

Earth Matters

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MEASURING SUSTAINABILITY: A DANGEROUS OXYMORON

Increasingly, writings on ecological sustainability focus on the subject of measurement. Environmental writers frequently cite the old adage "what you measure is what you get," sometimes expressed as "what you don't measure won't happen." For nearly forty years, as an accountant and an economist, I have watched with growing dismay as people in the business world and the political world succumb to "management by results," that is, to the idea that our daily lives must be directed and controlled by external demands to meet quantitative — usually financial — targets, or goals. My concern with this practice was shaped in part by the thinking of the great quality guru W. Edwards Deming, who said that over 97% of what matters in an organization cannot be measured. Less than 3% of what matters can be measured. But, as Deming pointed out, most managers in today's organizations spend over 97% of their time fussing over measurements and less than 3% of their time is occupied with what really matters. I am concerned that this "measurement virus" should not invade discussions of ecological sustainability.

Measurement is problematic because it involves thought and practices that negate life. Life is a self-sustaining and self-identifying process that embodies deep patterns underlying the infinite web of relationships from which everything in the universe arises. The qualities we associate with life

and the properties we see as unique in a living being are not the sum of a living organism's parts. Rather, those qualities and properties emerge from the patterns of relationships which connect the organism's parts and which connect the organism to the rest of the universe. So, to understand life one must see those multidimensional relationships and patterns. The problem with measurement is that it portrays only one dimension of reality — quantity. In focusing our attention on quantity, measurement sets aside and ignores — ultimately destroys — all other dimensions in the web of relationships that sustains life.

Some would say that this is no criticism of measurement if measurement is confined to the realm of nonliving, mechanical matter where everything consists of independent objects subject only to the influence of external forces. I would agree. In that realm, identified often as the "Newtonian" realm, it is appropriate to understand reality and to explain events with nothing more than quantity. No substance in that realm is influenced by an immanent multidimensional pattern that shapes an infinite web of interconnecting relationships. In such a world, all results — all consequences — are explained by external force, measured in the single dimension of quantity. Outcomes are either bigger or smaller, faster or slower, hotter or colder, brighter or duller, more or less. Moreover, there is no inherent limit to size in such a mechanical, nonliving world.

Is there such a world in this universe? Modern scientific theories of evolution, fashioned in the

last thirty years or so, suggest there is not. The modern "universe story," which resembles strikingly the descriptions of reality found in almost every ancient religious and mythical tradition, suggests that since the moment of the Big Bang life has been the rule, not the exception in our universe. In that context, the evolution of carbon-based organic life on our Earth is just a very special case of a universal pattern.

Measurement negates this context by replacing interconnectedness and pattern with independence and quantity. As biologist Lynn Margulis reminds us, "Independence is a political, not a scientific term." Indeed, modern science suggests that independence is not part of nature's pattern in our universe. However, measurement became a dominant force in human affairs in the past 200 years because people implicitly assume that the domains they measure contain only independent, nonliving objects. At first, in the nineteenth and early-twentieth centuries, it was easy to make this assumption about stars and planets and Earth's resources, as physicists and engineers set out with measurements to transform the physical world. It was also easy to apply this assumption to national economic systems during the 1930s as economists and government policy makers took to managing our social and economic world with quantitative targets such as GNP, employment, and interest rates. Not surprisingly, management experts after World War II also assumed that business organizations were nonliving entities, and they began with a vengeance to "manage by results." Finally,

the same assumption is applied to individual human beings, although with more difficulty, by measurement-driven practitioners of modern medicine.

In each case I have just mentioned — engineering, economics, business, and medicine — reality appears through the lens of quantitative measurement to be a whole made up of independent parts that respond only to external forces. Any patterns of interdependence and mutual causation are ignored as quantity becomes the sole focus of attention. But this focus on quantity, by ignoring the formative patterns that scientists now say interconnect all matter, divorces us increasingly from the web of life. The unfortunate results show up in the form of Earth's rapidly depleting resources, an increasingly fragmented society of isolated humans, dysfunctional business environments, and increasingly stressed human beings.

There is a moral in all this for those who would now have us measure and quantify our pathway to ecological sustainability. First, stop before rushing to quantify, control, and manipulate with another one-dimensional measure of reality. Actions aimed at achieving measurement goals inevitably squeeze the life out of any system. Secondly, look for the multidimensional patterns that shape the infinite web of relationships supporting life. Focus on nurturing those patterns in all facets of our lives and the result — sustainability — will care of itself.

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