

## Who Cares for Planet Earth?

Apparently, not us at JMD, as you will see further below.

But first, let us look at our home organization. Sometimes we are forced to change our stereotypes.

Recently, I stumbled upon the online ASME Professional Practice Curriculum (PPC) (<http://www.professionalpractice.asme.org>), which includes the Sustainability Series among its 48 modules. Here is some of what I read there: "In 1987, the [United Nations] World Commission on Environment and Development coined the term 'sustainable development,' which it defined as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs.' Since then, there have been many efforts to explain what is meant by sustainable development, in particular closed-loop ecosystems.... To an engineer, a sustainable system is one which is in equilibrium or changing at a tolerably slow rate. In the food chain, for example, plants are fed by sunlight, moisture and nutrients, and then become food themselves for insects and herbivores, which in turn act as food for larger animals. The waste from these animals replenishes the soil, which nourishes plants, and the cycle begins again.... If humans are to achieve sustainable development, we will need to develop processes analogous to these natural closed-loop cycles. Historically, humans have made a significant environmental impact in their interaction with the natural world, causing damage to the environment in two primary ways: by over-consuming resources; and second, by destroying our environment through pollution.... Although society has more recently begun to consider its impact on the environment, environmental protection has usually taken the form of end-of-pipe solutions that often required considerable money and natural resources. As a result, industry has been able to argue successfully that these practices could compromise its profitability.... Sustainable development shifts attention to pre-production design and to the consumption of resources and disposal of used materials."

This is interesting stuff coming from an organization perceived as staid and conservative like our ASME. In a later section on Design for the Environment the PPC says: "Engineers usually design commercial products to make a profit, but a product or service can also be designed to minimize its impact on the environment. Designing for the environment satisfies increasingly stringent environmental requirements, and it meets the expectations of customers and sophisticated stockholders who are concerned about corporate responsibility."

After many years of indoctrination in QFD, thinking about the expectations of customers is old news for engineers. But how do we really do this? Is it not the job of economists and the like? Think again: an old favorite economist of mine, Tibor Scitovsky, in his book *The Joyless Economy* (Oxford 1976) writes: "People's tastes, the way they spend their money and arrange their lives, are matters economists have always regarded as something they should observe, but must not poke their noses into. They seem to feel that analyzing people's tastes and their motivation would be an invasion of privacy and an abrogation of consumer sovereignty,

and that it might expose them to the charge of pretending to know better than the consumer himself what is good for him. Instead, economists assume that the consumer is rational.... whatever he does must be the best thing for him to do..., since otherwise he would not have done it.... I consider that approach unscientific."

Well then, what is an engineer to do? Again, ASME PPC comes to the rescue: "This method of environmental management includes not only conventional techniques such as pollution prevention, waste minimization, and reduction of toxic material use, but also techniques such as design for energy efficiency, design for disassembly, design for recycle, and design for refurbishment."

So, let us see. Searching on the ASME Digital Library for "sustainable design" and "environmentally conscious design," out of 57,340 entries (since 1985 for journals and 2002 for conferences) I found a total of five and ten references, with zero and one in JMD, respectively. I examined all JMD articles in the past two years for any clue on sustainable design and I found just one (on disassembly). I looked for just "sustainable" or "sustainability" and there were a few more entries, the vast majority in conferences with a smattering in Transactions Journals. Looking at the ASME Technology and Society Division, a natural for the subject, I found what I knew: Some nice articles in the Mechanical Engineering Magazine but no scholarly publications. Looking beyond ASME I found two journals on sustainable design, one that started in 2008 and another that lasted just a few years and was discontinued in 2006.

Does anyone care? Of course, we do. But it seems we cannot or will not translate that care into publishable, scholarly design work for JMD or any other archival venue. That has got to change. The JMD Editorial Board firmly believes that the JMD community can and will translate our collective interest in sustainability into archival articles. Several of our Associate Editors have a strong interest in topics such as those mentioned by ASME PPC above and will welcome these submissions. I believe that JMD is uniquely placed to provide the right venue for such scholarly work, and has the unique responsibility to "shift attention to pre-production design."

As my other old favorite economist, E. F. Schumacher, said in his book *Small Is Beautiful* (Harper & Row 1975): "[A modern economist] is used to measuring 'the standard of living' by the amount of annual consumption, assuming all the time that a man who consumes more is 'better off' than a man who consumes less. A Buddhist economist would consider this approach excessively irrational: since consumption is merely a means to human well-being, the aim should be to obtain the maximum of well-being with the minimum of consumption." There is a Pareto point there somewhere that really appeals to my optimization instincts.

I am truly looking forward to your contributions.

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