

Sustainability Essentials: Take 3

THE LOFTY HEIGHTS — AND EXISTENTIAL NECESSITIES — OF THE ECONOMIC FEASIBILITY OF SUSTAINABILITY

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To the next generation, Economists may say, should be bequeathed at least as much natural capital in the world as we today enjoy. Yet today's generation of poverty-stricken villagers — who will never read this *Take* or the *Sustainability Concepts Paper* — will (and should?) pay only for the cheapest of life-preserving, household sanitation systems, whether they burn up their local natural capital now, instead of husbanding it for the next generation. Seeking Sustainability is not a necessity, not a want, but a luxury. Still, just who are the "we" here to make it a valued necessity?

When it comes to exploring the future, in particular, that of the inter-generational long view — since it is quintessentially defining of and for sustainability — there is *always* the "business-as-usual" scenario. It generally serves as the base case (and very "base" and repugnant it may be, in the view of some). Thus do we introduce from the start a kind of "business speak" into the affairs of climate change and the Environment.

Natural Capitalism: The Next Industrial Revolution claims the title of Paul Hawken's 1999 book, which he wrote with Amory and Hunter Lovins. At the beginning of the first industrial revolution, they relate, human capital was the scarce variety of capital and therefore the limiting factor in the economy. "Natural capital", conceived of as resources, as opposed to the more modern interpretation of resources *and* "ecosystem

services", was abundant — indeed, so much so, it was not even granted the significance of being considered a form of capital. At the close of the first industrial revolution, human capital has become abundant, while natural capital is threatened with being driven towards dangerous scarcity: towards an "old scarcity" of resources with which to fuel the economy; and now a "new scarcity", of natural environments with which to absorb the polluting detritus shed by that economy.

Consider then the oysters of Chesapeake Bay, on the east coast of the USA. And consider them as "ecosystem service providers" in our language of business. Valuing entities in Nature as ecosystem service providers, such as these oysters, might proceed as follows.

In the view of *Classical Economics*, its valuation — let us label it V_C — is the sum of the monetary values of all dock-side sales of oysters harvested and of the transactions of oyster-related commerce thereafter. For those persuaded of the worth of *Environmental Economics*, their valuation V_E is the foregoing (V_C), *plus* the value to the present human population of knowing the oysters are there in the Bay and knowing too that future generations will likewise appreciate this knowledge. Not entirely so, argue members of the school of *Ecological Economics*, for whom valuation, V_X (theirs), is all of the above, i.e., V_E , *plus* the value of the services of the oysters in filtering, and thereby cleansing, the bay's waters to the benefit of *their* (the oysters') ecosystem and to the members of the human population that appreciate the benefits of a healthy, integral Environment. This is lofty and global thinking indeed.

Doing business-as-usual for environmental engineers is wonderfully grounded, pragmatic, and intensely local. It is focused most tightly within the confines of the “fence-line” of industry. What, they ask (and answer) are the capital costs (Capex) and operating costs (Opex) of building wastewater treatment plants — which may, incidentally, deal with the consequences of our eating oysters, hence keep clean the bay in which they live, ergo live out their parts in an oyster's life, within the whole of the ecosystem that provides the services, which in turn ... thus to climb back up from very local pragmatism (a sewage treatment plant) to serve the heights of grand economic and social programs.

Economist Robert Solow might have enquired: “What are we to write into our last *environmental* wills and testaments?”.

How much of the world — of Nature, its ecosystem services, and the providers thereof — might the Engineer, the Economist, the Environmental Economist, or the Ecological Economist, inscribe into their bequest to the future, because they value it? And when they have done so, for this distant prospect of their own passing, just exactly who is to choose the inter-generational discount rate, by which to value the present worth of their environmental will in the here and now? For but the slightest change in that choice, applied year-in-year-out, over so many years back from the inter-generational future, will cause the net present value of the bequest to “bounce about”, dramatically so and so contestably too. Witness all the fuss and bother over Lord Stern's 2006 *Review on the Economics of Climate Change*.

Chacun à son goût — “each to his own taste”. Choosing the discount rate is a *value* judgment, both in life and in mathematics. You or I, as the technically-trained professional, may choose first — as a matter of judgment and (dare we say it) taste — to shape the discount function in an exponential or hyperbolic form and then to assign this or that (numerical) value to the coefficients appearing in the algebraic expressions of either form.

Who is to divine whether our offspring, at the opening of the will, will protest that you or I had acted from a taste (a valuation) to which they certainly do not subscribe? As they might see it decades from today, quite the wrong natural capital, ecosystem services, and ecosystem service providers had been bequeathed to *their* Environment. In the meantime, any failures of the valued businesses of those “ecosystem services

providers”, through loss of biodiversity, for example, might strike some of us as quite decisively *not* “business as usual”.

