradigm Shift in Engineering. March 10, 2005.

Resources

http://www.mcdonough.com/principles.pdf
The Hannover Principles: Design for Sustainability: William McDonough & Partners

http://www.sehn.org/precaution.html
The Science and Environmental Health Network: Precautionary Principle

http://en.wikipedia.org/wiki/Precautionary_principle
Precautionary principle
From Wikipedia, the free encyclopedia

http://www.pprinciple.net/
The Precautionary Principle Project: Sustainable Development, Natural Resource Management and Biodiversity Conservation

http://www.rachel.org/lib/pp_def.htm
January 21, 2008
"The Precautionary Principle In The Real World"
By Peter Montague

Leadership and the New Science: Discovering Order in a Chaotic World
Margaret J. Wheatley

The Rainbow and the Worm: The Physics of Organisms
Mae-Wan Ho

Wholeness and the Implicate Order
David Bohm

Morphic Resonance: The Nature of Formative Causation [Park Street Press]
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Michael Braungart and William McDonough

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